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Academic Integrity: Broadening Practices, Technologies, and the Role of Students

Proceedings from the European Conference on Academic Integrity and Plagiarism 2021

Springer

Ethics and Integrity in Educational Contexts

Volume 4

The aim of this series is to provide an authoritative series of books on topics relating to ethics and integrity in educational contexts. Its scope includes ethics and integrity, defined in broad and inclusive terms, in educational contexts. It focuses on higher education, but also welcomes contributions that address ethics and integrity in primary and secondary education, non-formal educational contexts, professional education, etc. We welcome books that address traditional academic integrity topics such as plagiarism, exam cheating, and collusion.

In addition, we are particularly interested in topics that extend beyond questions of student conduct, such as

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- Research ethics and integrity;
- Admissions fraud;
- Fake and fraudulent credentials;
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- Biomedical ethics in educational contexts;
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Preface

The edited book is an output from the 7th European Conference for Academic Integrity and Plagiarism organised online by Uppsala University, Sweden, and Mendel University in Brno, Czechia, on behalf of the European Network for Academic Integrity (ENAI). The papers presented in this book reflect the broad field of academic integrity and the interrelated fields and contribute to the dialogue on this topic by presenting to the readers a range of local and global approaches.

The general aim of the conference as well as this volume was to broaden the horizons of academic integrity, and chapters in this volume reflect this intent in several ways. The book is divided into five sections, and each editor has responsibility for one section. A brief overview will precede each of the sections to summarise the chapters.

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- Part I: Broadening Theories and Practices of Academic Integrity, section editor Sonja Bjelobaba
- Part II: Academic Integrity in Online Education, section editor Tomáš Foltýnek
- Part III: Academic Integrity and Technology, section editor Dita Henek Dlabolová
- Part IV: Student Involvement in Building a Culture of Academic Integrity: Research About Students, section editor Irene Glendinning
- Part V: Student Involvement in Building a Culture of Academic Integrity: Supporting Students as Researchers, section editor Veronika Králíková
- Part VI: Celebrating Breadth in Research and Action to Support Academic Integrity

    - Introduction by Teddi Fishman
    - Concluding remarks by the editor-in-chief, Sonja Bjelobaba

The chapters under different section headings are not mutually exclusive, there is considerable overlap between the topics covered overall; therefore, the section introductions will serve to integrate the overall content by linking and building on the topics included in other sections. Overall, the book contains a diverse range of topics relating to academic integrity, which reflects the title of the book, broadening the horizons.

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Part I
Broadening Theories and Practices of Academic Integrity

Introduction

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For a long time, talking about academic integrity was equal to providing a long list of behaviour that students and researchers were not supposed to do, with a focus mainly on different ways to correct and discover such negative behaviour. Hopefully, days are long gone when the focus in the field of academic integrity solely was on different types of misconduct. Instead, through broadening theories and practices within the field, the focus has shifted toward a positive approach where academic integrity is discussed as an integral part of the quality of education and research and as one of the key competences to achieve sustainable development. Quality in education and research is also the red thread that connects the four chapters in this section written by researchers from many different parts of Europe and beyond.

One of the United Nation's sustainability goals, Goal 4, is quality education. The first chapter "Making academic integrity accessible the outreach way" by Zeenath Khan and colleagues, points to the connection of this goal to academic integrity, which is seen as a key competence to achieve sustainable development, and discusses different ways to address that goal through outreach efforts towards a range of non-educational organisations. The chapter focuses not only to vertical outreach, done on the regional, national and/or institutional level, but on horizontal outreach that connects stakeholders across regions and disciplines. The authors exemplify the horizontal approach through a range of the activities and good practice examples organized by the ENAI Outreach Working Group.

Another way of ensuring quality in research is to enable well-developed ethical guidelines and ethical approval procedures. In the second chapter in this section, Shiva D. Sivasubramaniam and colleagues provide a typology of factors that influence establishing and following ethical guidelines discussing both enablers and barriers of ethical guidance and review for academic research.

In a globalized world, maintaining quality of education and academic integrity is not a national question, but an international one. In the third chapter, "Comparison of institutional strategies for academic integrity in Europe and Eurasia", Irene Glendinning and Stella-Maris Orim present results from three research projects based on the same data collection instruments done across 38 countries in Europe and Eurasia on national and institutional views and approaches to academic integrity. The results points to the fact that there are differences in perceptions both on the national level and between teachers' and students' responses.

The final chapter in this section provides recommendations to secure quality of academic integrity research particularly as it often deals with sensitive topics such as plagiarism, academic misconduct and corruption. In this chapter, "Researching Academic Integrity: Designing Research to Help Participants Give Genuine Responses Using Quantitative and Qualitative Methods", Inga Gaižauskaitė and her colleagues from the ENAI Survey Working Group provide recommendations on how to improve student responses in research on sensitive topics.

Chapter 1
Academic Integrity Outreach Efforts – Making Education Accessible and Inclusive

Zeenath Reza Khan ⓘ**, Michael Draper, Sonja Bjelobaba** ⓘ**, Salim Razi, and Shiva D. Sivasubramaniam**

Abstract Outreach is typically a word used for the corporate sector when looking at their social responsibility. However, when it comes to the academic sector, outreach becomes a compulsory part of everyone's responsibility in order to successfully achieve United Nation's sustainable Goal 4 – quality education. Quality of education comes from ensuring all the stakeholders understand integrity values and make every effort to uphold such values in all aspects of academia and research.

In this chapter, the vertical and the horizontal approaches to academic integrity outreach are discussed. While vertical approaches focus on the national level and/or the same level of education, the horizontal approaches move across such borders engaging different educational levels or nations thus better preparing students for a global market. The chapter provides examples of several good practices of the horizontal efforts done by the European Network for Academic Integrity Outreach Working Group such as workshops, training, and summer school. These activities have provided stakeholders within the global education community to access knowledge and build on skills in academic integrity and writing, to develop an in-depth

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understanding of the issues surrounding education corruption and ethical dilemmas, thus making education accessible and inclusive with academic integrity as a key competence for sustainable development.

Keywords Outreach · UN Sustainable Goals · Accessible education · Inclusive education · Academic Integrity · Quality of education · horizontal and vertical outreach strategies

Introduction

Academic integrity is a necessary part of quality education. As defined by the European Network for Academic Integrity, it is the "compliance with ethical and professional principles, standards, practices and consistent system of values, that serves as guidance for making decisions and taking actions in education, research and scholarship" (ENAI, 2018, para. 1). In schools, colleges, and universities, values of integrity such as fairness, courage, honesty, and others as laid out by International Centre for Academic Integrity's Fundamental Values (ICAI, 2018) are expected in teaching, learning, and assessing practices.

Furthermore, academic integrity can be considered as a key competence for sustainable development that is essential in order to achieve any of the UN Agenda 2030 sustainability goals. Whether it is about "no poverty", or "zero hunger", "good health and wellbeing", "decent work and economic growth", or "industry, innovation and infrastructure", fundamental academic integrity values are vital.

Generally, a lot of effort on raising awareness and providing support remains within the scope of an institution or a country. Furthermore, accessibility to understanding of values, support material, training, and such can often hamper the inclusivity of all in being exposed to the right values. Thus, creating a barrier to what many may consider as quality education that can lead to repercussions for the society. This is a concern at a global scale for higher education institutions, particularly when considering student mobility (Kigotho, 2021; Shkoler et al., 2020).

Outreach efforts are not uncommon in most corporate sectors; corporate social responsibility and marketing have been highlighted over and over showing the benefits to the organisations and to the greater communities. Forbes posits how outreach efforts are great for companies in increasing visibility and building relationships with communities (Forbes, 2017). Rick et al. (2012) highlighted how outreach efforts and community engagement can help address issues beyond the organisation and help benefit the society. However, outreach efforts remain mostly focused on the level of an institution, a country or a region when it comes to efforts on raising awareness of academic integrity.

This chapter recognises this gap, distinguishes between different approaches to outreach efforts and provides good practice examples as a guide for higher education academics, researchers, and organisations.

UN Goals and Quality Education

The United Nations Sustainable Goal 4 (UN SDG 4) called Quality Education aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2021). "Inclusive education allows students of all backgrounds to learn and grow side by side, to the benefit of all" (UNICEF, 2021, para. 1) while "accessible education is the process of designing courses and developing a teaching style to meet the needs of people from a variety of backgrounds, abilities and learning styles" (Council of Ontario Universities, 2012, para. 2). Typically, when "accessibility" or "inclusiveness" are used, literature seems to point to students with disabilities and provides extensive solutions, pedagogical and assessment suggestions to make education more accessible and inclusive for that group of students (Krishnaiah & Hermann; 2021; Thurber & Bandy, 2018). Glasgow Caledonian University extended the definition to include age, gender, marriage, maternity, race, religion, and so on (GCU, 2021).

However, the COVID-19 pandemic has brought a paradigm shift in defining "accessibility" and "inclusiveness". It is estimated that the education and work patterns of over three billion people were affected by the pandemic mainly because they had no internet access (Jonkers, 2020). This posed additional challenges during the first two phases of this pandemic and is still continuing. Whilst some governments (such as UK and UAE) and private internet companies (most mobile internet providers in UK) joined hands to address this by providing free internet access to students (Abbas, 2020; Freeguard et al., 2020), the pandemic did result in a "digital divide" in many countries.

Globalisation and Student Mobility

Another area to take into consideration is student abilities when joining tertiary education, particularly due to student mobility and internationalisation of higher education. Rakhman and Khan (2020) postulated that there needs to be a better way to assess students during admission to tertiary institutions as K-12 schools have a variety of syllabi they follow. Besides the subject based content, this can also mean differing knowledge and skills in academic writing, understanding academic integrity values, the academic culture etc. It is important for academics to recognise that students are not always coming from a schooling system that does introduce these skills and knowledge. On a similar note, UN SDG 4 states quality education for all for a sustainable future. Beyond K-12, if a tertiary institution happens to be unaware, uninformed, otherwise excluded from discussions on academic integrity values, and teaching and expecting academic writing skills, their students may not be receiving quality education, or prepared for a sustainable future compared to their peers from different institutes or geographical locations.

As globalisation has ensured a tremendous amount of student mobility and internationalisation of education, this has given rise to the need to reach out and work with all stakeholders. Academic integrity should be developed through discussion of examples and exercises appropriate to the level that students understand and be reinforced and developed as a student moves through the educational system; at the same time, it should not be limited to one nation or one region only.

Barriers to Accessibility and Inclusivity in Academic Integrity

If academic integrity is a key competence for sustainable development, then it is important that we recognise the barriers that hinder students acquiring such skills, or challenges students have that disadvantage them in the classroom.

Policies and procedural documents are an integral part of an institution's arsenal in establishing organisational culture. Policies "help to dictate acceptable and unacceptable behaviour within an organisation" (Khan et al., 2019, p. 59). However, studies have shown how different institutions' policies are and how difficult that can be for students (Bretag et al., 2011; Brown & Howell, 2001). Khan et al. (2018) presented samples of policies from different institutions that varied significantly in tone, content, and approach and postulated on how that was viewed by and impacted students' understanding of academic integrity in each campus. So, policies, procedures, language used, and coverage of policies seem to be a barrier to making quality education accessible and inclusive.

If students are not being taught the ethical values or have acquired the writing skills prior to their tertiary education, they would lack the basic understanding of the academic culture of maintaining integrity; or some would have the understanding but lack the skills to maintain the academic integrity for instance if they did not know how to reference correctly. Venugopal and Khan (2020) posited how student exposure to concepts of integrity is left to them to develop and understand and an inherent focus on grades pushes students to blur the definitions they develop. Furthermore, Khan et al. (2021) highlighted how tertiary institutions provided introductory, developmental or remedial courses on content subjects like maths but not necessarily on academic integrity values or writing skills. At the same time, all the schools are not necessarily teaching students these crucial skills and knowledge (CMU Eberly Centre, 2021a, b).

Academic Integrity Horizons – Objective of This Chapter

Academic integrity can, and should, broaden its horizons instead of being focused only on institutional, national, or regional level – towards other fields within the academia such as academic writing skills development or higher education

pedagogics, in regard to earlier stages of education such as secondary schools, or focusing on life beyond academia such as business ethics or ethics of the citizen science, to give just a few examples. There are also different collaborative opportunities with other organisations that are working for ethics in higher education and in the society at large. Just as companies in a corporate sector cannot work as an island, only looking at its own balance sheet and wellbeing (Lim & Shim, 2019), academics, researchers, and practitioners working to uphold academic integrity cannot work only within their institutions, their countries, or regions.

Outreach efforts can be conducted either vertically or horizontally. Vertical efforts can either be within the same institution, same nation, same region, whereas horizontal ones are across regions and disciplines, pointing to different directions.

In this chapter we discuss the difference between vertical and horizontal outreach efforts and provide good practice examples of creating communities of practice on academic integrity through horizontal outreach efforts beyond state borders as a guide for stakeholders.

Understanding Horizontal and Vertical Efforts

Characterising actions or activity as having a vertical direct effect (VDE) and/or horizontal direct effect (HDE) can be seen in such fields as commerce or law. In the context of the law, HDE takes place at the same level; so, for example, the legal relationship between individuals. Whereas vertical effect can be characterised by a legal relationship between an individual and the State.

Within the law of the European Union Treaties between member states, they are both vertically and horizontally effective. They can be used in a member state against the State or another individual (Patakyova, 2016).

Similar differences can be found in marketing and commerce, where understanding the difference is crucial to positioning and success of business. Blank defines these as "vertical markets – niche players serving a specific need or customer set; and horizontal markets – goods or services that enable a platitude of businesses" (Blank, 2009, p1). This is further illustrated in Fig. 1.1.

As has been posited by Mastroianni (1999), denying HDE in law can give rise to discrimination, while Smith (2021) suggested focusing only on vertical markets would be too narrow a focus.

Drawing on the discussion surrounding commerce or law, and lending to the discussion on academic integrity efforts in the academic sector, we define VDE as those that are focused on the same institution, level of education, same country or same region; while HDE can be defined as efforts that go beyond the institution and educational level, beyond the country or region. This is further illustrated diagrammatically in Fig. 1.2.
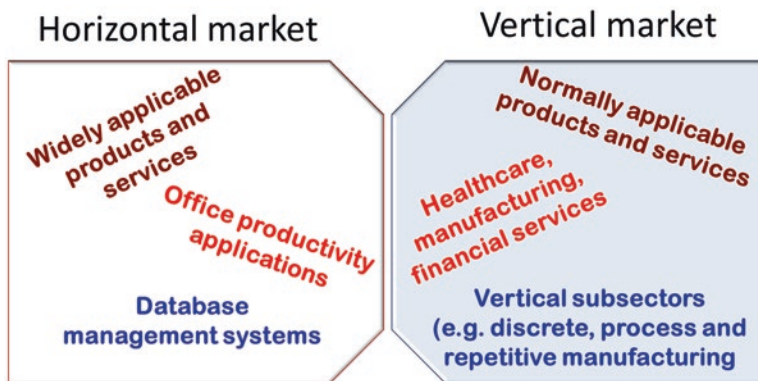
Fig. 1.1 Descriptions and examples of vertical and horizontal markets. (Adapted from Smith 2021)
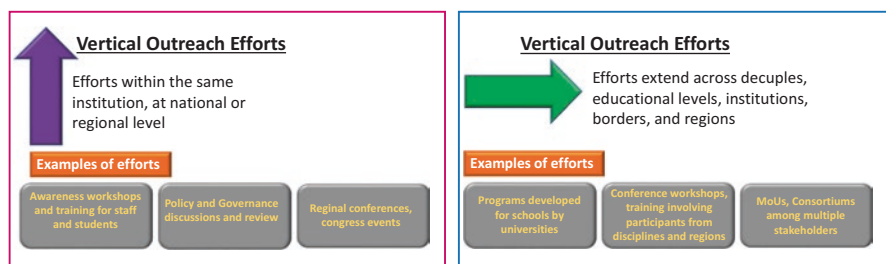
Fig. 1.2 Vertical and horizontal outreach efforts in academia for academic integrity

Examples of Outreach Efforts in Academic Sector Within European Union

ETINED (Council of Europe's Platform on Ethics, Transparency, and Integrity in Education) presents a good case for a combination of vertical efforts, principles, and standards that are foundational framework in which all work streams including outreach take place – specifically that the development of academic integrity is a continuum from primary through secondary towards tertiary education and beyond – as well as horizontal efforts as ETINED consists of 47 countries and efforts are rolled out across geographic locations (Council of Europe, 2021).

ETINED's stated "mission is to share good [practice] in the field of transparency and integrity in education [based] on the [premise that quality education and the tackling of corruption requires that] all relevant sectors of society commit fully to fundamental positive ethical principles for public and professional life rather than

relying only upon [policy driven] regulatory measures" (Council of Europe, 2021, para. 1). This seems to be a 'hearts and minds' and values approach as opposed to one relying on directives focussing on what can and cannot be done.

ETINED asserts that academic integrity plays a central role in maintaining the quality and standards of education at all levels having regard to the fact that corruption takes place in several forms in the education sector. Although there is a variety of views on the various forms of corruption taking place, a detailed list has been produced by the U4 Anti-Corruption Resource Centre entitled 'Corruption in the Education Sector' that includes acts such as "grades through bribes", "private tutoring by teachers", and so on (Council of Europe, 2016a).

Accordingly, ETINED seems to have followed a principles-based approach in producing 14 ethical principles in education and the kind of ethical behaviour expected of stakeholders. Those principles include "integrity", "honesty", and "respect" (Council of Europe, 2016b), values that are fundamental within the academic integrity field (ICAI, 2018). The stakeholders identified include "students", "parents", "employers", and "policy-makers and leaders".

As far as we can ascertain, ETINED has focused on outreach efforts beyond tertiary education to K-12. This is in alignment with studies that posit that teachers and students are not really aware of the risk posed (Todd, 1998; Williamson et al., 2007); for instance, students frequently use search engines and social media to find answers which can pose serious problems around the veracity and legitimacy of the answers found and serves to emphasise the importance of critical thinking. This is like the problem when Wikipedia first arrived – knowledge appeared in an apparently legitimate source but there was no guarantee that the source was accurate and independently verified.

Thus, it then makes sense that governing, and quality assurance bodies reach out and focus on awareness raising and education of students and teachers at secondary and primary level.

These initiatives are good practice examples of outreach efforts. However, we would designate these efforts as mostly vertical outreach efforts geographically as they pertain to one region or one country efforts. As a community of academics, researchers, and students passionate about academic integrity, we want to be able to reach all stakeholders everywhere, globally, meaning horizontal outreach as well.

Horizontal Outreach – ENAI's Outreach Working Group (OWG)

European Network for Academic Integrity (ENAI) is a network of academics and researchers representing member institutions or individual membership. More importantly, it is a horizontal outreach-oriented organisation that recognises the urgency of having such efforts and has set up a working group called Outreach Working Group (OWG) to help spread awareness, raise understanding, and clarify perceptions of all stakeholders globally on academic integrity values and the development of academic writing skills in order to even the playing field for all students.

The group aims to work together with other ENAI members to develop strategies to provide accessibility of resources, training, advice, and expertise to institutions, individuals, and students to help establish a culture of integrity beyond borders. The working group aims to create a support system through outreach activities targeting individuals, institutions, and students.

Good Horizontal Practices – ENAI and ICAI Joining Hands

Understanding the need to act on a global level, as the first call of action, the working group reached out to the International Center for Academic Integrity (ICAI) to pave the way for a collaborative relationship between the two networks and to foster collaborations and collegiality that would underlie horizontal efforts. The two networks' leadership have met to discuss possible areas to focus and how the two networks can work together, not as competing agents, to promote a culture of integrity globally. One such collaboration success story is the work done by this working group and the ICAI leadership in approaching ETICO, a UNESCO-IIEP web-based platform that targets corruption in education and besides publishing editorial blog pieces from the working group members, also resulted in both the networks being recognised on ETICO's Partners and Links page. Another collaborative success revolves around ICAI's International Day of Action Against Contract Cheating (IDoA) discussed below as well as encouraging the participation in each other conferences.

Good Horizontal Practices – European Academic Integrity Week and International Day of Action Against Contract Cheating

International Day of Action Against Contract Cheating was launched in 2016 by ICAI (with the support from the late Professor Tracey Bretag, Australia). The day is celebrated now globally by many campuses and individuals. As an organisation promoting integrity, ENAI expanded the day to the whole week of events and in 2020 in a collaboration with Uppsala University in Sweden launched the European Academic Integrity Week. During the week, webinars addressing different aspects within academic integrity are offered every day but Wednesday, which is the International Day of Action Against Contract Cheating when the institutions are encouraged to come up with their own activities. The global pandemic has opened up the online platform to reach out to students all over the world. As an outreach effort, we were able to provide students, early career researchers, teachers, and other stakeholders a global perspective of academic integrity, ethics and ethical behaviour, linked to their individual discipline. These free webinars were heavily subscribed to and therefore rendered students as well as their teachers and supervisors to broaden their knowledge base. Our experience showed that free accessibility

of webinars would enhance inclusivity and internationalisation as de Wit and Jones (2018) stressed the importance of inclusive internationalisation in higher education to minimise isolation and open up opportunities to stakeholders all over the world.

Good Horizontal Practices: ENAI Summer School

ENAI Summer School 2021 on Academic Integrity was organised collaboratively by Canakkale Onsekiz Mart University, Türkiye; University of Wollongong in Dubai, UAE; and Lithuanian Centre for Social Sciences, Lithuania on behalf of ENAI and specifically targeted PhD students who are writing their PhD in the field of academic integrity in addition to those who were not PhD students. Due to COVID-19, the summer school was available online only. The registration was free of charge and anyone either from an ENAI member or non-member institution was eligible to apply. 34 participants attended, joining from 13 different countries including Australia, Canada, Croatia, Iran, Ireland, Italy, New Zealand, Qatar, Switzerland, Türkiye, United Arab Emirates, United Kingdom, and Vietnam. At the end of the summer school, participants were awarded with certificates. The program included two 3-hour sessions at the five-day summer school programme on various academic integrity topics. 21 academic integrity experts from all over the world lectured and provided feedback to students'research projects.

Based on a survey of the attendees with consent where 19 out of 34 took the survey (56%); all except three respondents graded the summer school sessions 3 out of 3. These included sessions meeting their objectives, lecturers being knowledgeable of subject matter, beneficial information, well organised sessions, and convenient timing of sessions.

Students found: interaction and depth used to explain different topics; meeting with experts in the field opened a window to some of the issues and solutions; possibility to interact with leading scholars in AI and to discuss emerging and complex AI issues; variety of sessions, chats, and use of interactive tools like Mentimeter most useful. The participants found time-zone differences most challenging as well as that some topics such as legal issues tended to be too specific.

The feedback highlights the importance of such outreach efforts in spreading awareness and preparing students and future educators through capacity-building in integrating academic integrity and writing skills in their classrooms.

Good Horizontal Practices – ENAI OWG Workshops

Workshops can be another way of creating communities of practice horizontally. Communities of practice (CoP) are defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger-Trayner & Wenger-Trayner, 2015, p. 1). As CoP portrays

learning as a social formation instead of simply acquiring knowledge (Pyrko et al., 2017), we believe this is a crucial underlying theoretical framework that supports the horizontal outreach efforts in raising awareness, helps in capacity building, leads to mutual engagements, joint enterprises and creation of artefacts (Wenger, 1998; Wenger et al., 2002). In particular, Pyrko et al. (2017) posited how developing CoP could be achieved by thinking together. This concept underpins curating and facilitating workshops that can help develop communities of practice (Cassidy, 2011) vertically and horizontally. In this section, we provide evidence of the success of such workshops delivered by the OWG.

As a part of the horizontal approach, we identify two different types of workshops.

ENAI often offers educational workshops for member and non-member institutions. As an example of such a workshop, the OWG collaborated with The World Education Research Association (WERA) which is an umbrella association bringing national, regional, and international specialty research associations together. We organised three online workshops for PhD students associated with the WERA's Doctoral and Early Career Network. The workshops covered a broad spectrum of areas of interest and concern for students when researching and writing thesis.

Another type of workshop that can be included in a horizontal approach is a workshop that focuses on research and co-creation. For research and appropriation, at European Conference on Academic Integrity and Plagiarism (ECAIP, 2021), the outreach working group hosted a workshop for conference attendees to help address some questions posed for outreach efforts:

(a) How can academics reach out to members of the global community and provide necessary support to overcome barriers and challenges to accessible and inclusive education, with academic integrity as a key competence?
(b) Who do academics collaborate with to bring academic integrity to the conversation at every step when defining quality education?
(c) What does this support look like?

As an international conference, the participants who attended the conference represented a diverse group of attendees representing various disciplines, regions, institutions, educational and cultural backgrounds with a common interest in academic integrity. Approximately 19 participants attended the workshop virtually and engaged with the facilitators from Europe, Asia, Australia, North, and South America. The participants discussed two main areas of stakeholders for outreach: students/faculty and research.

For outreach for students and faculty, the participants identified different types of challenges. One of the challenges that was identified was the need to increase the activities of the academic integrity community to engage more stakeholders. In addition, the participants felt that the COVID-19 pandemic has shown that academic integrity can be compromised in the case of an emergency; for instance, in countries where the lack of infrastructure has posed problems in the mere continuation of education.

The participants proposed steps such as planning of strategic initiatives that specifically target different stakeholders, to encourage them to join and help them see and recognise the concerns.

For outreach for research, the participants identified challenges such as initiatives that focus on the bottom-up approach whereas the top-down support is needed, for instance education councils should have an agenda item talking about academic integrity, not just as a bi-product of some other discussion and provide a push for institutions to promote academic integrity. However, the approach cannot be just top-down either, as it then can cause problems such as no individual to deal with the issues at institutional level professionally, as part of their job and role description.

The participants proposed adopting an interactive approach, combining top-down and bottom-up approaches eg. inviting and making it possible for more students to join such conferences; more funding from institutions, ministries, research organisations; making academic integrity conversation a common discourse.

During the workshop, participants also highlighted other barriers and challenges such as "socio-economic status", "consistency", "multiplied advantages [of certain groups]", "different culture" and so on which were largely reflective of what we noted during our literature review previously discussed in this chapter.

Concluding Remarks: Partnerships and Collaborations as Way Forward

Education is a right for all, not a choice for some. United Nations Sustainable Goal 4 – Quality Education posits this as the goal for the world. The key to ensuring quality of education is academic integrity, and the key to ensure quality education is accessible and inclusive is through systematic efforts in ensuring all stakeholders are aware of, knowledge about and understand the significance of academic integrity as a key competence for sustainable development.

The ENAI Outreach Working Group (OWG), formed in 2019, has made efforts to make quality education accessible and inclusive, the mission and goal of the group. The group has been working to develop an understanding of what outreach efforts look like for academic integrity communities in the education sector. This has led to our discussion and identification of vertical and horizontal efforts and highlighting the importance of not only having vertical efforts which focus on institution, nation, or region, but horizontal efforts that create more accessibility and inclusiveness going beyond borders, levels of education, disciplines, and other mono-national aspects.

The Outreach Working Group initiated a number of efforts that transcended boundaries, time, culture, demographics, and education level to reach out to various people in the extended academic community such as PhD students, early career researchers, and academic staff in general. These efforts included, among others, workshops, training programs, a summer school, that were designed and hosted

particularly for the target audience, yielding satisfactory results that clearly show the success of outreach efforts beyond tertiary education within Europe.

Fostering partnerships has also been highlighted as a good practice benchmark in demonstrating horizontal efforts of outreach. ENAI has been carrying out seminars, workshops, and lectures to enhance academic integrity. These include European Academic Integrity Week, joining hands with the International Centre for Academic Integrity (ICAI) to promote these activities et cetera.

This chapter is an effort to distinguish the importance of outreach efforts, particularly horizontal outreach that can help various stakeholders in this global community to provide the necessary support they may need to overcome the barriers and challenges they are facing, when it comes to accessing quality education. Similarly, the efforts documented here show the importance of targeting PhD students who not only fall in the category of students, or early career researchers, but also represent teachers in training who eventually will be in charge of instilling values of integrity and teaching academic writing skills to their future students. Finally, we believe the good practice examples provided in this chapter highlight the kind of efforts and support that can be provided, what they are, and how they can be developed so that they may be replicated by other entities working anywhere in the world.

While outreach efforts are not difficult, they can be time consuming. However, technology, fast internet, and the pandemic's forced virtual connectivity and webinars have shown that reaching out to communities beyond our classrooms, our campuses, borders, and even regions is not difficult. Our communities are waiting for opportunities to grow and learn, and if we wish to make quality education accessible and inclusive and applicable in a global context, it is our responsibility to provide outreach support to ensure academic integrity values and skills are integrated into all students to give them equal opportunities for a sustainable future.

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Chapter 2
Understanding the Enablers and Barriers of Ethical Guidance and Review for Academic Research

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Abstract Well-established ethical guidelines can provide the fundamental scaffolding to improve and enhance research quality. This would allow any researcher to adopt and abide by the guidance with respect for the underlying principles. Therefore, a well-established institutional guidance is important. However, is this "one size fits all" type approach appropriate for all disciplines? In addition, what are the barriers for establishing either institution-wide or subject-specific ethical guidance? Moreover, how can these barriers be transformed into enablers to develop these policies? This chapter attempts to present findings from posing these questions to the attendees (15 in total) of a workshop during the 7th European Academic Integrity and Plagiarism Conference. Therefore, the chapter has been arranged to provide a background literature survey, followed by identifying barriers and enablers of ethical guidance, then presenting critical feedback from the workshop discussions with attendees, with concluding remarks.

Our background literature survey has identified four common themes that might impose both. The themes include (a) organisational, (b) individual/team based, (c) research type related and (d) collaborative influences. Attendees were presented with the results from these themes. A sub-group discussion was then carried out to gather the attendees' experiences/perspectives on enablers/barriers of ethical guidance and ethical approval procedures in their own institutions. The participants also identified several discipline-specific issues in existing ethical guidance and expectations, which are discussed in this chapter. The workshop has provided an opportunity for the participants to appreciate the importance of ethical guidance and the

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review process. From the discussion, it is apparent institutional ethical guidance, though important, may be influenced by several stakeholders (such as collaborators, funding agencies etc.) and it is imperative to take these influences into account when establishing institutional guidelines.

Keywords Ethics · Ethical guidance · Institutional responsibilities · Research integrity · Enablers and barriers

Introduction

For effective management of research ethics, there should be clear guidance and properly designed procedures with identified responsibilities. Well-established ethical guidelines can provide the fundamental scaffolding to improve and enhance research quality. This would allow any researcher to adopt and abide by the guidance with respect for the underlying principles. Therefore, ethical considerations and guidance on how to conduct investigations should form the basis of research and training in any field.

It is a social responsibility to teach early career scientists to own and abide by the research principles from the beginning of their graduate level training. However, ethical policies/guidance and review processes are different from institution to institution, also from country to country. In some institutions the ethics policies are not implemented for undergraduate students, but only from a postgraduate level. Other researchers have highlighted inconsistencies in institutional guidelines which in turn hindered the predicted research progress (Alba et al., 2020; Dellaportas et al., 2014; Desmond & Dierickx, 2021; Speight, 2016). These inconsistencies may be linked to the requirements, perceptions/expectations of individual institutions and/or local legislations passed by different governments with pre-empting contextual conditions. Whilst areas such as medical research have well established/accepted universal ethical guidelines, other fields, though they may emphasise the importance of ethical practice, have less defined universal guidelines. Yet, we identified freely available guidance from two organisations medical/biomedical disciplines: COPE (Committee of Publication Ethics) and ALLEA (All European Academics); both organisations provide support for maintaining research ethics. The former mainly focuses on publication ethics and therefore indirectly influences ethical behaviour in research, while the latter provides a framework for self-regulation across all scientific/scholarly disciplines and for all research settings.

Medical research usually involves human participants' animal models. Human participants are protected by international treaties, which have been mostly ratified by individual governments. As a result, there are internationally accepted guidelines for the participants in line with these treaty obligations and duties. As for animal welfare, international organisations such as the World Organization for Animal Health (WOAH), British Educational Research Association (BERA) and

International Convention for the Protection of Animals (ICPA) provide guidance on animal welfare in research. This has resulted in the development of well-established guidance for human/animal welfare and institutions are giving precedence to formulate ethical guidance based on medical research (BERA, 2018) However, is this "one size fits all" type approach appropriate for all disciplines? What are the barriers for establishing either institution-wide or subject-specific ethical guidance? How can these barriers be transformed into enablers to develop these policies? This chapter attempts to present findings from posing these questions to attendees of a workshop during the 7th European Academic Integrity and Plagiarism Conference. Therefore, the chapter has been arranged to provide a background literature survey, followed by identifying barriers and enablers of ethical guidance, then presenting critical feedback from the workshop discussions with attendees, with concluding remarks.

Background Literature Survey

As human beings, we have the freedom to determine how to act or react to a situation. During this decision-making process, many of us consider making a judgement about what should happen, or how to react rather than just act and react (Orts et al., 2008). This judgement should select the best or most appropriate way to act according to the situation. The decision-making process is influenced by ethics (or morals). This decision-making process of how to behave, act or react is formalised in research in the form of ethical guidelines. This is broadly incorporated as a part of the institutional policies in the higher education sector and companies. These guidelines are expected to be strictly followed by all employees/researchers and institutional ethical committees are established to govern the research conduct and practice to enforce best practices amongst their employees.

The institutional ethical committees are usually responsible for reviewing proposed studies to ensure that the proposals conform to internationally and locally accepted ethical guidelines, monitor studies once they have begun and, initiate any follow-up actions and oversight beyond the end of the research (WHO, 2009; see Fig. 2.1).

A recent paper by Sivasubramaniam et al. (2021) has highlighted the fact that there is no common approach amongst institutions in establishing ethical committees. It underlined the fact that some institutions focus on centrally owned ethical committees whilst others have discipline specific committees; and some others have a mixed approach.

Answering the following questions is beyond the scope of this study: (a) should policies be discipline-specific (in other words each discipline should have their own policies) or should there be one institutional level ethical policy; (b) do these policies provide unbiased ethical guidance; is beyond the scope of this study. The ethical advisory group of European Network of Academic Integrity (ENAI) is focused on understanding whether these approaches would be barriers or enablers for providing ethical guidance. As explained in the introduction, medicine and medical

Fig. 2.1 Definitions for the responsibilities of institutional ethical committees
Note: The schematic diagram is based on World Health Organization (WHO, 2009)

related (STEM) research has well established universally accepted ethical guidance. Historical unethical behaviours and research misconduct, such as the Tuskegee syphilis study in 1932 and Nazi atrocities in the name of medicine, have forced the medical community to establish ethical guidelines.

Medical researchers are now required to consider informed consent together with ethical reasoning using complex questions of inclusion, representation, and patient voice (CDC News, 2021). On the other hand, the ethical guidance for non-STEM subject areas is only now evolving with less defined guidelines. For example, there is a need for ethical guidelines in disciplines such as social sciences, education and/or art and design where there is no need to deal with the conventional issues that are evident in science and medicine. Interestingly, the social science research itself does not fit into the common ethical principles of medical/STEM related research (Bhattacherjee, 2012; Timans et al., 2019). In fact, in social science research ethics may allow (a) behavioural studies out in public settings to understand the social norms, (b) deception of participants, and (c) using deception in research with vulnerable people (Lewthwaite & Nind, 2016; see Fig. 2.2 for summary).

Further analysis of available literature on the subtle differences between methodologies used in STEM versus social sciences has revealed the complexity of the latter, rendering some flexibility in adopting ethical principles (see Table 2.1). This is mainly due to the fact that in social sciences the main themes revolve around understanding "behaviour", human experiences, their social influences and interactions (Reader & Holmes, 2016). This type of research may require a specialized form of consent process for participation. The complexities of assessing human behavioural changes in response to internal and external stimuli need some flexibility in providing ethical guidance (Stevenson et al., 2015).

Fig. 2.2 Unconventional research practices outside the STEM subject areas
Note: Ideas for this figure were adopted from and influenced by the European Commission (2018)

Table 2.1 Comparative analysis of ethics between STEM and social science research

Medical or health research	Social sciences research
Those most likely to benefit from (or be harmed by) an intervention are humans.	The beneficiaries (or the affected parties) of an intervention may not always be human subjects
Researchers are not always interested in participants' behaviour	Researchers are mainly interested in participants' behaviour
The informed consent process always enhances the research	Research may require a specialized form and process for consent
Research is often carried out in private controlled settings	Research might be carried out in a public setting
Outcomes are mostly valuable to patients or communities	There is disagreement over whether the outcomes are always valuable
There is no ethical predicament of deception in research. The nature of the research must be made clear to the participants and not be misleading	Some ethical predicament of deception may be allowed. It may be permissible to deceive subjects as long as the deception is not anticipated to create physical or emotional harm

Note: This table is based on (a) *Ethics in Social Sciences and Health Research:* Draft Code of Conduct Economic and Political Weekly 35(12), (Mar. 18–24, 2000), 987–991 and (b) Stevenson, et al., *Reconsidering 'ethics' and 'quality' in healthcare research: the case for an iterative ethical paradigm.* BMC Med Ethics 16, 21 (2015)

Barriers and Enablers of Ethical Guidance

As for barriers and enablers, based on our initial literature survey (Desmond & Dierickx, 2021; Huybers et al., 2020), we have identified four common themes that might impose both. We have classified them as (a) organisational, (b) individual/ team based, (c) research type related and (d) collaborative influences. These themes

were identified by qualitative analysis of common titles used in the guidelines together with researchers' perceptions of the codes of conduct and their importance.

Organisational enablers include the institutional desire to recognise/promote ethical behaviour in research by providing the infrastructure and assistance. Institutions should promote ethical behaviour by providing a code of conduct and actively promoting formal and informal research ethics education.

Rather than just providing guidelines, organisations should engage in internal/external activities in promoting ethical behaviour. Actively participating in international events such as 'European Academic Integrity Week' would encourage everyone within the organisation to 'own' integrity as their way of life. In contrast, ambiguity in operational expectations, lack of measures for implementation or failing to identify/address problems (or make reasonable adjustments), not reflecting on and learning from failures, can all be barriers at the organisational level. Likewise, individuals can provide a positive and proactive influence to produce ethical guidance. By clearly communicating their research protocol, and expected outcomes, they can enable the developments and/or reasonable adjustments.

This information would assist in improving ethical guidance, especially in an institutional approach to address research in all subject areas/fields. A comparative understanding of different research methodologies would also help to establish research guidance. For example, the methodologies and the forms of data acquisition are different between invasive types of research (where interventions may physically or psychologically affect the participants) and non-invasive research (including questionnaires, meta-analysis, informatics etc.).

Finally, the enablers for collaborative cross-institutional ethical policies include common/national guidance, level of importance and properly designed legal requirements. In fact, an understanding of the common goals and how the methodologies may affect different participating organisations is essential in cross-institutional collaborative research.

Critical Analysis on Workshop Attendee's Engagement and Feedback

The workshop was carried out at the '7th European Conference on Academic Integrity and Plagiarism' organised by ENAI in 2020. Around 15 academics and researchers from the fields of biomedical science, computing, education/teaching and social sciences attended the session. Due to confidentiality, authors were unable to obtain further demographic details of the attendees. In the workshop, first, the authors presented a summary of findings from their primary research based on information gathered relating to the barriers and enablers of forming ethical guidance.

This was followed by sub-group discussions on their own experiences/prospective on enablers and barriers of ethical guidance and ethical approval procedures in

Table 2.2 The main influencers of establishing ethical guidance discussed in the workshop

Common themes discussed	Influencers (enablers as well as barriers)
Organisational	**The vision**: how the leaders value ethics/ethical behaviour **The control system:** how their goals are set in accordance with ethics and how their performance is measured **Internal networking:** how the employees collaborate, compete but maintain ethical standards **External partners:** influence of collaborators (see below) **Continual evaluation and monitoring:** before, during and beyond research period
Individual or team-based	**Individual understanding:** on ethics/ethical behaviour **Personal 'morals':** about work ethics **Team 'morals':** effective communication and work ethics **Willingness:** to accept positive organisational ethics **Resistance:** to accept positive organisational ethics **Preparedness:** to whistle-blow about unethical practices.
Research type	STEM vs non-STEM research: appropriate use of ethics Qualitative vs. quantitative research: appropriate use of statistics **Human/animal research:** abiding clinical governance **Training:** in ethics and its adherence
Collaborative partnerships	**Respect:** understanding the need for uniformity **Mutual agreement:** of common ethical behaviours **Owning:** agreed ethical principles **Abidance:** of ethics by all members **Continual review:** on collaborative practices Continual evaluation and monitoring of collaborative research: before, during and beyond research period

Note. The table shows the summary from the discussions carried out in the workshop

their own institutions. The discussions were then coded and analysed as per the themes identified from the literature review. These are summarised below in Table 2.2. It was interesting to note some of these 'variables' can either be the enablers or the barriers. The mixed cohort of researchers who attended the workshop were able to identify several common "influencers" for establishing and effectively practising ethical guidance Depending on attitude, morals, and commitments; these influencers can either be enablers and barriers. These are summarised in Table 2.2 below.

Organisational Influences

The participants felt that the organisational vision and its willingness to abide by internationally accepted ethical principles as the main driver as enabler for establishing and sustaining ethical behaviour amongst all employees. They felt this commitment would result in an 'intra-organisational culture' (the term was taken from the working paper of Businesses for Social Responsibility – BSR, 2017) to enhance

behaviour. It was previously reported by Schein (2004) that the intra-organisational culture is the most difficult aspect to address. The focus and the dedication to establish an appropriate working climate should be there to set formal/informal behaviours. This would automatically be followed by self-reinforcements of individual employees.

The discussion group at the workshop also highlighted the importance of positive reinforcements via internal/external networking. They argued the success of an organisational ethical behaviour is underpinned by the continual monitoring of individual research projects before, during and beyond the research period. Some even stated regular auditing on individual projects; and their operational changes would help the organisations to understand whether there are needs for readdressing the initial ethical approval, risk assessments etc. The group also discussed the 'influence' of collaborating organisations, their culture of upheaving ethical behaviour. These are explained below under collaborative partnerships.

Individual or Team-Based Influences

The discussion about influences of ethical matters received the greatest interest among the groups. Many of the participants tried to link the personal/individual 'morals' with organisational ethics. The discussions started with the individuals' basic understandings of ethical behaviour and continual opportunities for further training. A few argued against the influence of training for ethical behaviour. One stated

> no matter how effective the training is, it is the moral values of a person that would determine his/her attitude towards behaving ethically and abiding institutional guidance.

Another participant said

> individuals should 'own' their institutional policies; by that they can contribute to the institutional ethical culture.

Others highlighted the issue of "*institutional pressures for greater performance forcing the individuals to behave unethically*". One used the example of organisational pressures (especially in the HE) of "*publish and perish*" culture as an example. Some even tried to use the fraud triangle hypothesis (Rodrigues Machado & Gartner, 2017 originally proposed by Cressey, 1953) to justify their argument of *any unethical behaviour may be forced upon individuals by (a) extra pressure to perform, (b) the opportunity to execute, and (c) the apparent justification/ rationalization*.

From these arguments, it was apparent that the individual's behaviour may be influenced by the institutional commitments for ethical practice (i.e., how the policies are strictly followed).

Research Type Influences

The attendees were from various disciplines, so they appreciated the possibilities of slight differences in providing guidelines in institutions that carry out research in non-STEM disciplines such as psychology and social sciences. Most attendees were focused on discussing the differences highlighted in Fig. 2.2 (which was presented in the workshop). A lively discussion had taken place about how deception can be justified in social, behavioural and educational sciences research. Obtaining (properly) informed consent is one of the basic principles of ethical research involving humans (WHO, 2011). Yet, sociology research usually looks for the reflexive behaviours of humans in response to unexpected experiences. Deception often involves incomplete disclosure of research details but it ensures reliable and unbiased research results (Cheng-TekTai, 2012). As Christensen puts (1988, p. 670), "if the investigation can solve social problems and the research participants do not perceive that they are harmed and (do not seem to mind being misled), then there is an ethical justification for carrying out that research".

Under these circumstances, it would be difficult to provide a uniform institutional guidance and therefore the workshop participants agreed that it is up to the institutional review board's responsibility to carefully assess these types of ethical application. There is also an agreement amongst the workshop participants that researcher carrying out these types of investigations should be properly trained to understand the importance of

(a) justification of their research would lead to enhance human health and/or social welfare,
(b) minimising harm for the volunteers, and
(c) the volunteers perceive/understand the method is not harmful.

It is up to the institutional review board to review the research proposals that use deception or misrepresentation.

Collaborative Partnerships

The authors and the workshop participants appreciated the importance of having collaborative partners in any research. The ethical behaviour of the collaborating partner institutions (or the lack of it) would affect the institutional guidance. The workshop attendees insisted on establishing mutual respect and agreement on common ethical behaviours. Experience has shown that the application of ethical guidelines between developed countries and developing countries has led to several contentious issues. One participant highlighted issues in establishing international partnerships. She argued

ethical guidance sometimes is influenced by the culture and the politics of some countries which might impact upon other partner institutions.

To counteract these types of conflicts, a common ethical guidance for the whole partnership should be established. Another participant added that

these agreed ethical principles should be strictly adhered to and abided by all collaborators.

It may be possible to establish a working group between international partners, probably by including the government and other research stakeholders to identify ways in which all partners could respond to the ethical demands of an international project. Above all, we all appreciated that continual evaluation and monitoring of collaborative research, before, during and beyond the research period is essential.

Concluding Remarks and Workshop Takeaways

The workshop provided the opportunity to gather some evidence and justifications about the factors that influence forming and following institutional ethical guidance. We were able to gather opinions from academics from different institutions and subject areas. The participants also identified several discipline-specific issues in existing ethical guidance and expectations. Most importantly, the workshop has provided an opportunity for the participants to appreciate the importance of ethical guidance and the review process. From the discussion, it is apparent institutional ethical guidance, though important, may be influenced by several stakeholders and it is imperative to take into account these influences when establishing institutional guidelines.

Study Limitations and Further Study

This short chapter is based on a workshop which was carried out to gain initial understanding about the enablers and barriers of ethical guidance via collegiate discussions amongst the attendees. There were only 15 academics/researchers present but they represented a variety of subject disciplines. Considering the number of attendees, it is impossible to extrapolate discipline-specific conclusions. Hence, we have used concluding remarks (rather than clear conclusions), the qualitative data presented herein is based on the workshop only. Based on these findings we are aiming to develop a detailed study to investigate discipline specific enablers (and barriers) to better understand institutional guidelines.

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Chapter 3
Comparison of Institutional Strategies for Academic Integrity in Europe and Eurasia

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Abstract This paper presents and compares selected results based on questionnaire responses from higher education teachers and students across 38 countries in Europe and Eurasia, conducted between 2010 and 2019. The research explored national and institutional perceptions and approaches to academic integrity, particularly focusing on plagiarism and academic misconduct by students.

Ideally, all higher education institutions should have an overarching strategy for managing academic integrity breaches by students. Policies, procedures and sanctions relating to academic integrity should be fair, consistently applied and transparent. This should be backed by national oversight, guidance and support. If there is no institution-wide consciousness, involving the whole community, about the importance of detecting and deterring academic misconduct by students, then certainly standards and quality of the education and research provision are at risk.

The results presented here demonstrate that many of the countries and institutions that were the subject of this study fall far short of the ideal described above. We suggest what can be done to improve the situation in those countries and present evidence of a few signs of progress since the research was conducted.

Keywords Academic integrity strategy · Policies and procedures · Higher education · Europe · Eurasia

Background

Publications about strategies and policies for academic integrity often refer to a "western" approach, but all the research on this topic confirms that there are great disparities in how academic integrity and academic conduct are perceived and

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managed. These disparities are not just between countries, but often between higher education institutions within one country and sometimes across different parts of the same institution (Glendinning, 2016; Foltýnek et al., 2017; Tennant & Duggan, 2008; Tennant & Rowell, 2010).

The globalised nature of higher education means that students relocating to study in a different country bring with them educational traditions and cultural norms they learned from their earlier education, which may not always be compatible with the expectations of their new situation. It is useful to understand the differences in both perceptions and expectations in different parts of the world so that appropriate guidance can be provided, adjustments can be made and experiences shared.

The observed differences reflect varying perceptions about what constitutes acceptable and unacceptable academic conduct and practice. This also impacts on differences in how students are supported and guided, what sanctions are applied and how they are levied and decided, which in turn influences how graduates perceive ethical and unethical conduct in their personal and professional lives. As access to higher education has expanded substantially over the last 20 years throughout the world, the role of higher education in shaping values of integrity and ethics in public and private life has never been more important.

Three research projects, based on the same data collection instruments, were conducted between October 2010 and December 2019, to compare approaches to academic integrity in 38 different countries across Europe and Eurasia. The research was supported by funding from the European Commission and the Council of Europe. The results for the first two projects have been published already, firstly as study of 27 European Union countries (IPPHEAE, n.d.); secondly a study of six countries in south-eastern Europe (SEEPPAI, n.d.). Results from the third project, covering Armenia, Azerbaijan, Georgia, Kazakhstan and Türkiye, are due to be published shortly (PAICKT, n.d.).

The objectives of the studies were to

- identify and analyse policies and practices with regard to plagiarism and academic integrity
- identify gaps and challenges, but also examples of good practice and success stories that can be shared
- propose guidelines to serve as a reference basis for promoting capacity building in higher education and/or peer learning

This paper compares selected results from all three projects as a single data set. A sub-set of these results were presented to the participants of a (virtual) workshop in June 2021 at the 6th ENAI Conference on Academic Integrity and Plagiarism. The selected data comprises questionnaire responses from students and teachers to questions about institutional strategies and policies. The comparison not only highlights differences in national situations, but also differences between teachers' and students' responses.

Limitations

The first project IPPHEAE was very much focused on "policies for plagiarism", which was our priority in 2009 when the project was conceived. During the first project we made connections with the global community of researchers in this field. We discovered the benefits of adopting a more positive approach, referring to academic integrity when possible rather than plagiarism and academic misconduct. For the subsequent research we wanted to compare results across projects, therefore we maintained some of the same questions, including many questions referring to plagiarism. However, we added some new questions, for example, about contract cheating and institutional strategies. We also refined the wording and format of several questions to make them clearer for participants and easier for us to analyse. Any differences in wording between the three projects are explained in the analysis.

When interpreting the results, it must be understood that the three phases of the data collection cover a period of 9 years, therefore responses are not contemporaneous across countries. The situation in some of the countries in the earlier studies has certainly improved since that time. However, we believe that this comparison is still valuable.

Methodology

A mixed-methods approach was adopted for the research, focused on the higher education sector in the 38 countries under study. We were specifically interested in strategies and policies adopted by different countries nationally, regionally and institutionally relating to student plagiarism, academic (mis)conduct and academic integrity. Although the initial project set out to explore bachelor and taught master's degrees, the data collected in all three projects also included some information about research degrees and misconduct by academics.

The research instruments were

- On-line questionnaires, translated into most (but not all) languages of the countries under study, (using the BOS (now Jisc) online survey platform), with separate questions for students, teachers and managers;
- Student focus groups, using semi-structured prompts, where possible, were facilitated by a trained student researcher;
- Semi-structured interviews with teachers, managers and representatives of national and regional HE organisations.

Ethical approval for all the research was granted in three stages by Coventry University.

The research teams visited many of the countries under study and provided workshops and presentations on academic integrity for participating institutions, to academics, managers, administrative staff, students or mixed audiences.

This analysis focuses just on the questionnaire responses from academics/teachers and students about policies in higher education institutions. Citations indicate which of the analysis has been published in previous research reports, and which statistics are previously unpublished.

For clarity, what we mean by a strategy, relates to whether there is an overarching approach towards integrity or misconduct at either national or institutional level and if so the nature of that strategy – for example, is it morality or ethically focused, educative or punitive. Strategies may be included in institutional mission statements, aims and objectives. Policies relate to how the strategy is framed and monitored within formal regulations. Procedures are about method of delivery at the operational level.

Analysis: Reasons for Plagiarism

When designing an institutional strategy for academic integrity it is important to understand why students resort to cheating. This intelligence can help to inform the decisions about what approach would be most appropriate for the institution and what activities to prioritise. A question included on all three questionnaires listed a set of possible reasons for plagiarism, largely derived from earlier research on the same topic and from personal experiences of the researchers. Participants were asked to select as many reasons as they wished, answering the question "what leads students to decide to plagiarise?", focusing on what they believed to be the most common reasons. Some of these reasons are about lack of skills and knowledge (suggesting more guidance and education is needed on academic writing etc.), some reasons are about attitudes of students and their teachers (implying that guidance is needed to reinforce ethical values across the academic community) and others are about deliberate actions to gain an unfair advantage (where a combination of rigorous sanctions, with education and personal support could be considered to deter misconduct). In reality, most institutional responses are likely to include a mixture of these elements. Tables 3.1 and 3.2 summarise responses from teachers and students (new analysis).

It is noteworthy that when taken as a single dataset, students' responses reveal some differences in viewpoints from the academic/teachers' responses (see Tables 3.1 and 3.2). Although there is broad agreement (79% teachers, 62% students) overall about the ease of "cut and paste" culture providing the opportunity for plagiarism, the most popular reason from students in the PAICKT study, was "they think they will not get caught", selected by 69% of students (unpublished analysis), which concerns the attitudes of both students and their teachers.

Although inappropriate collusion between students is seen as a major problem in some countries, when considered overall, only 22% of teachers and 13% students selected this option, compared to 41% of teachers and 7% of students from the United Kingdom (unpublished analysis). There are other notable discrepancies between teacher and student responses, including "they run out of time" (40%

Table 3.1 Reasons for plagiarism: teachers, 33 countries, n = 1173 – new analysis

#	%	Reason for student plagiarism	Category
925	79	It is easy to cut and paste from the Internet	Opportunity
858	73	They think they will not get caught	Attitude
685	58	They don't want to learn anything, just pass the assignment:	Attitude
584	50	They can't express another person's ideas in their own words	Skills
581	49	Plagiarism is not seen as wrong	Attitude
559	48	They think the lecturer will not care	Attitude
552	47	They don't understand how to cite and reference	Skills
465	40	They run out of time	Expediency
398	34	They are not aware of penalties (or consequences)	Understanding
384	33	Their reading comprehension skills are weak	Skills
381	32	They have always written like that	Skills
319	27	They are unable to cope with the workload	Expediency
263	22	They don't see the difference between group work and collusion	Understanding
258	22	They think their written work is not good enough	Expediency
256	22	There is no teacher control on plagiarism	Opportunity
177	15	Unclear criteria and expectations for assignments	Expediency
167	14	They feel the task is completely beyond their ability	Attitude
101	9	Assignments tasks are too difficult or not understood	Expediency
90	8	They feel external pressure to succeed	Expediency

Table 3.2 Reasons for plagiarism: students, 38 countries, n = 5356 – new analysis

#	%	Reason for student plagiarism	Category
3312	62	It is easy to cut and paste from the Internet	Opportunity
2970	55	They think they will not get caught	Attitude
2885	54	They run out of time	Expediency
2681	50	They don't want to learn anything, just pass the assignment	Attitude
2418	45	They can't express another person's ideas in their own words	Skills
2356	44	They don't understand how to cite and reference	Skills
2121	40	They are unable to cope with the workload	Expediency
2014	38	They are not aware of penalties (or consequences)	Understanding
1770	33	Plagiarism is not seen as wrong	Attitude
1690	32	They think the lecturer will not care	Attitude
1602	30	They have always written like that	Skills
1567	29	They think their written work is not good enough	Expediency
1519	28	They feel the task is completely beyond their ability	Attitude
1379	26	Assignments tasks are too difficult or not understood	Expediency
1317	25	Their reading comprehension skills are weak	Skills
1223	23	Unclear criteria and expectations for assignments	Expediency
1199	22	They feel external pressure to succeed	Expediency
991	19	There is no teacher control on plagiarism	Opportunity
719	13	They don't see the difference between group work and collusion	Understanding

teachers, 54% students), "plagiarism is not seen as wrong" (49% teachers, 33% students) and "they think the lecturer will not care" (48% teachers, 32% students).

The reasons for plagiarism shown in these two charts have been each categorised as one of the following: student /teacher attitudes, opportunities, expediency (resorting to plagiarism as a way of coping), lack of skills and understanding. Although the overall most common reason selected by both 79% of teachers and 62% of students is about opportunity, by aggregating the reasons selected by participants according to category, the most common reasons for teachers and students relate to students' attitudes. The second most popular reasons for students are about expediency, but the second category for teachers is about lack of students' skills.

An additional reason for plagiarism added to the list of options for SEEPPAI and PAICKT, after "other" feedback from the earlier IPPHEAE participants, was "they are lazy or have other priorities". This option was selected by 34% of students and 43% of teachers who were given that option. This option was categorised as "attitude".

This analysis, particularly where teacher and student perceptions differ, helps to highlight the importance of effective communication between students and teachers about understanding and avoiding plagiarism. This knowledge will also help to inform the institution on appropriate support measures that may help to reduce misconduct. As plagiarism is typically the most common form of student cheating, appreciating the reasons for plagiarism in different parts of the world should help to inform local institutional strategies and perhaps influence national priorities for addressing all forms of academic misconduct.

Analysis: Strategies

In addition to exploring what was happening within institutions, the research explored whether there was an overarching national or institutional strategy relating to academic integrity and if so, to ascertain the basis for the strategic direction. Sadly, very few of the countries studied had anything that could be identified as a national strategy.

From the 27 European Union countries studied for IPPHEAE, (this was prior to July 2013 when Croatia joined the EU), the only evidence of interventions or data relating to academic integrity at national level came from UK, Sweden, Slovakia and Austria. Since that time there have been some developments and progress at national level on academic quality and integrity in many other EU countries, including Lithuania, Slovenia and Czechia, but much more attention is needed in every country studied.

The six SEEPPAI countries, together with the five Eurasian countries researched for PAICKT, had all been the subject of earlier studies by the Council of Europe, European Commission and other organisations, (such as IIEP/UNESCO, Transparency International), many relating to anti-corruption strategies. Although none of the Western Balkan countries studied under SEEPPAI had any relevant

strategy at the time of the data collection 2016–17, it is encouraging that Montenegro has since developed a national strategy for academic integrity (CoE News, 2018), which is now being implemented.

In the most recent research, we found strong evidence of developments at national and institutional levels in Azerbaijan, Georgia and Kazakhstan relating to integrity in higher education. Kazakhstan provided a very interesting example of a government-led Academic Integrity League, consisting of a network of universities all pledging to promote integrity and share intelligence (PAICKT, n.d., p. 45).

These developments were the direct result of earlier projects and interventions. However, the comparison between student, teacher and manager responses in all five PAICKT countries, together with interview data, suggested lack of commitment, superficiality and selectivity in the way the changes are being accepted and implemented by some people and institutions.

Should there be an institutional strategy? We believe that every institution needs to be clear to staff and students what stance it is adopting relating to academic integrity. In our institution, for example, we are clearly promoting a positive strategy of providing education about and towards academic integrity, throughout the student journey, backed by consistently applied institutional procedures and strong but fair sanctions, including mandatory extra training for students who make mistakes.

Analysis: Policies

The research was looking for evidence of policies in different countries and institutions, initially focusing on plagiarism and later more broadly and positively asking about academic integrity. We were keen to discover whether any national and institutional policies were working as intended and whether related procedures and responsibilities were consistently understood and applied.

In certain countries, particularly Finland, France and Poland, there was a focus on integrity in postgraduate education and research, with far less concern about conduct by undergraduate students than in, say, United Kingdom. However, the recommendations to all countries surveyed was to start developing students' appreciation of academic integrity and associated skills much earlier in their education.

Few educationalists and researchers would disagree that the policies and procedures relating to academic conduct should be fair, consistently applied and transparent to all parties involved. In addition, anyone involved in designing and implementing the policies must be accountable for their actions and subject to the highest standards of academic and ethical conduct.

This then leads to a question about what is included under the term "academic integrity policies" within an institution. Our view is that academic integrity is central to an institution's processes for quality and standards because without integrity in education and research, there is insecurity on standards and quality is compromised. Therefore, academic integrity cannot be a separate set of policies, it must permeate every crevice of the institutional quality cycle. However, not everyone

agrees on whether to integrate policies on ethical, research and academic conduct policies or keep them separate.

In some institutions, most notably in Germany, it is common for universities to have no central policies for academic integrity. Instead, the responsibilities are devolved to individual professors, who serve as judge and jury on academic (mis) conduct by students, resulting in the potential for vastly varying outcomes and experiences for students (Glendinning, 2013).

The evidence collected indicated that national policies in several countries would benefit from guidance in approaches to academic integrity. For example, in Türkiye and Kazakhstan, and several other countries, every higher education course is required to specify what similarity percentage (so-called plagiarism percentage) threshold was acceptable for students work, when submitted via text matching software. This demonstrates a fundamental lack of appreciation of how to deploy and interpret outputs from text-matching software, (briefly - there should be zero plagiarism, which is not the same as zero similarity – academic judgement is needed).

Analysis: Penalties/Sanctions/Outcomes

There has been very little research into institutional approaches to consequences (penalties/sanctions/outcomes) for academic (mis)conduct. One exception is the AMBeR project. This was a national survey in 2006–7 of UK HE providers about outcomes from academic integrity procedures that involved a census of 168 UK HEIs 2006–7, with an excellent response rate of 91%. The survey identified 25 different types of penalty and found huge inconsistencies in penalties awarded for same type of conduct within and between UK HEIs. Analysis of the data led to the identification of different approaches to deciding penalties, which were categorised into 3 "clusters" with lists of possible penalties (Tennant & Duggan, 2008). The research team went on to create a metrics driven Plagiarism Reference Tariff (PRT) – tool for deciding penalties, largely based on the student's status, the nature of the assessment and the type of misconduct. The PRT was then reviewed and tested in 9 HEIs starting in 2010 (Tennant & Rowell, 2010).

More recently a small study was conducted by Simon Bullock of QAA involving interviews with representatives from 32 UK higher and further education providers (QAA, 2021 – with restricted access). The study found that some universities (e.g. Bradford, Chichester) have selected an AMBeR style points-based system to decide on the outcomes. Others, such as Swansea, use centrally maintained guidance to ensure outcomes are proportionate and consistent.

The QAA research found that it is common for institutions to use a scale of severity to categorise different types of misconduct and to determine the outcomes and sanctions. At Coventry University we have a scale of outcomes table, using a five-point scale from "poor academic practice" to "very serious" academic misconduct. The outcomes include a mandatory educational element to ensure students

understand what they have done wrong. In addition, the Coventry sanctions progressively increase in severity when students face further upheld allegations.

The QAA study found that leniency is applied when deciding outcomes for students studying below higher education level, acknowledging that these students are still learning about academic writing and conduct prior to joining higher education programmes (QAA, 2021). Institutions in the study reported that they provide training about academic integrity for both staff and students as a way of deterring academic misconduct and ensuring that any cases are identified and consistently managed (QAA, 2021).

It is worth pausing to consider what purpose the outcomes /sanctions serve. Here is our view on why sanctions are needed and what they should be designed to achieve:

- Deterring student malpractice
- Identifying and providing missing skills and knowledge
- Correcting inappropriate conduct
- Upholding standards and quality
- Maintaining fairness and proportionality
- Ensuring student grades reflect genuine learning and achievement
- Punishment, justice

Different institutions may choose to prioritise specific aspects from the above list when deciding on their strategies and associated policies and design their sanctions and procedures accordingly.

It is important for institutions to keep records of all upheld allegations and the outcomes to ensure that:

- Repeat offenders are identified and suitably sanctioned
- Problem areas in the institution are identified and help is provided for tutors, for example with assessment design
- Trends in number and types of cases are monitored, so that additional targeted measures can be applied

The risks arising from lack of monitoring and inadequate policies and procedures include students repeating the same mistakes, litigation, reputational damage, devaluation of qualifications, professional/graduate incompetence. All these risks and factors need to be taken into account when considering the overheads associated with policies and procedures for academic integrity.

There is a risk in making procedures or sanctions too stringent, difficult, time-consuming or complicated to implement, because they are likely to be ignored or by-passed by academics, in favour of what they see as fair and workable. This is exactly what we found in Sweden, where there is a very formal semi-judicial process, chaired by the rector, irrespective of the level of seriousness or gravity of the student's actions and based on the student's "intent" to cheat (Glendinning, 2013; Bjelobaba, 2018, p. 133).

If academic staff take matters into their own hands, as it happens in many countries and institutions, without following any formal processes, then there will be no

accountability or record of the actions, no opportunity to identify and address students who are repeatedly or systematically cheating, plus inconsistencies and unfairness in student outcomes and lack of due process. The findings about Germany and Sweden imply that institutional policies and related procedures are important for consistency and fairness, but should be designed to be supportive of students and efficient to operationalise.

Evidence from the Questionnaires

Across the three projects we collected 1173 questionnaire responses from higher education teachers and 5356 responses from students. When separated by country, response counts ranged from zero (teachers in Denmark, Sweden, Luxembourg, Spain) to 633 (students studying in Poland). Where the analysis in this section is divided according to countries, it is based on a subset of the 38 countries using percentages rather than response counts, to avoid presenting misleading results (low counts from Belgium, Sweden, Denmark, Italy, Luxembourg, Netherlands, Slovenia). However, where the analysis is based on combined statistics, all available data has been included.

Evidence: Penalties/Sanctions/Outcomes

Figure 3.1 summarises responses from teachers to a question about penalties (outcomes) for students who have plagiarised in their assignment. The 13 options provided are listed in order of lowest consequence (no action, verbal warning), getting increasingly more serious (expulsion, financial penalty). As the chart makes clear, there is a distinct dividing line after the first seven options, with very few respondents selecting the more severe bottom six options. The most common sanctions are "zero mark", followed by "rewrite the work" and "verbal warning" while the least common option was a fine or financial penalty.

Figure 3.2 shows teachers' responses to a similar question, but this time about consequences for plagiarism in the final dissertation. This chart shows a very different picture, with rather more teachers selecting the bottom six options, especially fail degree and suspension. Rewriting the work is now the most common choice, followed by zero mark in second place.

These two questions demonstrate that the sanctions do appear to vary according to the scale and importance of the work undertaken by the student, the sanctions appear to increase for assessments with higher stakes. It is also good to see reductions in the "no action" and "verbal warning" responses for final dissertation compared to assignments, but these are still relatively high.

According to the responses, countries where expulsion can apply are Austria, France, Latvia, UK, Kazakhstan and North Macedonia. Teachers from every
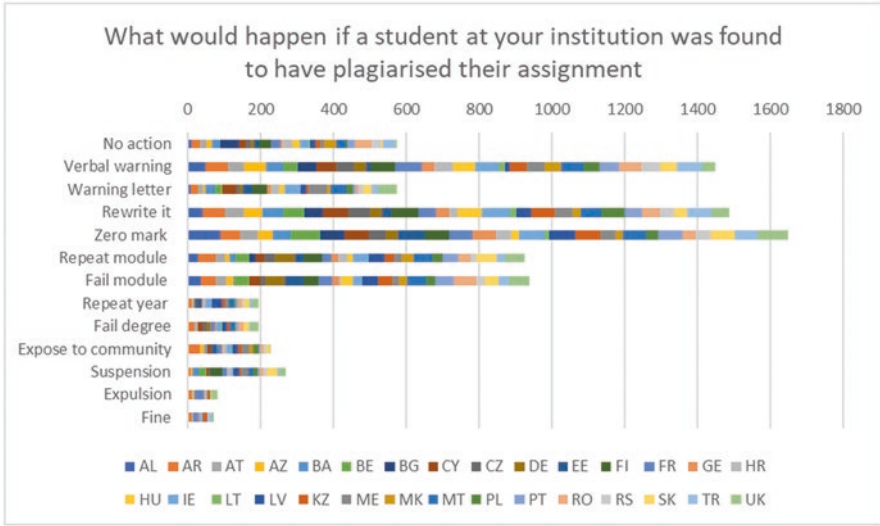
Fig. 3.1 Teachers' responses on outcomes for plagiarising in an assignment, 30 countries n = 1167, based on percentage of respondents in each country
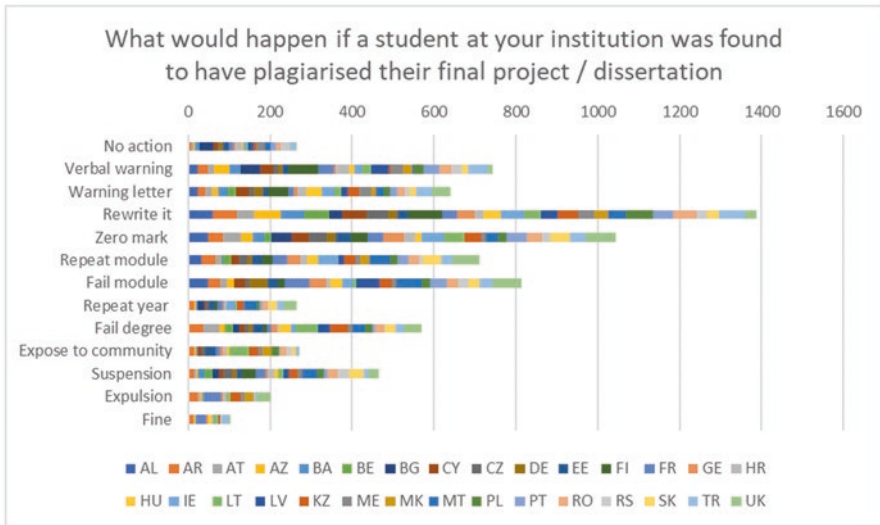
Fig. 3.2 Teachers' responses on outcomes for plagiarising in the dissertation, 30 countries, n = 1167, based on percentage of respondents in each country

country except Ireland, Albania and North Macedonia chose suspension. Participants from just 13 countries, including France, Türkiye, Armenia and Hungary, selected "fine or financial penalty" for plagiarism in the final dissertation.

It would have been interesting to find out how often and under what circumstances each of these penalties could be applied, but the questionnaire was already far too long and there was no easy way to express these questions.

Evidence: Consistency

The questionnaire set out several statements for teachers to determine how fair and consistent the experience and outcomes were for students accused of academic misconduct, using a five-point Likert scale (strongly disagree to strongly agree). These results have been published for the three separate studies, but this analysis of the combined results is new.

Figure 3.3 summarises teachers' responses about consistency in use of procedures, with 46% disagreeing or strongly disagreeing, 17% agreeing or strongly agreeing and 36% with neutral answers (not sure, not applicable or did not answer).

In response to the statement "I believe that the way teachers treat plagiarism does not vary from student to student", 37% of teachers disagreed and 25% agreed with the statement, with 38% neutral responses.

A statement about whether penalties for plagiarism are decided using a standard formula, yielded 18% negative, 44% positive and 38% neutral responses.
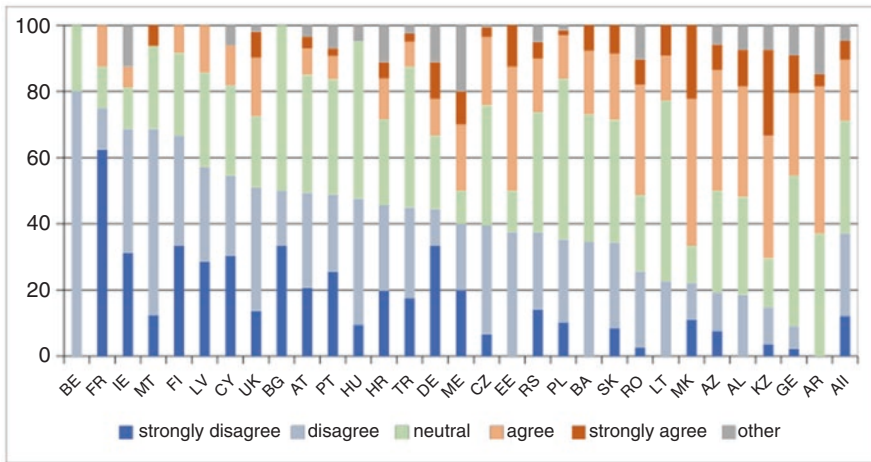
Fig. 3.3 Teachers' survey responses: I believe that all teachers follow the same procedures for similar cases of plagiarism (30 countries, n = 1167), sorted on negative responses, using percentages

In response to the question about whether "student circumstances are taken into account when deciding penalties for plagiarism", there were 21% negative, 26% positive and 53% neutral responses from teachers.

The low number of positive answers from teachers, combined with negative and uncommitted responses to these four questions, suggest a low degree of consistency of outcomes and process when students in these countries face allegations of academic misconduct. Students' experiences can vary according to preferences of individual lecturers, whether or not to pursue an allegation or impose some form of sanction themselves, or refer to a formal process, if there is such an option. The high level of uncertainty, suggests low transparency in what processes are followed as well as lack of consistency, leading to inequalities, unfair outcomes for students and inconsistent benchmarks of quality and excellence in education.

Evidence: Perceptions

Another element of consistency is whether everyone has the same view of what constitutes plagiarism and what penalty should follow such conduct. All the questionnaires for teachers and students, included a set of six scenarios A to F. Part i of each scenario had four answer options: *serious plagiarism, plagiarism, not sure, this is definitely not plagiarism.* Part ii asked whether a penalty should be applied (yes or no) for this scenario. For the purposes of this paper, we will just focus on Scenarios A and D. Scenario A described an assignment with 40% of the work copied word-for-word from other sources, with no acknowledgement, or quotation marks. Scenario D was the same as A, other than changing a few words. The expected results for both scenarios were (a) serious plagiarism and (b) yes to penalty, because 40% of the assignment was not original and the sources used had not been acknowledged, therefore the submission was highly plagiarised and not a reliable measure of the student's own achievement, even if a few words had been changed.

Overall analysis of responses from 5356 students from 38 countries (Table 3.3) in response to Scenario A, 88% of students thought it was either serious plagiarism (66%) or plagiarism (22%) and just 2% of students thought it was not plagiarism, with 10% not responding. Responding about Scenario D, only 56% of students thought this was serious plagiarism (18%) or plagiarism (38%) and 10% of students believed this was not plagiarism. On the question of a penalty for Scenario A, 64% of students chose yes and 8% chose no. For Scenario D, 35% selected yes and 30% selected no. (Missing responses were a combination of "not applicable" and no response).

The same questions were answered by 1173 teachers from 33 countries (excluding Denmark, Greece, Luxembourg, Spain, Sweden); for Scenario A, 94% of teachers said this was either serious plagiarism (77%) or plagiarism (17%) and only 1% thought it was not plagiarism, with 5% not responding. For Scenario D, 78% of teachers thought this was serious plagiarism (33%) or plagiarism (45%) and 4%

Table 3.3 Scenarios to check perceptions on plagiarism and penalties

Dataset	Scenario	Serious plagiarism	plagiarism	Not sure	Definitely not plagiarism	Penalty needed	No penalty	# countries
5356 students	A	66%	22%	6%	2%	64%	8%	38
1173 teachers	A	77%	17%	2%	1%	70%	3%	33
5356 students	D	18%	38%	28%	10%	35%	30%	38
1173 teachers	D	33%	45%	13%	4%	52%	15%	33

thought this was "definitely not plagiarism". Regarding penalties, for Scenario A, 70% of teachers selected yes and just 3% said no; for Scenario D, 52% said yes and 15% said no.

The responses to this question demonstrate a fundamental lack of understanding about the definition of plagiarism by some of the students and teachers that took part in the survey, with many participants believing that changing a few words in copied text, removes the need to acknowledge the source or somehow lessens the seriousness of plagiarism. The rise in the number of people selecting "not sure" is also indicative of failure to appreciate the principles of academic writing.

Evidence: Accountability

Assigning responsibility for making decisions about whether a student has breached academic integrity, and if so, what the consequences should be, is an important part of ensuring a fair and consistent experience and outcomes. If either decision is made by an individual, (teacher, administrator, dean or other), then there is potential for inconsistencies to arise, unless clear procedures and guidelines are followed. The decision-maker may have conflicts of interest, particularly if they are responsible for teaching and assessing the student, or if there are any family or social ties, in which case they should cede the responsibility to someone without a conflict. In addition to the need to declare conflicts of interest, it can help to appoint a committee or panel for making decisions, rather than depending on the views of an individual. However, whether it is a specially designated individual role or a panel, everyone involved in making such decision should have regular training to ensure they understand what is required of them, what the regulations demand and how to interpret and consistently respond to the evidence presented. Both QAA (2020, 2021) and TEQSA (n.d.) have freely available guidance about how to design policies that factor in accountability.

Questions about decision-making responsibilities were included on questionnaires for teachers. However, the wording and options on these questions were improved in the light of responses to the IPPHEAE questionnaire, which made the comparison across the three projects particularly difficult. To bring the three questionnaires into some form of common format complicated the analysis, but the results (Table 3.4) provide some useful evidence about practices in the 33 countries covered by the teacher data.

The responses (Table 3.4) show that over half the decisions on whether to uphold a case of either plagiarism (51%) or exam cheating (65%) are taken by an individual, compared to only 35% and 22% respectively of such decisions taken by a panel. With regards to penalties, decisions taken by individuals are 39% for plagiarism and 52% for exams, compared to 45% and 34% respectively for decisions taken by a panel.

A final important question that was included in just SEEPPAI and PAICKT teacher questionnaires asked: "*Is any training provided for people involved in making decisions on academic misconduct and penalties?*". Providing training for the decision-makers is central to bringing about consistency of approach and outcomes. We have provided the analysis for SEEPPAI and PAICKT countries separately (Table 3.5), because the comparison provides an interesting insight. Overall, only 12% of SEEPPAI teacher respondents said that training was provided, compared to 47% of the PAICKT respondents. On exploring the data in more detail, it emerged that there is substantial evidence that training is provided in all five PAICKT countries (Table 3.5) with a particularly strong positive response to this question in Georgia (64%) and Kazakhstan (52%).

Table 3.4 Teacher data – who makes the decisions whether to uphold and the penalty (n = 1173)

Decision	What for	Individual	Manager	Special role[a]	Panel
Case upheld	Plagiarism	36%	13%	5%	35%
Case upheld	Exams	54%	6%	12%	22%
Penalty	Plagiarism	19%	18%	5%	45%
Penalty	Exams	31%	17%	9%	35%

[a]The Special Role option was only included in SEEPPAI and PAICKT teacher questionnaires (n = 486). Percentages have been calculated accordingly

Table 3.5 Is training provided for the decision-makers?

PAICKT teachers (n = 234)		SEEPPAI teachers (n = 252)	
Country	Yes	Country	Yes
Armenia	44%	Albania	11%
Azerbaijan	36%	Bosnia and Herzegovina	31%
Georgia	64%	Croatia	11%
Kazakhstan	52%	Montenegro	20%
Türkiye	25%	North Macedonia	11%
		Serbia	7%

Discussion

The overwhelming message from this research is the need to continue to promote academic integrity, through effective strategies, at national, regional and institutional levels. This has never been more important. National and regional strategies should guide and recommend an overarching institutional approach, combining a means to reduce academic misconduct, ideally through education and training for the whole community, and to ensure equitable and fair outcomes for students who make mistakes, whether deliberate or accidental.

Comparing the results for these 38 countries highlights weaknesses in national and institutional responses to plagiarism and academic integrity in Europe and Eurasia. There is a clear requirement for institutions to ensure that their responses to misconduct, through transparent and accessible strategies, policies, procedures and guidance, are consistently applied and operating as intended. An important part of deterrence measures is the need for students to appreciate the consequences to their future of breaching academic integrity rules. It is in the interests of everyone to provide appropriate education and training for students in study skills and academic writing, preferably starting before they reach higher education level, but to have extra support available for any higher education student who clearly needs it.

The research findings tell us that motivations and drivers of student cheating behaviours vary according to local cultures and contexts. Teachers and higher education leaders need to gain a clear appreciation of how students experience the study environment, what leads them to plagiarise, inappropriately share answers, cheat in an examination, or use an essay mill. Effective dialogue and communication between teachers and students will help to provide the answers to these questions and ensure that the most appropriate institutional strategies, policies and procedures relating to academic integrity are developed and implemented.

Teachers' responses indicate that policies on responsibility and accountability for decision-making relating to academic integrity breaches are not always appropriate or clear. It is particularly important to avoid situations where conflicts of interest may arise, but the evidence suggests this aspect is often overlooked. Where individual academics are responsible for taking decisions on whether to uphold an allegation and what sanctions to apply, unless standardisation measures are in place, the outcomes for students are likely to be highly inconsistent and inequitable. In addition, if the allegations and outcomes are not recorded, preferably centrally for the whole institution, there is no way of monitoring or understanding phenomena such as types and volume of cheating cases, repeat offenders, trends in cheating and effectiveness of countermeasures.

In addition to education and training for students, there is an essential requirement for institutions to provide regular training for every member of academic and research staff and for everyone involved in support, teaching, learning and assessment of students. Training for staff was advocated by Dawson and Sutherland-Smith (2018) especially to improve identification of contract cheating cases, but more

general training and guidance can help markers to remain alert for noticing characteristics of other types of cheating.

As indicated in quality assurance guidelines, the elements discussed above are fundamental to good practice in academic integrity strategies, policies and procedures (OIAHE, 2018; QAA, 2020, 2021; QQI, 2020; TEQSA, n.d.).

Conclusions

The results from these three projects have provided very useful insights into how plagiarism and other forms of academic integrity breaches are managed across the 38 countries. Although other research into specific aspects of academic integrity has been conducted in some of these countries, no other research has the same focus and geographical scope as these three projects. The earlier IPPHEAE research in the 27 EU countries has already led to positive changes to national strategies and policies in several countries, such as UK, Czech Republic and Lithuania. Researchers from all these counties continue to be actively involved in this field. It would be interesting to re-run the survey to check what progress has been made in every EU country since 2013, but no funding is available right now.

We know that the SEEPPAI project results helped to catalyse changes to national policies in Montenegro (CoE News, 2018). The delay in publishing the results from PAICKT means any impact from those findings has also been delayed, but that report will be published by CoE early in 2022. What is clear from the PAICKT results, as can be observed from responses about training provision for decision-makers in Fig. 8, is that other interventions, by Council of Europe and other organisations, are already bearing fruit in some of the PAICKT countries, when compared to responses to the same question from the six South East European countries.

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Chapter 4
Researching Academic Integrity: Designing Research to Help Participants Give Genuine Responses Using Quantitative and Qualitative Methods

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Abstract Whether attempting a qualitative or quantitative study, scientific research depends on the study design, identifying the target population, establishing the appropriate methodology, choosing data collection methods and analysis procedures

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that ensure the validity of the study and reliability of results. Flawed research methodologies result in measurement error, which is the difference between the actual value and what has been measured. Although it is difficult to avoid random errors, any systematic errors (e.g., invalid and/or unreliable instruments) should be designed out.

This chapter considers how data collection methods can be designed, for both quantitative and qualitative research, to factor in the sensitive nature of academic integrity research into topics such as plagiarism, academic misconduct and corruption, to improve the validity and accuracy of participants' responses. The recommendations are based on feedback from a workshop conducted by a working group of the European Network for Academic Integrity that focused on research design, complemented by relevant literature.

Keywords Research design · Academic integrity · Research ethics · Sensitive questions

Background

Academic integrity has been defined as "compliance with ethical and professional principles, standards and practices and consistent system of values, that serves as guidance for making decisions and taking actions in education, research and scholarship" (ENAI, 2018). This system of values includes "honesty, trust, fairness, respect, responsibility, and courage" (ICAI, 2021, p. 6). It is an area that has been much researched in the past few decades, often using quantitative, but also qualitative methods. The first large-scale study to understand student cheating dates back to 1964 when William J. Bowers surveyed over 5000 students in higher education across 99 institutions in the USA (Bowers, 1964).

Many research studies have been carried out since then to look at college cheating (McCabe, 1992, 1993; McCabe et al., 2001), plagiarism (Fish & Hura, 2013; Rogerson & McCarthy, 2017; Tindall et al., 2021), types of academic misconduct (Gladwin, 2018; Khan, 2014; Newstead et al., 1996), factors contributing to behaviour related to academic misconduct (McCabe & Treviño, 1997; Vučković et al., 2020), actions that can help deter student cheating (Morris, 2018; Reedy et al., 2021; Sivasubramaniam et al., 2021; Stephens & Wangaard, 2016), contract cheating (Lancaster, 2020), views of academics about academic integrity (Bjelobaba, 2018; Harrison et al., 2020; Kennedy et al., 2000) and many other related topics.

Key input to research on academic integrity has very often been in the form of responses from students, teachers, and managers about their experiences and perceptions of study, teaching, research, or institutional management. When considering the limitations of data collection and analysis, researchers in topics such as corruption, plagiarism, or unethical conduct need to acknowledge the possibility that participants may avoid answering difficult questions or not be fully truthful in their responses, either to protect the reputation of their university or to avoid

self-incrimination. This may result in the research findings being biased, inaccurate, or invalid.

Therefore, to minimise the chances of "false reporting", the first priority is to carefully select data collection methods that are most appropriate for the research. To achieve this, initially the investigators should focus on research questions for their study and how those questions can be answered. They need to be mindful of (a) what they are trying to prove or discover (expected outcomes); (b) whether the method of collecting responses requires respondents to reveal their personal practices (anonymity and confidentiality); and (c) if the responses could directly or indirectly affect the respondents and/or their organisation (reputation).

Having chosen the data collection instruments, the research design has to further decide on the most appropriate methods for the sample selection, data analysis and interpretation of results, that maximise the opportunities to verify the accuracy and relevance of the research findings. Importantly, ethical approval must be secured before starting the research.

This chapter discusses different options that should be considered when designing research into sensitive or difficult topics, drawing on input from a range of experienced academic integrity researchers. It draws on participants' responses collected at an on-line conference workshop held in June 2021.

Literature Review

Research about academic integrity often depends on self-reporting by participants that may include sensitive topics, such as questions about academic dishonesty, where honest answers may be self-incriminating for participants. When participants avoid questions or do not provide accurate answers, then measurement errors will arise.

Research into aspects of academic integrity may touch upon the respondents' perceptions of others as well as their personal dispositions and behaviour. In this regard, academic integrity and academic dishonesty can be seen as normative behaviour (e.g., like voting or exercising); thus, being more prone to a social desirability bias, even when there are assurances of anonymity or in applying self-administered survey modes (Brenner & DeLamater, 2016). Moreover, self-reporting can add inherent bias depending on a respondent's mood, behaviour, attitude, honesty, and many other variables that cannot be controlled (Kreitchmann et al., 2019). Sources of response bias in self-reporting can be both conscious and unconscious, including a respondent's concerns about confidentiality of answers, willingness to "help" researchers, (mis)understanding a question, or memory (i.e., ability to recall) (Althubaiti, 2016; Latkin et al., 2016).

Response rates can vary depending on who administers the survey, the geographical location, length of the surveys and so on, which can further tarnish the reliability and validity of the results (Fincham, 2008). As questions on academic integrity or dishonesty are inherently linked to the institutional environment to which

respondents belong, there can be other pressures when self-reporting. There is an additional tension for participants when the research is being conducted within their own institutional environment. Therefore, there is a need to develop indirect or unobtrusive measurement procedures (e.g., Brenner & DeLamater, 2016; Vésteinsdóttir et al., 2019) and explore alternative methods that could be efficiently applied in academic integrity research, e.g., interview methods suitable for studying sensitive topics (Heath et al., 2018).

Where participation is voluntary, results may be biased and unrepresentative of the population, especially if people holding particular views of the research topic are more likely to respond than those with other experiences or opinions (Jordan et al., 2013; Wallin, 1949). Guidance notes for participants in research about sensitive topics usually include statements about confidentiality and anonymity, but prospective participants may not be fully convinced by these reassurances and may choose to selectively answer, give neutral responses or opt not to participate, through fear of identification (McNeeley, 2012). In any survey, truthful answers could be withheld for personal reasons or to avoid reputational damage to colleagues or the participant's company or institution.

Furthermore, not all research proposals and survey designs undergo rigorous ethical checking and approval. Some institutions do not have an ethical approval process and others only require approval for certain categories of research. For example, there may be a perception of lower risks associated with recruiting participants for social sciences surveys compared to medical research participants. Such limitations can lead to surveys being administered that have badly worded questions, ambiguous response options, and lack of information for participants. The participant responses from poorly designed surveys lead to unreliable and misleading data that is difficult, perhaps impossible, to interpret consistently, fairly and accurately, potentially wasting funding, participants' contributions, and opportunities to advance knowledge. Even though local ethical approval processes may differ, or not be required by some institutions, the onus remains with researchers to carry out their research according to an internationally acceptable code of conduct, for example, the Singapore Statement (WCRIF, 2010). Moreover, the target scientific journal for publishing the findings may require evidence of ethical approval. Therefore, the responsibility for ensuring the research is designed and conducted in an ethical manner should be shared by researchers, ethics committees and editors.

Biases can occur with any chosen research method or data collection procedure that significantly impacts on the findings and conclusions drawn. Specific concerns have been raised about focus group research. A focus group is an effective qualitative data collection method for capturing an in-depth understanding of issues in social science research. However, the limitations of focus groups "include the tendency for certain types of socially acceptable opinion to emerge, and for certain types of participants to dominate the research process", which can lead to bias in the findings and conclusions (Smithson, 2000, p. 116).

June 2021 Workshop

The European Network for Academic Integrity (ENAI) supports a number of working groups that focus on different aspects of academic integrity. Recognising the need to minimise bias when researching academic integrity, a working group on surveys is exploring ways to improve the design of research in order to maximise the number, quality and accuracy of participant responses and reduce bias in the results.

Members of the working group have considerable collective experience of conducting research in academic integrity (e.g., Foltýnek et al., 2017; Glendinning, 2015; Campbell & Waddington, 2020), and developing academic integrity surveys and self-evaluation tools (Gaižauskaitė et al., 2020). The working group members are willing to share their own experiences on academic integrity research and are open to new insights about enhancement of research design. In June 2021 an on-line workshop was conducted during the European Academic Integrity and Plagiarism Conference as a platform to highlight the challenges of academic integrity research and collaboratively to look for potential solutions.

The workshop aimed to develop a shared understanding of observed limitations of methods such as survey responses, strategies to mitigate these limitations, to share experiences with other methods and techniques of data collection, and how they can be implemented.

At the start of the workshop participants were provided with information about the nature of workshop activities. During the workshop, participants were given the opportunity to engage in discussions of different topics in smaller groups. The views and ideas of anonymous participants are reflected in this chapter. The authors are most grateful for the input from the workshop participants.

Workshop Design and Operation

The working group members are all interested in both qualitative and quantitative research methods and most have experience and expertise in designing research about aspects of academic integrity involving surveys. Many of the authors have experienced the difficulties and limitations of trying to capture authentic and honest responses from respondents to sensitive questions. The authors designed the workshop as a way to communicate our collective ideas about this important and complex problem to an interested and potentially like-minded audience. The workshop format was chosen in order to invite further ideas and input from the audience.

The 2021 conference was held during the Covid-19 pandemic, therefore the workshop was conducted virtually. The abstract in the conference programme clearly set out the aims and objectives of the workshop, to ensure that conference delegates interested in this subject would attend. A 45-minute time-slot was allocated for the workshop.

A brief presentation was provided for the audience by the working group leader, introducing this topic and explaining how the workshop would operate. The audience was then asked to select one of three sub-groups using break-out rooms, each with a specific focus, with discussions facilitated by two or three members of the working group:

Room A: Discussion on the observed limitations of survey responses.
Room B: Discussion on the experiences of alternative methods of data collection: focus group discussions, individual (qualitative) interviews, document analysis, and others.
Room C: Discussion on the importance of the ethical approval process, confidentiality, and informed consent when human participants are involved in academic integrity research.

Participation in the workshop and the sub-groups was voluntary. Each of the sub-groups invited input from participants, drawing on their experiences, positive and negative. One of the working group members led the sub-group and another was the scribe. The sub-groups operated for 15 minutes before the workshop participants reconvened for a plenary session. Each sub-group presented a summary of the discussions and ideas that were raised, followed up by audience questions and further discussion. Notes were taken of all the discussions to ensure that the key points and innovative ideas from the workshop could be included in this chapter. Details follow of the discussions in the three sub-groups.

Room A: Understanding of Observed Limitations of Survey Responses

Observed limitations of survey responses were discussed in room A. It was noted that the collection of data by means of a survey might be done in several ways. Quantitative survey tools may include different types of questions (e.g., nominal, ordinal, interval, and ratio). However, regardless of the method of data collection, researchers are expected to pay attention to the tool they use for data collection and ensure validity and reliability. Using an invalid and/or unreliable tool would make the results questionable. Thus, establishing tool validity and reliability is an important criterion for the researchers. This is also important for the readers of the published research results, as they should have confidence in the validity and reliability of the research tools and how the findings are interpreted.

To measure complex phenomena, analysis of individual survey questions may not be enough. Therefore, researchers tend to use composite scales that encompass smaller or larger sets of individual questions (or statements) for enhanced analysis of the phenomenon. These scales are thus measures composed of questions (noticeably related to one another) that together uncover dimensions or factors of a phenomenon. When developing a new scale, it is very important to establish its validity

and reliability after the data are collected in a large and representative sample. The choices of data analysis are "sensitive" to the characteristics of the data collection tool, sampling procedure, as well as the aims of the research. Choosing the appropriate statistical test for subsequent data analysis obtained with a validated instrument is also critical in order to ensure accuracy of reporting. Within this respect, checking for a normal distribution should be the initial step of any inferential statistical test to decide either to run parametric or non-parametric tests. Considering the strength of parametric tests over non-parametric ones (Field, 2009), this should also be taken into consideration when interpreting the results.

The error factor involved in data collection should be considered in order to be able to estimate the potential limitations of the questions used. Errors might be caused by reasons connected to the tool, the researcher, or the participants. The participants discussed an example of a researcher who wanted to understand strategies used by students in order to avoid plagiarism, by asking the following question: "*Which strategies do you use to avoid plagiarism?*" The workshop participants agreed that, in answering this question, the survey participants would self-report their views. However, participants, particularly students, might not be aware of the strategies that they are actually using; therefore, their answers may be inaccurate or incomplete. For example, being asked about the strategies that they are using, they may wrongly report that they are not using a particular strategy resulting in failure to capture the true situation. In this case, inaccuracies may arise due to inadequacies of the data collection tool and/or respondents.

The participants also discussed a sample case where a researcher urged respondents to complete a questionnaire in a very limited time. In this case, although there may not be any issues with the reliability and the validity of the tool, the results might be biased due to the researcher's procedures for data collection.

The final sample case discussed in room A concerned errors in responses caused by a participant responding to questions without reading them carefully, leading to inaccurate results. Thus, while interpreting the findings, possible sources of inaccuracies and errors and potential impacts on the responses, in addition to precautions taken against any type of error, should also be taken into consideration.

Room B: Alternative Methods of Data Collection

Taking into account acknowledged limitations of quantitative survey research, the sub-group in room B discussed alternative research approaches and data collection methods that could elicit more accurate data or more open participant responses in academic integrity research. Following the discussion, it is possible to highlight two broad alternative approaches: qualitative interviewing (e.g., individual, in-depth interviews; focus group discussions) and unobtrusive research methods (e.g., observation, document analysis) (Kellehear, 1993; Payne & Payne, 2004). Participants also discussed using a combination of approaches and data collections methods.

The value of *qualitative interviewing* lies in its potency to produce deeper, more detailed and context-bound responses of research participants; the focus is on the perspective of research participants, their experiences, feelings, attitudes, or reflections. The open-ended manner of interview conversation encourages research participants to elaborate on their choices, motives, decision-making process and other aspects linked to real-life situations in a much more extensive way than quantitative survey questionnaires allow. The group agreed that in academic integrity research we often deal with multidimensional phenomena and concepts that may encompass a range of related perceptions in the minds of participants; plagiarism is a good example of this. During interviews it is possible to capture the diversity of these perceptions, including some that may be unexpected or previously not encountered by the researchers. The group agreed that the richness of data, plus the nuances that interview conversations reveal and open up for research participants, prove the benefit of using this approach in academic integrity research. At the same time, the group discussed potential challenges with interviewing about academic integrity. As it has already been established, the topic of academic integrity inherently encompasses sensitive questions or may place the interview subject in a vulnerable situation (e.g., academic misconduct, whistleblowing), whilst the main aim of the interview conversation is to delve deep into phenomena, which requires and anticipates sincerity from research participants in discussions. To achieve that, researchers must ensure that the interview environment is respectful and private, that it is conducive for research participants to not feel restrained or afraid to open up, that they do not feel pressured or under power imbalance (both in regard to other participants and moderator) and that all measures possible are taken to ensure that research participants remain safe and do not suffer harm as a result of their contributions, either during or after the research. The group focused on several aspects in this regard.

First, does it matter who facilitates data collection (i.e., what characteristics or skills are needed by the interviewer or the moderator of a focus group)? One common feature of academic integrity research is that it takes place in a defined setting and involves an interrelated target group. For example, if the research concerns students at a university it is highly probable that the researchers are also "insiders" (e.g., university researchers who also teach there). Therefore, when choosing a facilitator (or moderator), researchers need to consider the facilitator's potential to maximise rapport building and quality of responses. The group discussed that there may be advantages and disadvantages of the interviewer (moderator) being from inside or outside of the target institution (e.g., professional moderator). Thus, the choice must be based on the characteristics and status of the target group, sensitivity and other factors associated with the particular research focus. One of the workshop participants shared their preference for having focus group discussions with university students that were moderated by researchers who were also lecturers at the same university, with the provision that, ideally, the moderators should not have any current or future direct relationship with the participants for teaching or supervision. Another participant argued for the choice of professional focus group moderator who knows how to elicit truthful answers and may bring more objectivity. However, unless such a moderator is an expert in the subject of the research,

important information and nuances may be omitted from the discussion. One more suggestion from the group was to use trained peers (e.g., other students) as facilitators in focus groups. A student facilitator would be more likely to generate frank answers from student participants than someone students know as a teacher, or if they feel a power imbalance during the discussion.

The second subject the group discussed was how to arrange the environment of interviews so that it is most favourable to the research participants and the aims of the research. A participant provided an example of virtual computer facilitated focus group discussion with students. According to the participant, the advantages of this mode were that students could enter and respond anonymously and that additional techniques, like anonymous voting by the students, could be used. Also, computer facilitated mode allowed for a real-time in situ analysis.

Some techniques for interview conversation facilitation were reviewed. Again, the discussion came back to the sensitivity of academic integrity topics. Group participants exchanged ideas and experiences on what additional prompting could be used to elicit more open responses. One of the suggestions was using an indirect manner to ask and/or answer questions, for example asking about their wider experience rather than their personal actions. In a study, instead of asking if participants have ever plagiarised, the focus group discussion moderator asked participants to tell how they usually prepared a written task (e.g., how they made use of other sources in their writing). The narratives of participants and the discussion that followed would reveal a variety of practices that would fall under the "plagiarism" label, but may not be considered as such by the participants. Therefore, this indirect approach would allow participants to speak openly as well as revealing plagiarism-related risk areas to the researchers.

Also, participants proposed that a "critical incident technique" could be applied for interviewing in academic integrity research. The critical incident method or technique asks participants to reflect upon incidents they consider to be critical for achieving the specific outcome under discussion, i.e., for them to come to a certain decision (Allen, 2017; Münscher & Kühlmann, 2015). The critical incident could either relate to a positive and negative situation. The analysis of a critical incident places it in the appropriate context and can be followed by detailed clarifications (Allen, 2017; Münscher & Kühlmann, 2015).

The *unobtrusive research approach* was proposed as a particularly promising way to study academic integrity. It was explained to the group that the value of such an approach is to allow researchers to capture what people actually do and the actual outcome of their behaviour or actions rather than what they subjectively think they do or how they retrospectively reflect on their behaviour. The group participants exchanged some very interesting experiences of using applications in this regard, from a more usual observation method to computer-assisted writing and text-analysis technologies. One technique that was suggested for studying academic writing habits was to use software that captures keystrokes and mouse movements and incorporates a video recording, which allows a research subject's actions to be captured when completing a writing task. This can provide far more accurate information than relying on the research subject's memory of what they thought they did,

taking care to ensure that the experimental conditions do not modify or distort the participant's behaviour. Such techniques can also be used in combination with other data collection methods, e.g., de-briefing interviews with students whose writing has been observed.

Room C: The Importance of Ethical Approval

The group in discussion room C analysed the importance and the effects of a proactively designed ethical approval process, confidentiality and informed consent in questionnaire-based studies with human participants in academic integrity research. The group agreed with the fact that ethical standards should govern the way any study is planned and conducted. Some participants argued that by proactively engaging with the approval process in comparison with objectives of the study, the researchers can improve the questionnaire to obtain truthful reflections of participants' behaviour, opinions and/or desires. As explained in the background section on questions relating to expected outcomes, the need to understand participants' personal practices and whether the participant responses would affect their (or their organisations') reputation, are important to decisions about the appropriate way of data analysis, whether to anonymise or 'pseudonymise'. During anonymisation, any personal identifiers, either direct or indirect, are removed. By this means, any personal data are protected forever and therefore the data are easier to use and share, without any data protection implications (GDPR; General Data Protection Regulation) (see Recital 26 of EU-GDPR directives (GDPR, n.d.)). In contrast, pseudonymisation is carried out by using personal data in such a way that subjects/individuals cannot be identified without the need to use additional information. According to EU-GDPR directives, pseudonymisation is allowed in research provided the additional data needed for personal identification are kept separately in accordance with institutional/organisational internal measures to ensure confidentiality (article 4(3) of EU-GDPR (GDPR, n.d.)).

The group further explored the advantages and the disadvantages of pseudonymisation. There was a broad consensus that anonymisation of questionnaire data is essential for encouraging truthful responses about people's behaviour, understanding, and actions. Participants need to be reassured that the researchers will remove any opportunities for either their direct or indirect identification. On the other hand, some argued that pseudonymisation may be a useful tool for intervention studies. For example, in studies that explore the effectiveness of using text matching software as a teaching tool, and if the researchers wanted to capture the participants' opinions before and after they have been introduced to such software, then pseudonymisation is the best method to employ. However, the workshop participants did accept that the fear of (indirect) identification might hinder both truthful responses and research participation.

The workshop participants in this group also argued that introducing a "friendly" ethical review process can help to improve the design of questionnaires. One

workshop participant has explained a practice in his institution, where internal mentors were used during ethical approval procedures. By this way the mentors would become critical friends who would challenge the researchers on the validity of their questionnaire and plans for achieving anonymity.

Some participants elaborated on the importance of incorporating the "*right*" questions to obtain meaningful answers. They provided the following example: instead of asking "*Do you think it is important to devise assessments to minimise the chances of student plagiarism?*", they argued more realistic answers could be obtained if the question is changed to "*How often do you devise assessments that would minimise the chances of student plagiarism?*". In other words, the questionnaire could gather truthful insights about the respondents' attitudes towards academic integrity. We challenged the participants to elaborate how changing the question wording would influence ethics. Their justification was that the questions should be checked for ethical validity and therefore proactively incorporating indirect questions needs to be checked by the ethical committee for deception-related issues. Overall, it was accepted by the sub-group that asking indirect questions about a participant's behaviour would be a good way to understand their attitude. The group agreed that using open-ended questions, though difficult to analyse, would be more likely to result in truthful answers, reflecting respondents' practices and desires.

In addition, the group agreed that ethical considerations, together with insights on the statistical package to be used for analysis, need to form the basis of any questionnaire design. Other important areas of consideration that were elaborated by some of the group members are summarised in Fig. 4.1. The group briefly discussed

Fig. 4.1 Summary of other influences for a good questionnaire as elaborated by the group

the importance of each of the parameters given in Fig. 4.1, and their interconnectedness in terms of ethics. First and foremost are the objectives of the questionnaire; their relevance to the selected population has to be clearly stated. It should appeal to the participants to actively engage and provide their truthful opinion/answers. Members within group C agreed that concentrating on these basic parameters is important for encouraging participants to complete the questionnaire.

The "pollsters" should bear in mind that the people who volunteer to complete the questionnaire are contributing their time and therefore they expect to see "relevance" to their values, beliefs, subject specialisms, etc. Whilst focusing on making the questionnaire attractive, researchers should also avoid deception by overstating the objectives, or exaggerating the impact. Any failings of this kind should be addressed (and any potential deceptions eliminated) during the ethical approval process.

The participants agreed that the survey design must focus on the structure of questions (short, but unambiguous), and their clarity, by providing neutral questions (bearing in mind ethical restraints of the wider community). Participants within group C argued that questions should be formulated to make navigation easy for the responders (i.e., the flow). A well-designed questionnaire should provide opportunities for respondents to truly reflect on their experiences, views and feelings about the topic.

Figure 4.1 shows a schematic summary of the parameters that directly (and collectively) influence the survey design. It is worth mentioning about the complex association/linkage amongst parameters in the outer circle. For example, the question flow enhances the appeal of the questionnaire, whilst clarity of the questions influences the flow on one hand and appeal on the other. Likewise, the question structure should be relevant to the subject selected for the survey which is directly influenced by clarity. Interestingly all these should be based on objectivity; yet they make the survey design attractive by making the objectivity clear. The figure herein is simplified to show the complex interconnectedness for easy understanding.

The group concluded that the ethical approval process plays an important role in designing and conducting research without any prejudice or predicaments for the respondents or researchers. Therefore, all research involving human beings should be reviewed by an ethics committee and ethical approval should be seen as central to the research design process, especially when sensitive topics are being addressed.

Discussion

The workshop proved to be an effective way to gather valuable contributions from a range of academic integrity researchers, to add to the information already collected from working group members and relevant literature. The participants and their ideas provided input from new perspectives, different disciplines and several countries, which helped to internationalise and extend the working group's remit. In

consequence, we believe these findings should be of great interest to other researchers in this field.

The contributions include some pointers for researchers on the design of research instruments, especially wording of questions. A clear message emerged for researchers to be mindful of the characteristics and limitations of the targeted participants, as well focusing on the relevance and clarity of research questions. The choice of vocabulary is of particular importance when participants are not from the same country or background as the researchers and also when the data collection is not conducted in the participants' native language. It was agreed that rigorous testing of all the research tools, typically through piloting with a range of participants, should be seen as an essential way to verify and confirm the validity and effectiveness of the tools, before launching the survey. The pilot or trial should also include a test of the analytical methods.

Members of the working group have a shared experience of how challenging it can be to construct questions with clear and unambiguous wording for academic integrity survey tools, in particular, in international comparative contexts. Even in scholarly literature there may not be agreement on the meaning of concepts and terms in the academic integrity field; therefore, when there are cultural, institutional or individual differences in terms relating to academic integrity, the choice of wording in survey questions becomes crucial. For example, when developing academic integrity self-evaluation tools, working group members had an extensive discussion on what 'proofreading' actually entails from the perspective of different countries or institutions and therefore when designing a question on proofreading practices, the wording should be chosen with care, to minimise the range of diverse interpretations. The more diverse interpretations of question wording and meaning there can be, the more problematic the question is in terms of validity and reliability (e.g., de Vaus, 2014; Tourangeau et al., 2000). Among the solutions could be to avoid theoretical and/or abstract concepts in survey questions (i.e., via practical operationalisation of these concepts) or providing an accompanying definition of the intended meaning of a concept or term when it is not possible to avoid using it.

Research methodology literature includes proposals for developing survey tools, especially when the survey topic is complex and/or sensitive. For example, Artino et al. (2014) propose that the following steps can be taken to carry out a survey design: undertake a thorough review of the literature (1), followed by interviews and/or focus groups (2) which should both then undergo a synthesis process (3). Based on that, create items (4) and validate them by gathering feedback from experts (5). Subsequently, conduct cognitive interviews to ensure the items were adequately understood by the respondents (6) and, finally, perform pilot tests (7). Views from experts on questionnaire items are extremely important to improve their clarity and relevance and to comment on deletion or addition of new items. Criteria for this feedback might involve checking for: (1) ease of understanding, (2) relevance to the construct, (3) avoidance of duplication or similar meanings, (4) minimization of grammatical and formatting errors, and (5) avoidance of double-barrelled statements (Khan et al., 2021).

Following workshop discussions, experiences of the ENAI Surveys working group members and relevant literature (e.g., Price et al., 2015; Vésteinsdóttir et al., 2019), we outline some useful guidelines for designing survey questions included in academic integrity research:

(a) Providing proactive opt-in choices. For example, if the purpose of a survey question is to understand whether the respondents have (ever) used one or more methodologies to deter academic misconduct, in addition to listing all the options, add an open text field (by offering 'other' as one of the options) and ask the respondents to explain what other methodologies they have used. In this way, all the details can accurately be captured, in fact the results may even reveal new, innovative and effective methodologies.

(b) Integrating excuses as option choices. Respondents may be reluctant to reveal practising any negative or questionable behaviours, even in anonymised surveys. Therefore, some participants may be persuaded by asking indirect questions. For instance, instead of asking a direct question such as "*have you ever plagiarised?*", by providing choices such as "*The last time I plagiarised was a long time ago*" or "*I plagiarised before I learned how to acknowledge sources*". In this way, we may have more success in capturing truthful responses and true reflections on the extent of plagiarism.

(c) Providing a competitive choice-based prioritisation. It is natural for participants to be reluctant to reveal any socially undesirable practices in their institutions. Therefore, questions about topics that might be perceived as a reputational risk, either to participants or their institutions, should be avoided. Instead, participants could be given an opportunity to indirectly reveal these practices. For example, if a questionnaire is looking for participants to provide a list of types of academic misconduct detected within their institutions, they could instead be asked to order the list provided according to the prevalence within their institution. By ranking the misconduct, they would indirectly provide the required information.

(d) Creating opportunities to cross-check the answer. One of the most effective ways to understand real behaviours is to tackle it both directly and indirectly. First by asking a direct question about their own behaviours or attitudes, followed by an indirect question about commonly noticed behaviours. This would allow the researchers to critically compare both questions and conclude on truthful reporting.

(e) Comparative incremental enrichment. This technique would be useful in questionnaires that explore the adaptability of a new technique for minimising questionable academic behaviours. Here, instead of asking "*will you employ this technique to minimise academic misconduct*", the questionnaire could ask the participant to describe the usual techniques they employ to ascertain integrity, then ask for their opinion whether they would employ the new technique. In this way the participants would be able to reflect upon the current techniques they use and provide a truthful answer about this new product.

The workshop discussion covered varied aspects of the quality of survey questions in academic integrity research thus outlining a need for further input in this regard. Members of the working group agreed that it is important to continue looking for ways how currently available questions in academic integrity surveys could be enhanced following the methodology guidelines on constructing good survey measures.

Although questionnaires are useful for quantitative data collection, especially when there are hundreds or thousands of participants, when designing research related to academic integrity, it is important to consider alternative approaches that may be more effective in capturing accurate responses and evidence. For example, documentary searches and analysis can be a very efficient, effective and revealing way to gather evidence on policies and guidance. Workshop participants spoke of their experience of using technology for observing, capturing and comparing the behaviour of research participants when they were assigned tasks such as information searches and academic writing. This provides an innovative way to understand first-hand how the research subjects record sources they access and incorporate the information into their own writing.

It is important to keep in mind that both quantitative and qualitative approaches to data collection have their advantages and disadvantages. Also, they presume distinct research outcomes: while quantitative approach aims at measuring social phenomena, presumes relatively large, preferably representative samples and allows generalisations about a population (or distribution of characteristics of measured variables in the population) (Creswell, 2014; de Vaus, 2014), the qualitative approach aims at a deep, social context-bound understanding of the content of a phenomenon, commonly relying on smaller samples, non-probability sampling methods but rich and in-depth qualitative data (Creswell, 2014; Hennink et al., 2011). Therefore, the choice of research approach and data collection method (or a combination of them) must correspond to the needs of a particular research project and be the best fit to answer the research questions.

When designing surveys using questionnaires, interviews and focus groups where the research can be seen as sensitive by some participants, attention to detail is crucial. To maximise the potential for participants to engage fully with the research, protecting participant identity can make a great difference to the quality and accuracy of the data collected. Paying careful attention to wording of questions, selecting a suitable setting for focus groups and interviews and ensuring that a suitably trained facilitator or interviewer is selected, are also key factors to consider.

The discussions on ethical aspects of research into academic integrity generated some differences in participants' viewpoints about the role of ethics committees and the purpose of the approval process. It is interesting to see these variations and further investigations could prove valuable. However, there was no disagreement that ethical approval and ethics committees (ECs) are essential for ensuring that research processes comply with the principles and regulations of scientific ethics. When undertaking research about topics that could place participants at risk by speaking truthfully about their perceptions or behaviours, it is essential that the design and conduct of the research is carefully scrutinised by ECs, not just to check the integrity of the research design, but also assessing the need and scientific value of the

proposed research and the participants' recruitment, balancing its risks and benefits and advising on how to avoid and prevent ethical issues. ECs should also ensure the researchers have the necessary skills to carry out the research, that any personal data collected are not used for other purposes (secondary use) and that human participants are adequately informed and autonomously are able to decide whether to consent, refuse or withdraw from the research.

The EC's role is not limited to approval of the research. Their duty should extend to oversight of the processes that follow as the research progresses and monitoring whether the researchers are following the required procedures. Overall, ECs uphold research ethics, thus safeguarding participants and contributing to increase their confidence and willingness to participate in research (Alderson & Morrow, 2006). In their work, Guillemin et al. (2018) show that one of the reasons why participants rely on research institutions, apart from reputation and prestige, is good ethical practice in research.

Conclusions

The workshop highlighted a wide range of aspects for researchers to consider when planning academic integrity research, which can include sensitive topics and complex concepts. Research in this field often requires understanding both attitudinal and behavioural dimensions relating to the experiences of human participants. Depending on the specific focus of the research topic, it is important to understand the perceptions of actors in the targeted fields, how widespread these views are, and how to interpret and evaluate the responses in the context of the development of academic culture. Likewise, it can be enlightening to observe the actual behaviours and practices of research participants. Therefore, comparison of responses through triangulation, using different methods of data collection, would be an advantage in academic integrity research and help to improve the quality and accuracy of the interpretation of participants' responses.

The workshop also highlighted the importance of research integrity and how ethical approval plays a central role in ensuring that academic integrity researchers practise what they preach.

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Part II
Academic Integrity in On-Line Education

Introduction

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Academic integrity in online education has always been a challenge, but from 2020 the COVID-19 pandemic elevated this to a global problem. Although many universities did offer online education before the pandemic, this time evetyone was forced to immediately switch from on-site teaching to online teaching. The provision of methodological support for lecturers varied vastly, and it was not uncommon for teachers to be left without any kind of support. Many institutions struggled with student cheating, which seemed to rise during the pandemic. The four chapters in this section explore a range of scenarios and strategies adopted in different parts of the world. They critically evaluate pros and cons of these strategies and provide useful insights for those who are considering transferring these strategies to their mainstream educational contexts.

A case study from Cyprus describes challenges in conversion of face-to-face teaching materials into the online mode. It deals particularly with exams and ensuring their integrity. It summarises considerations before the exam, when planning the exam, exam content design, technical equipment needed both on the institutional side and the student side, considerations when running the exam, and the assessment methodology. The chapter, full of practical tips for educators, ends with a real-life exam case.

A Bulgarian questionnaire-based study investigates the influences of online learning to student attendance, learning outcomes and cheating. The data were collected in 2020 and 2021. Students preferred online classes (especially in the first year of online teaching) and claimed to attend online classes more frequently. However, online classes can have detrimental effects on learning outcomes.

The study from Chile explores online learning communities - virtual knowledge-sharing spaces aiming at development of understanding of academic integrity not only among students, but also among teaching and administrative staff. The authors focus on Community of Inquiry and Fully Online Learning Communities, concluding that Chilean higher education could benefit from these models.

The chapter closing this section focuses on one particular aspect of preventing cheating in online assessment – e-proctoring. The authors present attitudes on e-proctoring collected within a small international group of educators, which includes concerns associated with this approach, and then they show a case study from a US college which illustrates the need for student supervision in the online assessment.

Overall, this section leaves an impression that despite tough beginnings, frequent lack of institutional support, higher educational institutions all around the world managed to use the COVID-19 pandemic as an incentive to improve their teaching-learning strategies and online resources. Many institutions reconsidered their approaches to teaching and learning and developed approaches that remain beneficial even after the pandemic.

Chapter 5
Students' Perceptions of Distance Learning During the COVID-19 Pandemic, and Its Effects on Academic Integrity

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Abstract Anti-COVID-19 measures for Bulgarian universities included adopting distance learning, partially or completely, over the course of the last five semesters. This contribution probes into Bulgarian students' experience of distance learning with special emphasis on how integrity and learning are affected by online classes. Data were collected in two rounds of questionnaires, supplemented by the results of online testing for contrast. The results indicate that while the respondents express a preference for online classes and exams, they are not unaware of some detrimental effects on their learning outcomes. In conflicting cases, the students opt for comfort and commodity, not shying away from an opportunity to cheat. Online classes and exams during the COVID-19 pandemic may have contributed to altering the students' frame of expectations regarding their learning process.

Keywords Distance learning · COVID-19 pandemic education · Academic integrity · Cheating

Introduction

In the current situation of a global COVID-19 epidemic, many universities have either completely or partially adopted distance education to better respond to sanitary requirements. Most universities in Bulgaria spent 13 months (3 months during each semester starting from summer 2020 until winter 2021, and 6 weeks in summer 2022) in distance education classes. Under the terms of distance education, classes and exams had to be adapted to take place online. After an initial adaptation period, during which instructors were free to choose the medium of delivering online education at the author's affiliated university, a centralized online platform (Blackboard) and an associated conferencing tool (BigBlueButton) were set up for

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those instructors who wished to use them; instructors were still free in their choice of online platform. After the first lockdown, both students and instructors seemed to have settled in a routine.

It was the perfect situation, the pandemic notwithstanding, to rush higher education in Bulgaria into the post-digital era (the term is from Negroponte, 1998): after all, troves of Google Gen students already went through higher education, and enthusiastic commentators considered the traditional educational setting ill-adapted for them (e.g., Prensky, 2001). Rowlands et al. (2008, p. 291) define Google Generation as the generation born after 1993 who have "little or no recollection of life before the web". Even if one takes Prensky's calls for change with a grain of salt – after all, he admitted to a certain overstatement (see Prensky, 2009) – significant changes in the pedagogical approaches throughout the secondary education have accompanied the adoption of Information and Communication Technology tools (hereafter: ICT) in the classroom, with a far-reaching impact upon the student cohorts entering higher education. Not only that, but also an area which was considered lagging behind in Bulgaria would correspondingly be brought up to date by the necessity created by the pandemic: finally, both instructors and students will use ICT tools predominantly for educational purposes, which would allow instructors to move instruction into a more natural environment for the Google Gen students. Surely, it must have a positive effect on students, and the learning outcomes should correspondingly improve.

It is unclear what exactly such expectations could be based on. After an enthusiastic initial phase, it has become evident that students have unevenly developed digital competencies (Rowlands et al., 2008; Chankova, 2020a) and lack solid skills in information exploitation (Chankova, 2020b). The results of many studies, both long- and short-term, suggest that exposure to ICT tools, which are mostly used for recreational purposes (Bauerlein, 2008), has a general negative effect on cognition: a recent overview of relevant studies comprising more than a 1000 references was done by Desmurget (2019). Studies reported inconclusive benefits for learning related to the increased use of ICT tools (Biagi & Loi, 2013) or that ICT use is linked with poorer cognitive results (Saarinen et al., 2021). Taking Desmurget's report for reference, young adults have quite an important screen consumption; now that they have to use screens for school as well, they are likely to feel screen fatigue, cognitive fatigue, be distracted more and lose focus more easily. In what follows, I am not going to be concerned with the various negative effects which tend to accumulate over time spent on screen consumption: beside the cognitive effects mentioned above, there are psychological and physical effects documented in research (see Desmurget, 2019); nor am I going to delve into debunking the myth of the special brain that Google Gen students supposedly have – this is done marvelously well by neuroscientists (on neuroplasticity and the changes induced by any repetitive activity, see Costandi, 2016; for a discussion – Desmurget, 2019). I shall contextualize and evaluate the effects of distance education as reported by the students who I see in tertiary education, taking into account the context of the COVID-19 pandemic. I shall also look into distance education assessment and how it impacts students' academic integrity.

The Digital Student and Integrity

The technological marvel that rushed human society into a new post-digital era (the term marks a "contemporary disenchantment with the digital systems and electronic gadgets" Cramer, 2015) has inevitably touched us all. The very expression "online" has become anachronistic (Berry, 2014), as the ever-multiplying technological gadgets make sure we are constantly connected in some way. Screen consumption time has increased manifold, including ever-younger children in the fold of consumers (Desmurget, 2019). Interesting new affordances and possibilities (Tapscott, 2008) go side by side with dependencies and addictions (Kardaras, 2016). Some authors choose to warn about negative effects of neglecting some brain developing activities, such as reading and in particular deep reading, hand-writing and other fine-motor activities (Carr, 2011), over others which provide over-stimulation and cut reflection time (Desmurget, 2019).

Scholars have been rigorously researching the question of the celebrated technological savviness of Google Gen students to find that they do not display any particular technological prowess that should set them apart from older ICT users (Rowlands et al., 2008; Selwyn, 2009; Chankova, 2020b) – empirical data was collected through screen capture and deep log analysis. Being exposed to technology does not automatically lead to great digital skills, and scholars insist that no inherent digital skills can be identified for the Google Gen students (Lorenzo & Dziuban, 2006; Helsper & Eynon, 2010). The impact on learning and on developing efficient learning techniques and habits has rather been detrimental: not only do Google Gen students appear to have a poor understanding of their information needs (Rowlands et al., 2008) and their ICT-aided searches are often inept, shallow and disengaged (Chankova, 2020a), but also they lack structured instruction in digital literacies, especially where information search is concerned (Coombes, 2009). Their use of ICT tools is unimaginative and basic, and is linked with a far-reaching impact on concentration and attention deficits (Desmurget, 2019, for a detailed overview of relevant studies). The hopes that technology would bring general improvement of skill and knowledge if introduced in classrooms at early stages were lost with reports showing that technology did not improve the pupils' results (PISA Results in focus, 2015).

The COVID-19 pandemic was met in different ways across the globe; in Bulgaria, schools and universities have now spent quite a substantial amount of time in online education. Technical difficulties notwithstanding, both teachers and students in the secondary were unprepared for the situation; at the tertiary level, there were enough problems to be coping with. Even though university instructors have long since appropriated ICT tools as classroom support (laptops, slide projectors, audio systems complete with computers for language classes, cloud repositories, to name a few), the first lockdown required quick action and the elaboration of online education protocols which the instructors did not have in advance. The students' uneven technical skills made it difficult for them to adapt to online education. What students had to adapt to from a technical point of view: activating a hyperlink sent to their own email

inbox in order to sign in to the virtual classroom, typing in names to identify themselves, setting up basic features (microphone on/off, video on/off, headset), downloading attachments from emails, attaching files to emails, work with text processing programs to produce assignments, accessing the e-learning platform (typing in usernames and passwords) to read additional material, search the internet for additional information. This also meant that students had to mobilize resources for autonomous learning in comparison with on-site classes, but also that the level of control over the proceedings and individual performances became severely limited for instructors.

The issue of having the adequate technology to be able to participate effectively in online instruction and testing, such as personal computers, laptops or tablets should not be neglected: students may be in difficult financial positions and lack the necessary equipment, and have difficulties to access data (Verhoef & Coetser, 2021). Start of term questionnaires reveal that a non-negligible portion of students rely on their smartphones for access to virtual learning spaces; even before the pandemic, handouts were not taken in paper form by the students, but photographed with their hand-held devices. How the students organize and manage the vast amounts of data, especially if they only access it via their phone, is unclear.

Behind the screen, the students are unmonitored. They do not perceive the instructor's gaze in the same way: online classes may feature the instructor's talking head in a corner of the screen, next to the visual aid they necessarily display. Online classes and exams were seen by some as greatly facilitating cheating (Sarwar et al., 2018; Birks et al., 2020; Kennedy et al., 2000); others consider that no significant increase is seen in online courses (Watson & Sottile, 2010; Grijalva et al., 2006) – of course, the comparison should take into account the special context of online education during a pandemic, such as the long periods of time involved, the compulsory character of the education and the fact that it is highly unusual for secondary students to be involved in such an educational format, and problems with motivation. Some studies conducted during the pandemic show that both students and instructors feel insecure about the novel situation, with a feeling of distrust emerging between them, as well as clearly negative emotions towards online exams (Amzalag et al., 2021). Others focus more on the learning outcomes and the effects of ICT use in instruction on the learning process of students, which has been correlated to weaker cognitive learning outcomes for students in Finland (Saarinen et al., 2021). It is especially worrisome since the pedagogical approach which provides the groundwork for the use of ICT technologies is the student-centered approach, which has gradually gained momentum around European schools: it diminishes the role of the teacher and tends to transfer the responsibility for the learning process to the student instead. This idea is believed to be misguided by some researchers (e.g., Mascolo, 2009), and it can affect the students' expectations about the learning process. Corollary effects linked with the use of ICT tools – such as distractions, multitasking, concentration breaks – were noted by recent research by Saarinen et al. (2021), with predictably poor cognitive learning outcomes.

Even though motivation is quite difficult to assess directly, there are some features which may correlate with motivation, such as class attendance, course assignment submission, correspondence with instructors, class participation, etc. Earlier

studies (for example, Grijalva et al., 2006) found that stronger motivation is negatively correlated with cheating: in a situation where the student chooses to enrol in an online class, the older they are and the more motivation they have, the less likely they are to cheat. Interestingly, some studies did not find any correlation between motivation and dishonesty (Wahyuni et al., 2021), but found a stronger correlation between perceived opportunity and cheating, especially in the pandemic period. The important difference is that distance education as an anti-COVID-19 measure is not something that either the students or the instructors can pick and choose. Equally, in pre-COVID-19 situations, instructors seemed reluctant to engage in online testing and examination because they thought that online testing is either not suitable or does not present any advantages as an evaluation method, with some expressing concern over cheating (Rogers, 2006). During the pandemic, the instructors have to adapt their evaluation methods to the online format, regardless of how they may estimate the benefits or the suitability of online evaluation for the specific course.

Cheating and other kinds of dishonest behaviour tend to be transferred from one aspect of life to others (Audet, 2011); they have been shown to have important consequences on work environments (Barbaranelli et al., 2018). Therein lies equally its social character: studies have found that the more students cheat, the more they see cheating in others and vice versa: Miller and Young-Jones (2012) have found that such behaviour can propagate and is largely learnt. Dishonest behaviour has been strongly correlated with poor learning habits (Chankova, 2020c): slacking off, unsystematic learning schedules, lack of structure and steady learning habits translate to insecurity and tend to perpetuate cheating. Especially vulnerable to these are young first- and second-year students who may be in a situation which increases the risk of falling into that behaviour, having just moved out of home, changed towns, being emotionally affected. The reasons for dishonest behaviour are quite diverse: Verhoef and Coetser (2021) report among the strongest reasons for cheating the availability of easy answers online, feelings of stress and pressure, including pandemic-related stress, and lack of monitoring.

Aims of the Study

By looking into the students' evaluation of their experience with emergency online instruction, their learning outcomes and difficulties, I wish to explore aspects of academic integrity in an emergency situation of distance education in a qualitative study. The primary practical motivation for choosing to distribute a questionnaire was to probe the students' experiences of the novel format in order to cater for any gaps in online instruction in later periods. The students' perceptions about two propositions are tested in the course of the study:

- Online classes lead/do not lead to better learning outcomes for students.
- Online classes lead/do not lead to an increase in cheating

Data were collected, first, through two online questionnaires, one conducted in June 2020 ($n = 16$) and one in January 2021 ($n = 45$), probing into the students' perceptions about their online classes, as well as about their learning and engagement. The questionnaires were realized in Google Forms and administered through a clickable hyperlink sent to the groups' emails. The self-report data were later supplemented with objective data on students' participation in online classes (such as presence logs and chat sessions, for instance) and the responses to online course assessment tests and written assignments to see how they fared in terms of dishonest behaviour. This step was inspired by methodological triangulation (Denzin, 1970) which involves several different methods of data collection and which, despite being more time consuming, promotes confidence in the research results. By taking part in the questionnaire, the students consented to have the data used in an opinion survey. The students were asked for their consent to use written course production, which was anonymized before the analysis.

Results and Discussion

The number of students who took part in the questionnaires is respectively 16 and 45. They were third and fourth-year BA students for Questionnaire 1, and second, third and fourth-year BA students and MA students for Questionnaire 2. Out of those, 40 were female, 18 male and 3 undeclared. It is important to emphasize that the two cohorts had a different experience with online classes, as the first group had gone through 3 months' worth of online instruction during the emergency lockdown in 2020; whereas the second group had amassed 6 months of online classes by the time the questionnaire was administered. The questionnaire sets the context and probes into the respondents' perceptions and experiences with online classes, laying the foundations of these cohorts of students' engagement and motivation for learning, as well as their attitudes connected to online instruction implemented as an emergency measure. Quotes from the respondents' answers are provided, preserving the original grammar and spelling; additions are indicated in square brackets.

Overall Experience with Online Classes

Figure 5.1 presents the comparative answers from the two rounds of questionnaires.

In round 1, the students were rather cautious about evaluations or did not have any clear negative or positive experiences (or were unaware of them), whereas in round 2, the preference split is more clearly marked. As they moved through two semesters of online classes, they could assess more clearly their experiences. In accordance with other studies (Margaryan et al., 2011), students demonstrate their attachment to more traditional settings; nevertheless, the majority of the
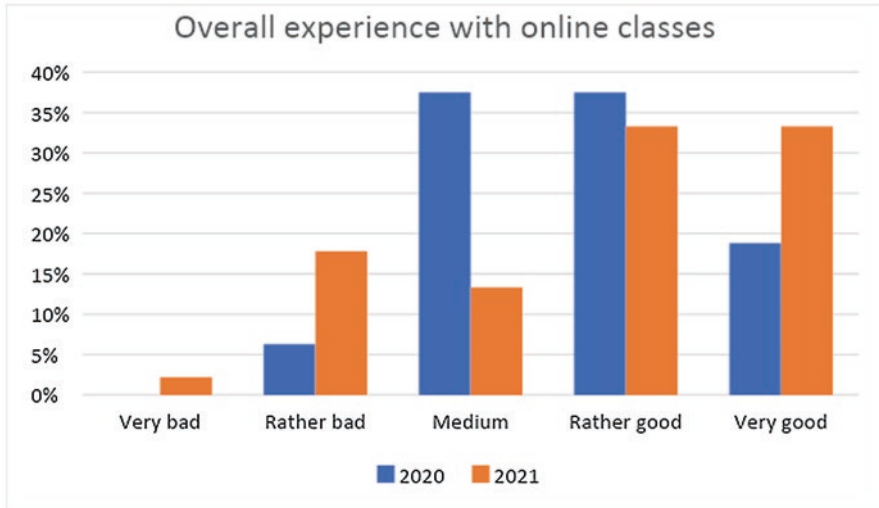
Fig. 5.1 How would you rate your overall experience with online classes (Likert scale from 1 – very bad to 5 – very good)

respondents rated positively their experience with online classes, regardless of the negative aspects they have noted about them.

In both rounds, there is a clear core of students who report that the format of the classes does not affect their class attendance, as they always attend classes (Fig. 5.2). But in round 2 there is a substantial group of students who reported attending online classes more than on-site classes. This spike in online class attendance is new in comparison to Q1, and is in line with the more pronounced preference for online classes expressed by the respondents. An important distinction between online and on-site classes in terms of attendance logs is that while on-site very few instructors keep a formal attendance log (by university regulations, they are not required to do so); while in online instruction, attendance logs are a built-in feature of the platform. The students' awareness of the logs may act as a disciplining feature to encourage attendance.

Attendance logs to classes animated by the author (7 in summer 2020 and 4 in winter 2020) show the following: small study groups have close to 100% attendance rate regardless of the type of class (lecture or practice seminar); large and composite groups have largely variable attendance rates, ranging between 19% and 38%. The logs demonstrate quite different results from the ones reported by the students, underlining the uneven degree of reliability of self-reports. It should be noted that I do not claim that these logs are representative of how the students attend all of their classes.
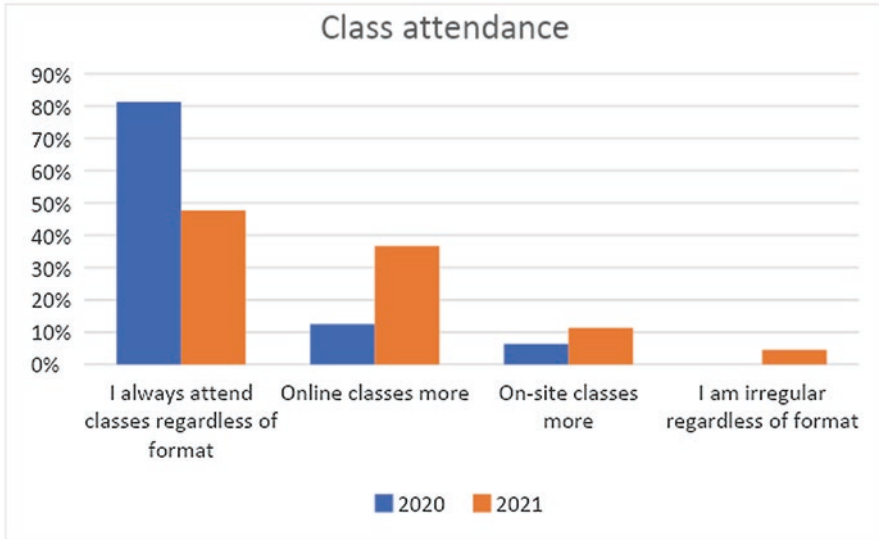
Fig. 5.2 Has your attendance improved for online classes (objective response question)

Online or On-Site Class Preferences

The question about the students' preferences was phrased in different terms in the two questionnaires: in Q1, a more general phrasing was used, to allow students to explore a wide range of reasons that may underlie their preferences for the class format. In Q2, the question focused on content, method of delivery, engagement with instructor and peers etc. The change was made in order to allow for a more thorough exploration of the students' attitude towards the learning process and their engagement in it. Figure 5.3 shows that the ratio between online and on-site classes has improved in favour of on-site classes in the second round of questionnaires. In round 2, the students express a clear preference (the slot for "no preference" is empty), with online classes being more popular than on-site classes by a small margin.

Only 7 responses were collected in Q1 concerning the reasons for the expressed preference. Out of those, two responses provided justification in favour of on-site classes, underlining the face-to-face contact with both instructor and peers, peer support and ease in communicating with instructors, as well as technical and connectivity problems in online classes. The other five responses justified a preference for online classes, with one drawback that did not involve the technical side, but the perceived workload and insufficient communication with instructors.

For Q2, 32 responses were collected. The answers problematized not only the delivery method, content, learning possibilities etc., but also underlined issues of personal comfort and communication. In favour of online classes (15), respondents have noted that the online format presented more opportunities for interaction and study (3), and easier access to visual supports such as videos, presentations etc. for
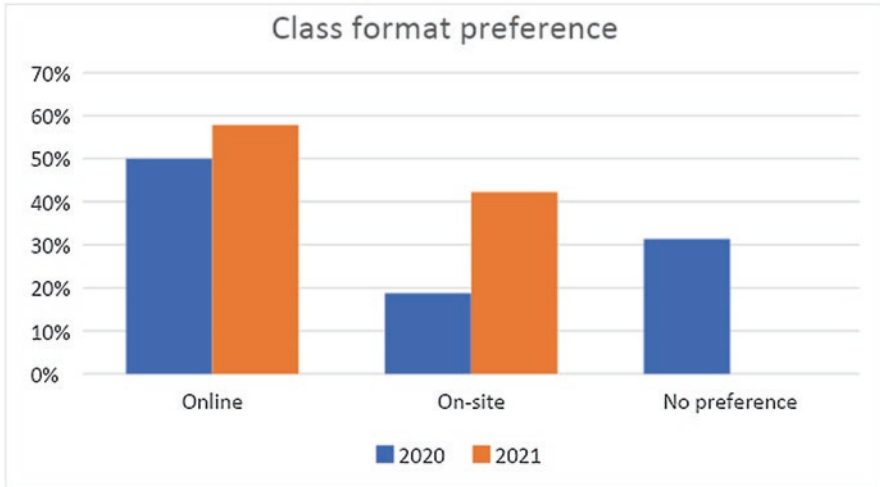
Fig. 5.3 Class format preference

both students and instructors (6) and that they had more time to study (1). Four respondents noted that they were more focused in online classes, and one respondent reported feeling more focused on-site. Three respondents provided a more nuanced response, noting that online classes were easier, but raising the question of the quality of the learning process they had engaged in.

Among the other responses that did not touch upon content and method of delivery included no travel/commute problems (3), lack of personal contact with peers and instructors was deplored (11), ICT-related fatigue (eye strain and the like – 3), and one response each for greater freedom, multitasking, feeling more comfortable at home.

When asked to list five positive and five negative aspects of online classes, the respondents presented a more detailed picture of their experiences. Those were categorized in Table 5.1.

Among the top positive aspects, home comfort and convenience is listed in both rounds of questionnaires. Time management and time saved from having spared the commute time are valued as positive aspects by students. The availability of digital materials, access to information and other ICT tools affordances (such as class recordings) are valued and taken as improvements in comparison to on-site classes. Notably, during the first round of questionnaires the positive aspects were not as varied as in the second round, where the students noted time and money saved, less stress and pressure, class flexibility and protection from COVID-19. Only one type of positive aspect they associate with online classes pertains to the methods of content delivery or the possibilities to approach material differently.

Interestingly, negative aspects were much more diverse (probably because negative information is more concrete and from a psychological point of view it is easier to remember). The differences between the two rounds of questionnaires are also

Table 5.1 List five positive and five negative aspects of your online class experience (open-ended questions)

Pros online classes	Q1 n = 11	Q2 n = 32	Cons online classes	Q1 n = 13	Q2 n = 32
Home comfort, convenience	7	19	Miss face-to-face interaction	1	12
Better time management, more time for class	5	12	ICT fatigue	1	7
Time saved	–	9	Technical problems	5	9
Access to media, ICT tools, class recordings	4	11	Too much homework	6	14
Less stress, less pressure	–	6	Insufficient instruction, bad learning habits	4	8
More opportunities to participate	2	1	Impaired communication	1	5
Shorter classes	2	–	Cheating and integrity issues	–	4
Save money	–	3	Boredom, lack of motivation	–	2
Protected from COVID-19	–	3	Peers who monopolize microphone time	–	2
Flexibility	–	3	Getting up early	–	2
			No negative aspects to list	1	3

notable in that the second cohort of respondents, who have had online classes for a longer period of time, noted the lack of face-to-face interaction in which they socialize with their peers as well as their instructors very frequently; whereas for Q1 respondents, technical problems and perceived increase in the workload were mostly at the root of bad experiences. The responses also indicate that some of the students in the second round have gradually come to the position that in the long run, online classes appear to have a detrimental effect on both their motivation and learning outcomes. This transpires in responses such as "no habit for doing homework or learning" and "You can study online classes only for 2 weeks or a month then [it] is useless" (five responses with similar points), but also in the perception of information overload reported by the students, the perception of inadequate instruction, the feeling of boredom and proclivity to dishonest behaviour, coupled with frustration and stress related to technical issues which do not paint a glorious picture of day-to-day online education. The question about the quality of their learning process voiced by some respondents finds its roots in these students' strong reliance on their instructor to motivate them to work (something which is more commonly the case in primary and secondary education). It might be that they feel unsupported by the instructors and have problems self-monitoring their own learning process.

For some students, online classes provided the ground for dishonest behaviour and cheating as they feel they have less responsibility for their learning, are unmonitored and unsupported. Even though they report that most of the classes were held in viva online (and the rest were supervised via email), they feel that instruction was

inadequate, that they lacked support from the instructors. The sentiment of being trapped and suffering from the seclusion due to anti-COVID-19 measures was explicitly voiced by one student:

> I have zero to no interaction with people outside of my family. I lose motivation when it comes to preparation for the classes as well as attending them. When the time for the exams come, I will [be] under pressure and anxious about them for I had not been studying the past semester which we were online. For a person with depression the online classes only cause trouble. The little thing could cause you trouble mentaly [sic]. Missed a class, had not done an assignment, etc. Only makes the mental issues harder for us.

The same sentiment may be inferred from the reports of missing face-to-face interaction and contact with peers and instructors.

Contrary to other studies' findings (e.g., Verhoef & Coetser, 2021), in which students reported that they worked worse at home as they associated it with a place for relaxation, the relative weight of positive feelings related to online classes is slightly bigger: the respondents list home comfort most frequently, which here is read as an advantage they associate with online classes. Under the heading "Home comfort" many different items have been included: staying in bed while logging into class, drinking coffee and wearing pyjamas while being logged into class, doing other things at the same time, multitasking. This category highlights a very peculiar dimension, revelatory about this cohort's understanding of what classes are; physical comfort is the last preoccupation in the context of on-site classes (with heating, seating and adequate desks available, with the possibility to take inside beverages such as water bottles and coffee mugs, it is never an issue) as the focus is elsewhere – make sure the students can see and hear well what is going on, that they can participate in the proceedings and they can concentrate on learning.

Again, contrary to other studies, respondents report better time management as an advantage in online classes. The time management refers not to the class itself, but the overall perception of time management throughout the day: specifications ranged from having more time to do homework to having time to engage in other activities, including during online classes. This self-report does not correlate well with the ICT fatigue reported by the students.

Here is a response from Q1 that raises the question about the integrity of the instructors in upholding their part of responsibility in online classes:

1. Most of the online classes consisted of just email instructions and sending/ receiving assignments.
2. Often the instructions were insufficient.
3. Too much homework.
4. Sameday [sic] deadlines for assignments from multiple classes.
5. Technical dificulties [sic] often got in the way.

This report indicates that online instructions did not achieve its intended goals in terms of student engagement and learning outcomes. This is also validated by another question (Did all of your classes switch to online instruction?). In Q1, only 2 students responded that all of their classes switched to online instruction, 11 answered that not all of the classes were held *in viva* using an online conferencing

platform to connect instructor and students in real time and that some classes took place through email correspondence in the form of set assignments for the students to complete. In Q2, more students reported that all of their classes switched to online instruction (23), but a still important number of students answered that some classes took place through email correspondence (21). This indicates that even after the initial period of emergency adaptation to the novel environment, some instructors appear to have neglected their part of responsibility for a successful transition to digital learning. This result also serves as a reminder that academic integrity is also reflected in the teaching duties and the care that instructors are willing to put into those duties.

ICT Tools in Online Classes

The respondents' ambiguous relationship with ICT tools is further demonstrated by their ratings of the amount of ICT tools used in online classes. Presented with a rating scale, the following responses were obtained:

Figure 5.4 shows the students' evaluation of the amount of ICT tools used for online classes. Q1 shows that despite the emergency switch to online classes due to the sanitary lockdown, the students did not think that the amount of ICT tools which they had to use for class was excessively large. In Q2, the weight of ratings above the average increased, indicating that the students had the impression that the amount of ICT tools used for class had increased. This perception is probably due to ICT fatigue and is not really rooted in reality: after the introduction of university
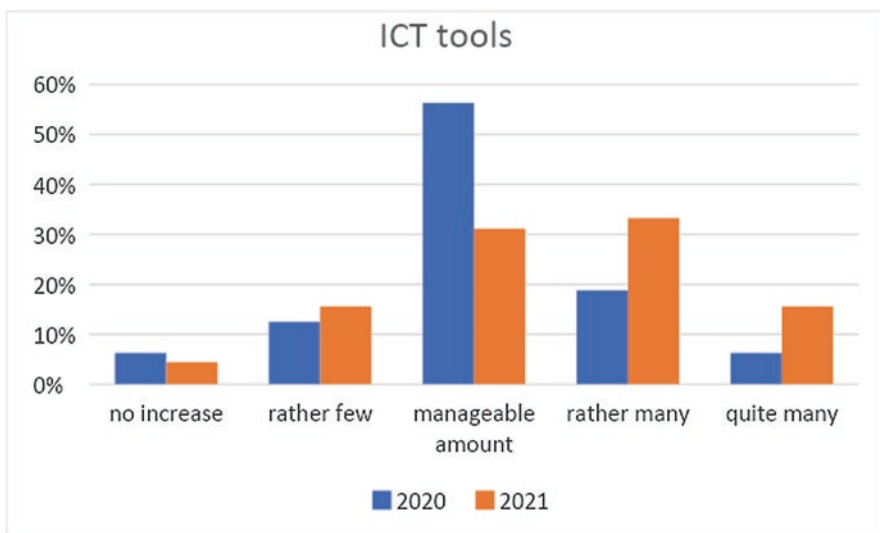
Fig. 5.4 Rate the amount of ICT tools (Likert scale)

platforms for virtual spaces and classrooms, many instructors opted in favour of using them, rather than compiling many different software programs. What is more, for conferencing software (BBB, Zoom, MSTeams), no installation is required in order to participate in online classes, but only activating a hyperlink, sent by the instructor, and typing in a name to identify oneself. In the second round of questionnaires, the students were asked to rate their knowledge of ICT tools and responded that their knowledge has improved (35 out of 44 reported a perceived increase, contrary to 9 who reported not having any increase in their ICT tools knowledge). Bearing in mind that engagement with ICT tools is a highly individual manner, both in terms of use and in terms of effects on learning (Selwyn, 2009; Wan et al., 2008), this assessment may show only that the students felt they were exposed to more tools as a result of the intensity of the exposure. Figure 5.5. shows the answers on the type of tools they had to engage with.

Cheating in Online Evaluation Tests

Two open-ended questions about English orthography, part of an online evaluation test on English punctuation and orthography class, are showcased in the last segment. The data are taken from two online evaluation tests which were conducted in January 2021 with the cohort of students some of whom took part in Q2. The open-ended questions were meant to provide the students with the opportunity to reflect on the knowledge they gained in the class and put it into perspective. The data were
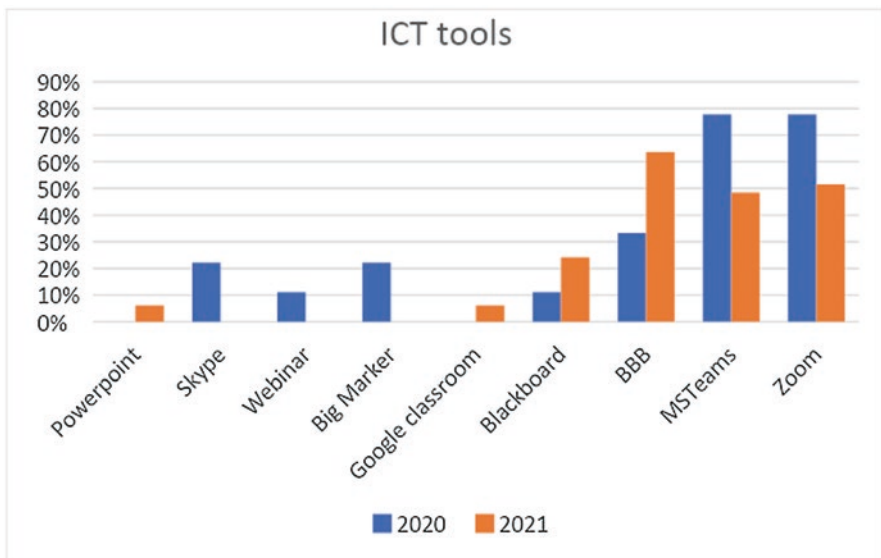
Fig. 5.5 Which ICT tools were used in your classes (open-ended question)

included in this study as a snapshot of how a number of the students who took part in the survey behaved in their course evaluation in an effort to contrast the self-reported data with objective observations on what they do. Course evaluations are conducted with the expectation of integrity on the part of the student, namely to provide the answers to the best of their knowledge and ability, using their own words. To the author's knowledge, Bulgarian universities have not implemented a proctor system for online examinations.

Q1: Why are there silent letters in the spelling of some words of English? Name at least three reasons.

Q2: What are the reasons that underlie the English spelling system?

The two questions are related, as one is a particular case of spelling peculiarity, which reflects most of the underlying principles of the spelling system; so in the ideal case, the student should be able to identify the two questions as related and transfer knowledge from one to the other either in an inductive or in a deductive type of reasoning. The answers were categorized into four types of responses: free variations (genuine answers by the students themselves), blanks (no answer was provided), copied slides (the students copied word for word from the class slides or other class handouts), copied from the net (the students copied word for word from a website online).

The results are presented in separate graphs for the two questions in Figs. 5.6 and 5.7.

One very notable difference is the lack of free variation answers for the more general question 2; the rate of blanks is also much higher for question 2, indicating that the students were unable to generalize and transfer ideas that they have learned from the particular case to the general case. Repeating paragraphs and passages that
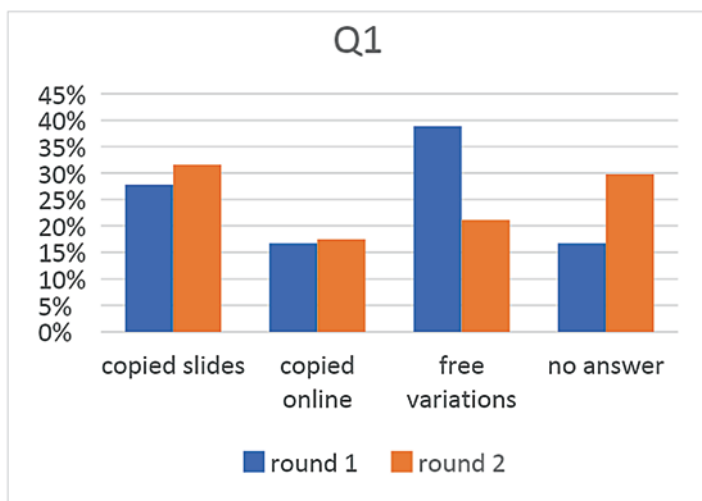
Fig. 5.6 Answers to Q1
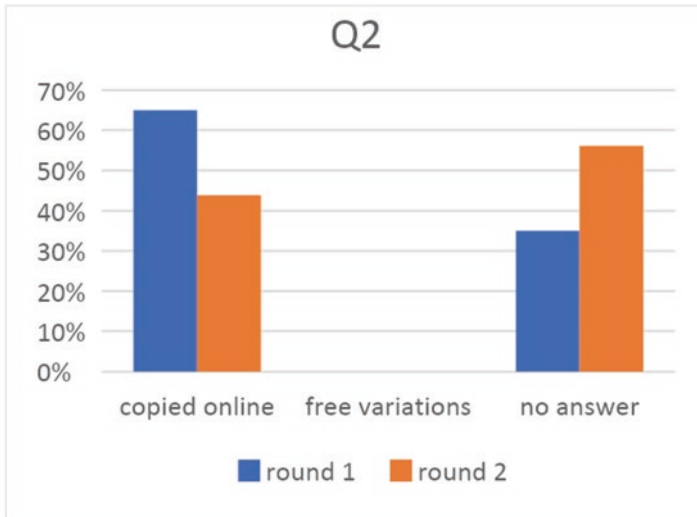
Fig. 5.7 Answers to Q2

were irrelevant to the question alerted the author to proceed to a text-matching check-up. These results show that some of the students – half of the students in Round 1 and two thirds of the students in Round 2 – seized the opportunity to cheat, quite casually resorting to copy-pasting to pass the test. It is all the more surprising because the other items on the test were practical exercises which probed into how well the students can apply the principles of punctuation use and how well they have appropriated spelling peculiarities (whenever regularities of phonological, morphological or etymological order can be observed). As it has been demonstrated by other studies, students are generally aware that using external sources (by searching on the web, for example) is unethical and inappropriate in online testing (Douglas et al., 2015). It appears that the casual attitude towards cheating (noted in Chankova, 2020c), coupled with the perceived opportunity to cheat is behind those results. It should also be noted that those were the only two questions on the evaluation test which did not preclude in a categorical way the possibility to cheat. The same cohort of students presented acceptable work on home assignments, specially crafted to restrict the possibilities to cheat.

Conclusions

The exceptional circumstances of the anti-COVID-19 pandemic measures have taken a toll on student cohorts who have the perception of having to work more and harder in online classes. Contrary to other studies (e.g., Verhoef & Coetser, 2021), the respondents in this study do not report in large numbers feelings of stress,

overwhelming fear and insecurity and the majority of them state that they prefer online classes. They appear to be quite sensitive to the negative effects this format has on them, especially after having spent 6 months in online education by the time the second round of the questionnaire was administered. Online education appears to have given them the opportunity to reevaluate the use of ICT tools (which many instructors were already using in traditional on-site classes), undoubtedly due to the high intensity of ICT tools exposure and the use of unfamiliar software (such as the conferencing software of the type of Zoom or BigBlueButton). Again, contrary to other studies (Amzalag et al., 2021), they do not appear to dislike online testing: they connect it with less exam pressure; in fact, a large portion of them appear to seize the opportunity to cheat.

The latter result goes in line with earlier research on cheating (Breuer et al., 2020; Chankova, 2017), but it does not appear that cheating is overwhelmingly present in students' production. I suggest that while online education does not allow for a dramatic increase in cheating or otherwise dishonest behaviour (I am excluding here cases of 'phantom students' – those who log in and do not manifest themselves vocally or by writing in the chat session – those cases might be difficult to ascertain) in accordance with earlier research (Watson & Sottile, 2010; Grijalva et al., 2006), it creates a different frame of expectations in students. This altered frame of expectations leads to assuming that online access to a vast quantity of materials directly translates as having the corresponding knowledge and skills.

The results of the questionnaire analysis demonstrate that online classes have a reported mild positive influence on attendance, do not really act as an interest boost for students, are a source of conflicting emotions in students and affirm some students' need for face-to-face interaction and personal socialization of the kind provided by on-site classes, especially after the cumulative ICT fatigue. Students tend to be less interested in the quality of their learning process, tend to list "comfort" as the one important thing they like about online classes (eating and drinking coffee during class, being in PJs, multitasking and "doing other things while listening to the instructor") and tend to assess the workload as definitely increased in comparison to on-site classes. The major negative aspect of online classes listed after the lack of face-to-face interaction is the technical aspect: bad connectivity, poor or inexistent connection, platform saturation, delays in speech and video, power outages, battery malfunctions and other technical problems. The question about having the appropriate technology for studying (a desktop or laptop computer rather than a smartphone) hasn't been addressed by this study, but is certainly an important one.

There is a substantial difference between the results from the two questionnaires, which could be accounted for at least in part by the experience accumulated by both instructors and students alike in dealing with online instruction. Cheating is seldom directly named as an issue (consistent with the author's earlier findings, Chankova, 2020c); students will talk instead of "less stress at exams", and of "less pressure". Now that the novelty of the experience has run off, the students appear ever uncertain about the digital instruction and appear to struggle with the new responsibility, torn between feelings of work overload and ICT fatigue and the perceived facility of online classes. ICT fatigue might well be a serious obstacle in elaborating learning

techniques adapted to digital instruction. The uncertainty and the confusion are apparent in the conflicting reports on preferences and the detailed negative evaluations provided about distance education experience. The results of this study appear to reinforce the idea that no amount of ICT tools can substitute for effort, on both the students' and the instructors' part.

Appendix

Online Classes in a Situation of a Global Pandemic

The questionnaire aims to collect personal experiences and perceptions on the effectiveness of online classes at the tertiary level. By answering you agree that the results of this questionnaire be used for a research study on online classes. The questionnaire is anonymous. Thank you for answering as fully and sincerely as you can.

Academic year:

Sex: male, female, prefer not to say
Age range: 18–20, 20–22, 22–25, 25–30, above 30
How would you describe your overall experience with online classes?

(Very bad) 1   2   3   4   5 (Very good)

Has your attendance improved for online classes?

Yes, I attend online classes more often than I did on-site classes
I always attend classes and their format has no influence over my attendance
No, I attended on-site classes more often than I do online classes
I am irregular in my attendance regardless of the class format

Do you prefer online classes or on-site classes?

Online classes
On-site classes
I have no preference

Please justify the answer to the previous question.
Please list five things you enjoyed about online classes. Be as specific as possible.
Please list five things you hated about online classes. Be as specific as possible.

Did all of your classes switch to online instruction?

Yes, all of them did.
Most of them did; for the rest, we had an email correspondence to receive and send back assignments.
Few of them did; we had classes which were not covered in any way in distance learning.

How would you evaluate the workload connected to online classes?

How would you rate the amount of ICT tools (platforms, media formats, etc.) used in your online classes?

   (few, no increase in ICT tools) 1   2   3   4   5 (many, too many ICT tools).

Please list the ICT tools you have used in your online classes.

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Chapter 6
Exploring Models of Online Learning Communities to Expand Academic Integrity Understanding in Chilean Higher Education

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Abstract This paper explores two models of online learning communities (OLCs) that could frame possibilities for expanding academic integrity understanding in Chilean higher education: community of inquiry (CoI) and fully online learning communities (FOLC). This inquiry is embedded in the challenges posed by COVID-19 to Chilean universities in the pivot to emergency remote teaching. During the pandemic, these institutions faced academic integrity issues. Although some universities provide academic integrity workshops and resources for faculty, we propose that an emerging educational approach to academic integrity in the Chilean context requires long-term and flexible strategies. We suggest that OLCs could help to sustain academic integrity cultures. Using Kenny et al.'s (2016) framework for supporting the scholarship of teaching and learning (SoTL), we carried out a conceptual exploratory inquiry into CoI and FOLC models focusing on the possibilities they provide for meaning-making, on the one hand, and microcultures formation on the other hand. Analysis shows that both models contain conceptual elements contributing to members' meaning-making, decision-making, action, and change. However, their distinct orientations and characteristics might provide different outcomes, such as critical thinking development in CoI and transformational learning in FOLC. Consequently, attention to institutional and community contextual factors might be critical in the selection process.

Keywords Academic integrity · Online learning communities · Community of inquiry · Fully online community · Scholarship of teaching and learning

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Introduction

This paper addresses an exploration into online learning communities (OLCs) as an alternative for Chilean universities to develop understanding of academic integrity among faculty, administrators, students, and staff. This research approaches OLCs as a strategy to mitigate academic integrity challenges in emergency remote teaching environments that became more visible in COVID-19 pandemic. Moreover, we believe that OLCs could support the fundamental values of academic integrity (ICAI, 2021), such as honesty and courage, in higher educational institutions in Chile by significantly building stronger institutional academic integrity cultures.

Although this inquiry emerges as a direct response to the challenges of COVID-19, we believe that there are elements of this exploration that transcend these emergency circumstances. The pandemic has rewritten many aspects of teaching and learning processes. Blended learning could fully replace face-to-face courses and programs. On the other hand, this reality has raised new academic integrity issues that need to be approached effectively to ensure the quality of programs, especially in online environments.

COVID-19, the most significant health crisis of the twenty-first century, quickly reshaped practices and interactions, including those related to higher education institutions' teaching and learning processes (Mishra et al., 2020). Worldwide, governments promoted and enforced social distancing to protect citizens' health. As a result, universities were forced to transition into emergency remote teaching, which put an unprecedented challenge to the higher education communities (Hodges et al., 2020). Moreover, it evinced some of the systems' vulnerabilities (Brown & Salmi, 2020).

In Chile, educators and educational developers at higher education institutions may have experienced numerous online challenges when the pivot to emergency remote teaching began. Among these were internet instability or accessibility problems and lack of competencies to teach and learn in online environments (Cea et al., 2020; Correa, 2020; Zurita, 2020). Furthermore, many Chilean higher education leaders and stakeholders recognized that academic misconduct cases escalated in their institutions during emergency remote teaching (e.g., Díaz, 2020; Sánchez, 2020; Squella & Bollo, 2020). Chilean university leaders also reaffirmed their commitment to ensuring the academic integrity of their programs by seeking strategies to strengthen academic integrity culture in their institutions (Díaz, 2020; Sánchez, 2020; Squella & Bollo, 2020). Consequently, support units such as teaching and learning centres implemented new educational development activities and resources to help faculty adjust their teaching practices to this new scenario and promote academic integrity values in their departments (e.g., Instituto Profesional Los Lagos, 2020; Universidad Católica de la Santísima Concepción, 2020; Universidad de Chile, 2020; Universidad de los Andes, 2020).

However, achieving this vision requires other strategies to create a more comprehensive academic integrity support system. One possible mechanism in an academic integrity system involves developing informal networks (Kenny & Eaton, 2022).

This mechanism is embodied in the experience of the Canadian Integrity Hour community. Integrity Hour is an informal online community where academic professionals from Canadian post-secondary institutions share their insights and experiences concerning emerging academic integrity themes. This instance provides an opportunity for knowledge-sharing and developing understanding in the area. The members of this community meet weekly for an hour through a video-conference platform. Everyone in Integrity Hour follows the principles of voluntary participation, safe environment creation, and participant-driven conversation (Eaton, 2020c).

Some of the impacts and benefits of Integrity Hour have been documented in the literature and the news. For example, Kenny and Eaton (2022) explain how Integrity Hour participants valued the community's information and resource sharing on emerging academic integrity topics during the pandemic. Moreover, Integrity Hour conversations allowed members to add new perspectives to the conversations in their departments (meso-level) and institutions (macro-level), using the crowd-sourcing approach that this community facilitates (Kenny & Eaton, 2022). Furthermore, the Integrity Hour approach helped consolidate anecdotal evidence concerning a rise in misconduct cases in Canada (Friesen, 2020), showing its value in identifying emerging trends.

After the first anniversary of Integrity Hour, its members shared their reflections concerning their participation. They highlighted how the meetings allowed them to access a panoramic view across Canadian institutions and share their situated academic integrity perspectives, practices, and concerns (Eaton et al., 2021). Moreover, many members recognised how these conversations helped them transition from a punitive to an educational approach to academic integrity (Eaton et al., 2021).

Inspired by Integrity Hour, we propose that creating an online academic integrity community in the Chilean context might contribute to Chilean higher education leaders' vision of developing and sustaining an academic integrity culture at their institutions. A knowledge-sharing and community-building instance, such as Integrity Hour, transcends geographical, institutional, and disciplinary boundaries and could become a feasible opportunity for Chilean universities, whose leaders have identified the need for inter-institutional collaboration using technology (Contreras, 2020).

Considering contextual factors, we pose that OLCs could be a potential strategy to develop Chilean academic integrity understanding. We use two different OLC models: the community of inquiry framework (CoI) and the fully online learning community (FOLC). We draw from Kenny et al.'s (2016) framework to support the scholarship of teaching and learning (SoTL) to carry out this conceptual exploratory inquiry. Here, we focus on the conceptual elements that both models offer, concerning the processes of meaning-making and microculture formation. We situate this research in Chilean Higher Education.

Problem Statement

Although the pandemic challenged faculty to reconsider their assessment practices, many remained unaltered at the beginning of the emergency remote teaching (Eaton, 2020a). Therefore, the implementation of traditional remote assessments, the increases in university students' stress and anxiety levels, and the growth in contract cheating companies' marketing set a problematic stage for teaching and learning in higher education (Eaton, 2020a). Slade (2020) suggested that the pandemic posed a stern test to curriculum development and online assessment design. The system's vulnerabilities also affected academic integrity, which was at serious risk during COVID-19 (Lancaster & Cotarlan, 2021). As the pandemic continued, instructors actively sought help to ensure academic integrity in their courses (Gagné, 2020) by exploring alternatives that could ensure the quality of the courses. The initial reality showed a lack of preparation for this kind of crisis at different levels (Ali, 2020).

Many Chilean institutions offered academic integrity educational development workshops and resources to respond to these needs. Most of the activities aimed to help faculty understand the academic integrity tenets, promote good practices in assessment design, and enhance capacities to use IT resources to support integrity (Pontificia Universidad Católica de Chile, 2020; Pontificia Universidad Católica de Valparaíso, 2020; Universidad de Chile, 2020; Aequalis, 2020; Unidad de Docencia de Aequalis, 2020). In this phase, Chilean university stakeholders expressed their interest in implementing an academic integrity educational perspective and initiated discussions about students' education, ethics, and best practices to approach these problems from a teaching and learning perspective (Carrasco, 2020: Sánchez, 2020; Valenzuela, 2020).

Keeping in mind how Chilean Higher Education authorities sought an academic integrity culture based on an educational perspective, we identify a gap concerning the strategies implemented during the beginning of the pandemic. This insight is based on academic integrity literature suggesting that an educational perspective, revealed through a systemic commitment to the values and practices of academic integrity (Eaton, 2021), demands a multi-stakeholder approach. This approach requires organisational change at different institutional levels (Eaton, 2020b; Stoesz & Eaton, 2020). These levels are the micro, meso, macro, and mega and are explained in the 4 M framework, developed by SoTL scholars. This framework offers organisational lenses to understand possibilities for academic integrity development in an institution (Eaton, 2020b).

The micro-level represents individual conceptual academic integrity understanding and practices; the departments, support units, and significant networks that promote academic integrity are included at the meso-level. The following layer in this model, the macro-level, focuses on the organisation's processes, structures, systems, and academic integrity policies. Finally, the mega-level focuses on academic integrity activities carried out by people outside of an institution.

Considering the Chilean Higher Education response during COVID-19, the stakeholders' interest in building academic integrity cultures, and the 4 M

framework, we identify that the Chilean strategy shows actions at the micro-level; however, those at the meso, macro, and mega levels are less visible. This gap invites further exploration of strategies that could build these frames. Moreover, culture and region shape academic integrity perspectives, and we believe there is a need to weave these spaces to develop situated academic integrity understanding (Bretag, 2016) in the Chilean context. The Chilean faculty, administrators, students, and university staff could expand these perspectives at different system levels. Thus, there is a need to introduce initiatives and programs where Chilean universities' stakeholders could interact with academic integrity to sustain organizational change towards an educational perspective.

For this reason, we seek to contribute to bridging this gap with a conceptual exploratory inquiry, which explores two OLC models, CoI and FOLC, as possibilities for Chilean universities aiming to build understanding and capacities concerning academic integrity. We believe this exploration will be beneficial for further initiatives that will be improving higher education. However, this exploration needs to be situated in the Chilean higher education context, which we will explain in the next section.

Background: Chilean Higher Education and Academic Integrity During COVID-19

Some contextual factors in Chilean higher education are relevant to this inquiry: the changing scenario in technology use and the emerging academic integrity educational development. In this section, we discuss these factors.

Changing Scenario in Technology Use

At the beginning of the pandemic, some institutions transitioning into emergency remote teaching were unaware that most people in Chile could access the Internet through low-quality and unstable connections through their mobile phones (Correa, 2020). The pandemic was especially difficult for some universities, where 30% of Chilean students did not own a computer and about 16% of them did not have Internet access (Cea et al., 2020). Student unions organized online strikes when the online pivot started and asked for better conditions to engage in their academic activities (Alcántara, 2020).

Most higher education institutions offered internet plans and devices to facilitate students' access to their academic activities (Duoc UC, 2021; Said, 2020; Universidad de los Lagos, 2021). These supports were monitored by a division of the Chilean Ministry of Education dedicated to higher education to find that 140,000

students had received internet connectivity scholarships; moreover, 7,000 students had acquired laptops and tablets (MINEDUC, 2020).

As a result of the emergency, Chilean universities underwent a quick adaptation process with a profound use of technology to carry out teaching and learning processes (Contreras, 2020; Sepúlveda, 2020). Chilean university presidents foresaw that the current COVID-19 circumstances were a springboard for more active use of blended teaching and learning in different programs (Contreras, 2020). University presidents also saw new opportunities to extend the inter-institutional collaborations that the COVID-19 scenario incentivised (Cordano, 2021). The pandemic created momentum for blurring institutional, disciplinary, and geographical boundaries favouring technology knowledge exchange.

Emerging Academic Integrity Educational Development in the Context of Emergency Remote Teaching

In Chile, e-learning programs covered nearly 5% of first-year students' enrollment in 2019 (Cea et al., 2020). Consequently, this period was characterized by uncertainty and deeply challenged pedagogical processes for some faculty. For instance, the forced change into online environments and the students' lack of involvement in the activities through video-conferencing platforms made faculty feel frustrated (Cea et al., 2020; Zurita, 2020). Moreover, part of this frustration emerged from the growing number of academic misconduct cases concerning evaluation procedures.

Consequently, many Chilean universities made rapid adjustments and offered educational development activities to address emergency remote teaching issues, including academic integrity. Universities offered workshops to expand understanding of academic integrity and develop skills in faculty concerning educational approaches (Pontificia Universidad Católica de Chile, 2020; Universidad de Chile, 2020; Universidad Católica de la Santísima Concepción, 2020). Some universities also created academic integrity digital resources, and these resources offered straightforward definitions and best practices for promoting academic integrity in online teaching environments. These resources also addressed assessment-related issues (Aequalis, 2020; Pontificia Universidad Católica de Chile, 2020; Pontificia Universidad Católica de Valparaíso, 2020; Universidad San Sebastián, 2020). For faculty, these resources guided assessment design and implementation, while in the case of students, guidance was provided to develop these assessments with integrity.

Overall, we highlight these contextual factors to provide an overview of factors relevant to Chilean higher education. Therefore, any innovation strategy intended to promote academic integrity understanding in the Chilean context should consider the rapidly changing scenario concerning the use of technology in teaching and learning processes and the emerging academic integrity educational development experiences. In this intersection, we identify possibilities in a Canadian experience called Integrity Hour.

Integrity Hour: A Possibility for Expanding the Academic Integrity Culture in Chilean Higher Education

While Chilean universities were beginning to address the pandemic's obstacles by the end of March 2020, an online and informal Community of Practice (CoP) called Integrity Hour started in Canada. In this community, faculty, higher education professionals, and administrators from different Canadian provinces and institutions started conversations about academic integrity work grounded on scholarly research, best practices, and professional experiences (Eaton, 2020a). Since then, this online CoP has met weekly through a video-conference platform.

Integrity Hour follows principles of voluntary participation, safe space establishment, and participant-driven conversation (Eaton, 2020a), embodied in members' interactions. At the beginning of each Integrity Hour meeting, all members briefly introduce themselves. After this, some members suggest and decide on academic integrity topics for discussion, and the community convener proposes a list for members to contribute through a virtual circle. This modality allows egalitarian participation; moreover, participants can also choose to pass. When the virtual circle is closed, the member who suggested the topic explains how the contributions and insights helped. An essential element of this virtual circle is that all members are engaged in established academic integrity activities in the Canadian system. Some examples of these activities are engaging in research, approaching academic misconduct cases, and teaching with integrity.

We believe that the Integrity Hour experience provides insight into how a boundless, informal, and online environment could build strong communities to promote an academic integrity culture in Chilean universities. However, as we explained, academic integrity in Chile is emerging; therefore, we propose to explore online learning communities (OLCs), which we believe could be feasible in the Chilean context. In the following section, we offer an OLC conceptualization and some insights into why this strategy could benefit university communities interested in academic integrity cultures.

Online Learning Communities

OLCs are meaningful virtual knowledge-sharing spaces that facilitate peer-to-peer learning; this type of organization also addresses participants' knowledge needs (Cegarra-Sánchez et al., 2018). Hence, OLCs gather people with shared purposes, and for OLCs members, these shared purposes are significant (Lau, 2020). OLCs can facilitate members' connections with relevant stakeholders unavailable in offline and local environments (Lau, 2020). Moreover, OLCs provide flexibility regarding personal and work commitments (Cegarra-Sánchez et al., 2018). In a broad sense, OLCs allow space for formal and informal learning.

OLC implementation can also be challenging. For example, it might be difficult for students and instructors unfamiliar with this modality (Marshalsey & Sclater, 2020). For some, the human aspect could be perceived as diluted compared to face-to-face interactions (Marshalsey & Sclater, 2020). Some community members might also struggle to establish rapport online (Lau, 2020). Moreover, some members might have limited familiarity with online tools and platforms (Marshalsey & Sclater, 2020). According to O'Toole (2019), these challenges emerge because OLCs conceptualisations are still expanding; in the author's opinion, the field needs to provide more insight into understanding the circumstances that help people learn (O'Toole, 2019).

Despite the challenges, we identify that exploring OLCs could be a powerful strategy for Chilean higher education concerning academic integrity. This significance is framed by emerging Chilean academic integrity policies and university leaders' intentions to promote academic integrity cultures. Moreover, it is also embedded in Chilean university presidents' interests in promoting collaboration between universities and the rapid and profound introduction of technology in universities' teaching and learning processes. However, using the 4 M framework to analyze this Chilean academic integrity context reveals a gap. There is a need to bridge institutional goals and the support available for the community members. At this juncture, the Canadian Integrity Hour experience provides insight into the benefits of inter-institutional collaboration in informal online settings. Therefore, considering these situational factors and gaps, we identify a potential space for the emergence of Chilean academic integrity OLCs. In the following section, we explain the conceptual framework that guides this inquiry.

Conceptual Framework: Using the Framework for Supporting SoTL

This paper uses a conceptual exploratory inquiry to analyze two online learning community (OLCs) models: The COI and the FOLC. To carry out this conceptual exploratory inquiry, we draw from Kenny et al.'s (2016) framework for supporting the scholarship of teaching and learning (SoTL). This framework addresses shifts in organisational culture in higher education (Kenny et al., 2016). It is based on a complexity leadership perspective, where social systems are seen as unpredictable (Hannah & Lester, 2009). Moreover, this framework also draws from organisational change theory to highlight three key catalysts that can create cultural shifts in supporting SoTL in higher education institutions. These catalysts are leadership commitment, reward and recognition, and integrated networks for sustained development. We identify this framework as a powerful tool for exploring possibilities towards the educational academic integrity approach in Chilean universities.

This exploration focuses on one of the three catalysts, as it is the most relevant to OLCs. This catalyst is the one called *integrated networks for sustained development*. Following Kenny et al. (2016), one of the most challenging aspects of an institution

is sustaining networks. These networks encompass diverse groups, such as OLCs. Under this perspective, as in the 4 M framework, organizational change needs to be supported by an integrated, multilevel approach. The integrated networks do not act in isolation as they are also connected to other frames; for example, processes, structures, systems, and policies (macro-level) (Kenny et al., 2016) and the individual practices concerning SoTL (micro-level) (Taylor et al., 2021). Hence, centering the attention on the concept of integrated networks in this exploration does not imply detachment from other layers contributing to cultural change.

Another consideration of this exploration is that Kenny et al. (2016) propose that these networks become involved in "meaning-making and form micro cultures" (p. 90). New practices concerning meaning-making become new traditions (Mårtensson et al., 2014). Hannah and Lester (2009) suggest that meaning-making, as a collective process, legitimizes new information and existing knowledge, tacit and explicit. On the other hand, the concept of micro-culture refers to "people working together in an academic endeavour" (Mårtensson et al., 2014, p. 535); moreover, forming micro-cultures relates to engagement in decision-making, action, and change processes.

Meaning-making and the formation processes for micro-cultures reveal the intense focus of this framework for building capacity through knowledge sharing and interaction among members. Thus, we use this insight to explore two OLC models, the CoI and the FOLC. We seek to analyze how their conceptualisations approach these processes. The CoI and the FOLC models share constructivist roots and reflect a community orientation to inquiry (Blayone et al., 2017); however, we underscore significant differences in the following section.

Exploring OLC Models: CoI and FOLC

This conceptual exploratory inquiry uses Kenny et al.'s (2016) framework to support the Scholarship of Teaching and Learning (SoTL) as a lens to delve into the CoI and FOLC models. We focus on how these models approach two main processes: meaning-making and micro-cultures formation, where the latter encompasses decision-making, action, and change processes.

Exploring Community of Inquiry (CoI) through the Integrated Networks Lenses

The CoI model seeks to support learning by developing a learning community (Keles, 2018). In CoI, the community frames the learning process, and critical thinking is the most relevant expected outcome (Barber, 2020). In its origins, this framework emerged as an alternative for higher education in the context of

asynchronous and text-based communications; however, it has expanded to other educational levels and modes (Huang et al., 2019; Keles, 2018).

This framework encompasses three essential and overlapping presences for a deep and meaningful learning experience: social presence, cognitive presence, and teaching presence (Barber, 2020; Huang et al., 2019). Social presence involves the creation of a supportive environment and trust built from open, interpersonal, and cohesive communication; it relates to members abilities to promote learning communities with higher levels of satisfaction and deeply motivated to work for a common goal through diverse collaborative activities (Blayone et al., 2017, 2018; Keles, 2018). The cognitive presence involves critical inquiry and reflection processes at an individual and collective level to construct meaning; for instance, higher-order skills, such as exploration, integration, and resolution, represent cognitive presence activities (Blayone et al., 2018; Garrison, 2011; Huang et al., 2019; Keles, 2018). Teaching presence is a binding element of the learning process and includes curriculum design and activity facilitation; it also involves instruction to develop students' learning and metacognitive awareness (Blayone et al., 2018; Garrison, 2011; Huang et al., 2019; Keles, 2018).

We identify CoI's cognitive presence as a critical conceptual element of the model that provides opportunities for exploring and integrating new knowledge; these processes relate to meaning-making. Here, there is an opportunity for emerging individual or collective processes of meaning construction that could reframe existing perspectives in community members.

Regarding the formation of micro-cultures, developing members' critical thinking and other higher-order skills such as resolution can contribute to a community's decision-making processes. These elements, deriving from the concept of cognitive presence, could combine with others from the social presence construct. The social presence incentivises the creation of a supportive environment through communication. Moreover, in CoI, community members are invited to act from motivation and engagement in collaborative activities. In this model, change is framed by members' choices about their learning process.

An overarching distinction in CoI is that it includes teaching presence; therefore, the teaching role facilitates both meaning-making and the creation of a microculture. Here, learning experiences are devised by an expert. One implication might be a power dynamic with differentiated roles for learners and those who act as teachers. In some contexts, where academic integrity is recently emerging, a CoI model could be beneficial for developing foundational knowledge and forming new communities with members identifying shared values and perspectives. It could also open opportunities for exploration and critical reflection; however, we identify potential difficulties for creating situated academic integrity understanding because a teaching presence might affect members' explorations.

Finally, in CoI, digital technologies and members' capacities to use those technologies are not considered (Blayone et al., 2017). These elements are its outliers. Consequently, the scope of the community's actions in CoI might restrict the boundaries of the community. As conceptual elements concerning technology are not the model's focus, actions and change might not go beyond; moreover, as members' use

of technology is not a focus of the model, the implementation could be problematic in some settings.

Exploring Fully Online Learning (FOLC) through the Integrated Networks Lenses

FOLC is a model derived from CoI, but it has significant differences. One of the main differences is that collaborative learning arises from social and cognitive interactions framed by synchronous and asynchronous digital possibilities (Blayone et al., 2017). Although FOLC incorporates the concepts of social presence and cognitive presence, the teaching presence is not included. Instead, teaching presence is infused into the social and the cognitive ones (Blayone et al., 2017).

As a result of this reframing, a salient quality of this model relates to the learners' roles. Here, learners are co-creators and designers of the learning experiences, and all of them are actively involved in the learning process; therefore, learners in FOLCs are empowered, self-directed, and encouraged to bring their experiences into the digital world (Barber, 2020; Blayone et al., 2017).

FOLC aims for democratic and emancipated learning communities adjusted to learners' sociocultural context and institutions (Blayone et al., 2017). Some principles for FOLCs are safety, openness, trust, autonomy, and collaboration. Members can share their emotions, explore divergent insights, solve problems, think critically, and collaborate; the focus is on creating a transformative learning experience.

A significant element of this model is the existence of the digital space. The digital space is conceptualized as the possibility of expanding the scope of the social and cognitive presence beyond community boundaries (Blayone et al., 2017). Learning can happen in varied virtual spheres, and therefore, the community's existence is not limited to specific asynchronous online meetings. Interactions can happen outside this space since learners can engage through diverse social media (Barber, 2020). FOLC digital space is fluid, dynamic, and negotiated among learners (Barber, 2020; Blayone et al., 2017).

In FOLC, collaborative learning occurs in the intersections of the social presence, cognitive presence, and the digital space; here, learners construct their sense of community and digital competencies to engage in critical inquiry (Blayone et al., 2017). Here, we also find an invitation to collaborative disruption, and the concept underlying this principle is that FOLCs are learning communities and not conserving communities (Barber, 2020). In conserving communities' members focus on protecting a belief system, whereas in learning communities, members seek to expand the group's collective knowledge (Trninic et al., 2018).

Therefore, when exploring FOLC elements to promote meaning-making processes, we also find the cognitive presence to support them; however, FOLC expands on possibilities for exploring divergent insights and facilitating members' involvement in a transformative and democratic learning process. Here, transformational

learning is the primary purpose. Promoting democratic, emancipated learning, encouraged by the absence of a teaching presence, could create a more egalitarian collaboration space. Moreover, the principles of collaboration, safety, openness, trust, autonomy, and collaboration that guide the members' interactions in FOLC provide groundings for decision-making processes in the community.

In the action processes of FOLC, members design and co-create learning experiences and could use the digital space, going beyond a specific meeting space of community members. The fluidity, dynamism, and negotiation of the digital space, which might unfold in synchronous or asynchronous spaces, could benefit from participating in collaborative action. This outward movement implies that institutions should be prepared to lead and align community members' actions and institutional policy and goals. Consequently, the visibility that actions could bring open questions regarding the community's interaction with other frames in an organisation.

FOLC sets guidelines for empowered learners who bring their experiences to the digital world and become involved in collaborative disruption. As learning is the main goal in FOLC, change is a critical aspect of community activity, and it could have effects beyond community members through the digital space. The digital space and the absence of a teaching presence combined make this model distinct from others; these elements open possibilities for collective participation and collaborative disruption. Moreover, the model contains elements to approach the use of technology with community members.

Overall, we identify these elements as beneficial for developing situated academic integrity understanding that could blur a community's boundaries. However, we also anticipate some considerations regarding FOLC. First, it would be essential to create connections with experts who could share their perspectives and insights into the community members' learning process. Second, since the actions of this type of community could potentially be more visible, it is advisable to maintain good communication with university authorities and other relevant layers of an institution.

Implications, Limitations, and Conclusions

COVID-19 became an opportunity for Chilean universities to identify vulnerabilities in their teaching and learning processes. On the one hand, academic integrity issues incentivized a need to adjust traditional practices in emergency remote teaching. On the other hand, university authorities recognized the need to increase inter-institutional collaboration to solve shared problems using technology. More specifically, this setting offers momentum to develop a systematic approach to academic integrity. Although there is progress at the micro-level, there is a need to weave academic integrity networks in Chilean higher education. For this reason and inspired in the Integrity Hour community experience, we carried out a conceptual exploratory inquiry in Online Learning Community (OLC) models to devise

alternative possibilities for dialogue and exploration that could lead to situated academic integrity understanding in the Chilean context.

The implications of this conceptual exploratory inquiry are twofold. First, we aimed to explore OLC models to share insights for future Chilean educational development programs designed and implemented to promote understanding of academic integrity. This exploration provided insights into two possibilities that could be feasible in the Chilean context: CoI and FOLC models. We also believe these alternatives need to be analysed within specific institutional contexts.

Concerning the potential OLC data/information as research input to increase evidence and empirical knowledge, we visualize the significance of considering the researcher's positionality (Schwartz-Shea & Yanow, 2011) and insiderness/outsiderness (Merriam et al., 2001). Another consideration involves following ethical guidelines for internet research by, for instance, differentiating public and private spaces and understanding the characteristics of the OLC in terms of accessibility, participants' characteristics, group's norms, and assumed audience (Warrell & Jacobsen, 2014).

Second, we sought to bridge opportunities for academic integrity OLCs in the Chilean context. As the OLC field is still expanding, this exploration becomes an invitation to analyse other alternative models in the light of new academic integrity demands in Chilean higher education. We believe this sort of analysis will provide new opportunities for strengthening informal networks that could support academic integrity systems.

As limitations, we acknowledge that developing the meso-level in academic integrity in Chilean higher education is not restricted to OLCs; instead, we used this strategy as an example that fitted contextual elements and an impetus for innovation. We also recognise that considerations for OLC emerged from learning about the situation of institutions that currently include academic integrity actions, for instance, the creation of academic integrity policies.

Therefore, this exploration might not address the needs of institutions that have not approached academic integrity from an educational perspective. This exploration might also not be suitable for some technical training centres, institutes, colleges, and universities that might still struggle to facilitate their students' internet access and devices. However, this situation has been monitored by the Chilean Ministry of Education, and the majority has been effective in offering solutions (MINEDUC, 2020). Still, we recognise there might still be a small percentage of students who would be unable to access an OLC.

Regarding the conclusions, the exploration of the CoI and the FOLC models show that they could contribute to meaning-making and decision-making processes as they build from the notions of cognitive and social presence. We identify differences in the design and implementation of these processes; as FOLC literature suggests, learners become more empowered. In FOLC, students could be co-creators and designers of the learning process, whereas, in COI, the facilitator oversees design. Moreover, both offer opportunities for action and change; however, FOLC literature seems to have a more in-depth development of the notion of digital space,

Table 6.1 Heuristic analysis tool: reflection questions for CoI and FOLC OLCs

Criteria	CoI	FOLC
Meaning-making process	Will this OLC need active guidance from a facilitator for members to engage in meaning-making processes? Will this OLC require the support of a facilitator who could design learning opportunities to engage its members in meaning-making processes? Will this OLC be a supportive environment for everyone?	Will this OLC's members become empowered enough to develop meaning-making on their own and as equals? Will this OLC embrace divergence in its members' perspectives and help its members develop situated understanding? Will this OLC be a space of openness and trust for all its members?
Micro-cultures formation	Will this OLC focus on helping its members develop critical thinking and resolution skills? Will this OLC benefit from having a strong teaching presence to guide the community's actions? Will this OLC facilitate spaces for its members to make choices about their learning process? Will this OLC center its activities in a specific digital space?	Will this OLC's members become co-creators and co-designers of learning processes? Will this OLC promote transformational learning experiences for their members? Will this OLC use diverse digital spaces that span beyond the boundaries of the community? Will this OLC focus on its visibility and facilitate a collaborative disruption? Will this OLC provide technology training opportunities to its members?

while CoI does not expand on the use of technology. The actions of the group members in FOLC can potentially transcend the social and cognitive presence outside the boundaries of the community, which invites consideration for working with academic integrity experts and creating associations with university authorities to find bridges with institutional policy and goals. We also identify that CoI can be beneficial in contexts where academic integrity is emerging, as it could help develop foundational academic integrity knowledge and connect people who share similar academic integrity values. We synthesise some reflection questions for each model in Table 6.1.

Overall, Chilean higher education could benefit from both models; however, we see opportunities in FOLC for a more democratized learning process that could openly lead to situated and collectively created academic integrity understanding.

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Chapter 7
Transitioning from Face-to-Face to Online Exams: Devising a Course-Specific Strategy to Deter Cheating

Phoebe Stavride and Angelika Kokkinaki

Abstract The Spring 2020 pandemic forced the transition of many face-to-face courses into an online mode, under "emergency remote teaching (ERT)" conditions. Several key factors differentiate ERT from an online course, such as its abrupt and temporary nature, and the lack of resources and time for preparation. As a result, faculty all over the world had to convert material developed for face-to-face courses into an online format. Using our experiences during the initial lockdown in Spring 2020 as a case study, this paper explores some of the challenges faced by educators trying to convert their face-to-face into online exams, while ensuring their integrity. Drawing upon our experiences, we describe parameters for consideration during this process, and propose solutions to troubleshoot issues that may arise.

Introduction

In Spring 2020, educators across the globe faced unprecedented challenges, as the global pandemic forced them to convert their face-to-face courses into an online format. Instructors with often limited experience in online teaching, were tasked – practically overnight – with mastering new software, re-inventing class management techniques and ways of motivating/interacting with their students, and, perhaps hardest of all, maintaining quality standards with regards to academic integrity. This situation diverges significantly from the careful design process of an online course; it is better defined as "emergency remote teaching" (ERT), a "temporary shift to …

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an alternate delivery mode, due to crisis circumstances", that fails to fully utilise the strengths of the online environment (Hodges et al., 2020).

Several key factors differentiate ERT from a carefully designed online course. Lack of time for preparation and a stressful environment are of course inherent to any state of emergency; this lack of preparation does not only refer to course materials, but may extend to the lack of appropriate equipment and relevant skills and/or training, both among students and faculty (Asgari et al., 2021; Trust & Whalen, 2020). These challenges create a precarious situation in regard to academic integrity, as stress can factor significantly in the decision to cheat. The perception that others are cheating was also quite prevalent during the pandemic (Daniels et al., 2021); such a perception can create the urge to cheat to even the playing field, particularly if grading is done on a curve (Bilen & Matros, 2021). And while this perception is not always accurate, inefficient invigilation can lead to students gradually cheating more (Chen et al., 2020; Monteiro et al., 2018); something that can only be expected to aggravate as the initial shock and uncertainty regarding online assessment wears off. Adding to the above, there is now evidence that some students may take advantage of the situation and fake technological issues in order to cheat: among German students, nearly 1 in 20 students (4.5%) admitted to doing so, a very concerning number if taken as a general indication (Janke et al., 2021).

Another key factor differentiating ERT from online teaching is the temporary, uncertain nature of most courses under the ERT circumstances. Depending on the timing of the emergency, part of a course is delivered/examined online, whereas another part may have been delivered and even examined in-person; and instruction may return to its usual mode as soon as feasible. This means that assessment methods may have to be adjusted ad-hoc, while still needing to remain consistent with the usual, face-to-face mode. The latter part becomes particularly important where accreditation is concerned, and any instructor trying to adjust to the ERT circumstances will likely be doing so within specific constraints, that may vary greatly between countries, or even areas (Crawford et al., 2020).

Under these circumstances, it makes sense to modify existing course material, where possible, rather than try to redevelop it into a pure online format; assessment methods are no exception. While various assessment methods could be built by design in an online course, adopting them under ERT conditions can be difficult, and care should be taken not to overwhelm the students with new methods in a period that is already stressful; information overload has been reported to be among the top challenges faced by instructors as well (Trust & Whalen, 2020).

A frequent scenario during the pandemic was for traditional face-to-face exams to be converted into an online version. Depending on the time and location, various approaches were adopted, from unsupervised tests to various forms of remote invigilation. The latter may involve the instructor monitoring the examinees through a video conferencing system, or it may entail the use of specialised software (henceforth referred to as e-proctoring). E-proctoring software has two main components (Hussein et al., 2020): first, the ID authentication and monitoring of examinees, their internet activity and their environment through their computer's camera and microphone, either by a human proctor (in real-time or through recordings) or by

having the software analyse the exam recording and flag suspicious events for the examiner to review. The second component is the ability to lock down the exam (i.e., prevent the examinee from opening other files/applications or browse the internet). While in theory e-proctoring software can recreate face-to-face exam conditions at home, there can be many different ways for students to cheat, and evidence shows that relying totally and solely on an e-proctoring system may not be the most effective solution; rather, a combination of different methods can maximize effectiveness against academic dishonesty (Guangul et al., 2020).

In this paper, we draw upon our experiences during the pandemic, to propose solutions to several challenges pertaining to the conversion of a face-to-face exam to an online format. While it would be unrealistic to assume that a universal strategy can maintain integrity across different academic fields and modes of exams, we propose that a course-specific strategy can be devised by instructors for each of their courses, taking into account their course's specific needs, an assessment of the main threats to the integrity of their exams and of the tools/strategies available to help safeguard them. With this in mind, we have organised the lessons we learned into a stepwise process to consider when transitioning from a face-to-face into an online mode of examination. While this process refers to running a written test, several of these recommendations can apply to other types of assessment as well.

Organising Online Exams in an ERT Setting: Lessons Learned from a University in Cyprus

Background Information: Timeline

On Tuesday 10th March 2020, in response to the confirmation of the first COVID-19 case in Cyprus, the Ministry of Education, Culture, Sport and Youth announced the temporary suspension of all face-to-face educational activities until the 15th, and subsequently 22nd March, to allow for time for contact tracing and assessment of the situation (CYQAA, 2020a). This period coincided with the sixth and seventh weeks of our semester, when most of the Midterm exams take place; a lot of exams were thus delayed indefinitely, in anticipation of further developments. In contrast, the delivery of classes resumed online according to their normal schedule at the beginning of the seventh week, as our university offers a substantial number of distance learning programmes and had the necessary infrastructure to respond fast.

After it became clear that face-to-face classes would not resume before spring break, the Cyprus Agency of Quality Assurance and Accreditation in Higher Education (CYQAA) finally issued instructions on the 19th March (end of week 7), specifying that Midterms should be conducted online, and encouraging the use of open-book questions and problem-based assessments, whereas Final Exams would be considered at a later stage (CYQAA, 2020b). This left weeks 8, 9 and 10 for lecturers to announce a new exam date to their students, modify, and run their exams before Spring break.

A decision about the Final exams was finally announced by the CYQAA on 31st March (CYQAA, 2020c), mandating the courses of action the universities were allowed to take, in order to not jeopardise their programmes' accreditation. Following these guidelines and taking into account the concerns of all stakeholders (faculty, students and our IT department included among them), the Senate prepared a framework of acceptable assessment methods that was disseminated to faculty. In brief, this included:

Online examinations: (a) Oral (recorded, at least 30 minutes per student) or (b) Written (electronically invigilated, including open book exams).

Alternative assessment methods (supplemented by a short oral exam for verification): (a) Take-home exams (released simultaneously and returned within a few hours), (b) Major project assignments or portfolios (if applicable e.g. design/art/ etc.), (c) Special-case methods requested by lecturers and pending the approval of their dean.

Faculty then discussed the available options at the School, Department or Programme level, to identify common needs between different courses and agree on a shortlist of assessment methods; this was deemed necessary, as to minimize stress and confusion (as well as the requirement for training) among our students (Papaneophytou et al., 2020); indeed, stress due to the excessive volume of new information has been reported as a major stressor for educators as well (Trust & Whalen, 2020), and was felt in our case, too. Instructors then chose one of the shortlisted exam methods for each of their courses, and exams were organised.

It is important to note that all exams were run through Moodle, as the various options it offers will become relevant in the discussion that follows; other LMSs offer similar functions. The exams were set up by our university's IT team, along with mock exams for the students to familiarize themselves with the environment and overall process of the exams, and verify that their hardware and software were set up correctly.

Perspectives and Issues in Online Exams of ERT Courses: Analysis

Through a series of focus groups and unstructured interviews, we collected our colleagues' initial concerns as well as problems that emerged later, during the implementation of their exams. Students' concerns (mostly first-year and fourth-year students) were also collected through online after-class discussion sessions/unstructured interviews and via open-ended questions included in their Moodle mock exams. Finally, our own students' learning behaviour was observed through Moodle.

Faculty Concerns: Even within the same programme of studies, initial concerns regarding the integrity of the exams were different among faculty, depending on the particular nature of their courses. For example, advanced course instructors who

routinely use critical thinking/application questions were less concerned about the use of unauthorised materials than introductory courses' instructors that have to teach (and assess) basic concepts and terminology (Knowledge/Comprehension). For the latter, multiple-choice questions, when shuffled, were felt to be less compromising than essay questions. There were also concerns about practical issues, like the requirement for handwritten answers, students' different technical/typing skills (particularly among the first-year students) and equipment (e.g. scanners or unreliable access to the internet). Other issues were only identified after running the first exams (see Table 7.1 – also Step 4 in Discussion).

Students' Concerns: From our interviews, practical/technical requirements were the most significant stressor for students, whether they were unsure of their computer or typing skills, or concerned about losing connection to the internet during the exam or having another technical problem. As mentioned before, stress alone contributes to cheating; and though technically not part of the academic integrity discussion, any technical issues arising (whether real or not) can also compromise the integrity of the exam (Janke et al., 2021). Further than that, because of the extraordinary nature of ERT, technical problems arising during the exam are both more likely to occur and need to be treated with more leniency (again, ERT is not the same as online studies, where a certain level of preparedness can be expected from the students). Students mostly reported minor issues through the Moodle questions we set up, or submitted questions regarding the technical aspects of the exams (e.g. reporting a delay when switching keyboard languages and asking if it was normal); these were discussed in class before the exams.

Discussion: Proposed Solutions

Through the methods outlined above, we have compiled a list of concerns/issues and propose relevant solutions, to either prevent or troubleshoot them. While we are focusing mainly on the cheating aspect, several practical issues are also addressed to a great extent. We have organised these recommendations into the stepwise process presented below, proposing some guidelines to be taken into consideration when converting a face-to-face exam into an online one.

Considerations Before the Exam

Before focusing on the conversion of any particular exam, it would be a good idea to revise the assessment breakdown. Even if a course normally has one major exam, we highly recommend running one or more smaller exams/quizzes first. This allows both the students and the instructor/invigilator to gain experience during a lower-stakes exam; indeed, most of the issues we experienced arose during the first exam in each course. Additionally, it minimizes the effect of any particular exam to the

Table 7.1 Potential issues during different exam settings

Open-book exams	
Potential threats/issues	**Recommendations**
Collusion (using the computer the exam is taken on or another device hidden among the notes)[a]	Running the exam in a locked-down environment (if appropriate software is available)
	Invigilating students through their phones, so that their desk and screen are visible[d]
	Prohibiting the use of headsets, as it is impossible to know what device they are actually connected to[b,c]. If a headset is the only equipment available, students can keep them around their neck[d]
	Private messages in teleconferencing systems should ALWAYS be disabled![d]
Closed-books exams that require workings	
Potential threats/issues	**Recommendations**
Students need to write workings, making it easy to camouflage cheat sheets or other unauthorised materials[a]	Breaking the exam into two separate parts to isolate the questions that need workings from questions that would be most vulnerable to unauthorised access to materials (e.g. theory part/problems part)[d]
	Allowing 1–2 pages only, that should be shown at the beginning of the exam; asking for the desk surface to be shown to be otherwise empty[d]
	Eliminating the need, if possible:
	Providing empty questions to be used as a writing space inside the exam[e]
	Modifying the exam questions (see relevant section below)[d]
	Investigating tools available in the LMS or the e-proctoring software, if using one (for example, our e-proctoring software offers a Whiteboard function, Moodle has a button to flag questions to revisit, etc)[b]
	If there is ONE specific reason students need to write, they could be trained in the use of an appropriate tool (for example, Moodle's table tool can be used to draw Punnett squares in a genetics course)[d]. Mock exams are really useful for training in the skills that are absolutely necessary for the exam/course[d] (but how-to instructions should be included as a reminder in the real exam, too)[d]

Table 7.1   (continued)

Invigilated exams with handwritten answers to be uploaded	
Potential threats/issues	**Recommendations**
Students may recruit help to correct mistakes or add to their solution off-camera (during the time allowed to scan and upload)[a]	Students showing their work to the camera before uploading (note that writings may or may not be legible)[d]. If examinees are monitored via a video-conference system this may not be an option, unless the software has an option for breaking participants in groups AND Having students type parts of their answer before uploading – i.e. the final numeric answer of a problem and perhaps an interim answer[d] Asking students an additional, specific question whose answer would only become obvious after they have finished their work[e] Asking students to number their pages – include a question in the test asking how many pages they are uploading[a]
The student doesn't have access to a scanner[a] Uploaded photos are not clear (out of focus, tilted, etc)[a] Photos can't be uploaded (wrong format, too large etc)[b]	Multiple apps exist for using phones as scanners, providing guidance to ensure the quality of the photo, and converting many photos into a multi-page pdf file. Discussing this with students early on allows them to recommend/pick their favourite one[b] Running a test upload to verify that all students have such an app running before the exam[a,b]. The LMS can be set up to only accept pdf files[e]
Closed-book exam that requires additional resources	
Potential threats/issues	**Recommendations**
Calculator is required in a closed-book/no notes exam[a]	Asking students to show their calculator to the camera before using it[d] Clarifying beforehand that phones are NOT acceptable as calculators[b] Using a built-in calculator (in the LMS or e-proctoring software, if used)[a]
Reference material is needed[a]	Providing tables, formulas etc. within the exam (either in the same page as the question that requires them, or in all pages)[d] If a dictionary is needed, a list of words may be provided within the exam[e]
Other threats and/or issues	
Potential threats/issues	**Recommendations**
Early test-takers passing answers to late test-takers[b,c]	Time windows, during which the exam is available, shouldn't be significantly longer than the exam duration[e] Long exams can be broken into two separate parts; i.e. instead of running a 3-hour exam that a good student can finish in 2 hours, running two 90 minute exams (starting at specific times), thus reducing time available for communication[d]

(continued)

Table 7.1 (continued)

Answers are easy to communicate without being visible on-camera[a]	Multiple-choice questions (and ideally, answers) should be shuffled[a]
	Matching questions, fill-in the word for terms or similar should be shuffled[d]
	Adding an essay question asking to justify the answer in one or two lines[e]
	Running a few different versions of the entire exam (either by manually creating 3–4 different versions of the exam and assigning students to them, or by setting the LMS to draw different versions of the questions at random)[d]
Some students' typing speed is low[a]	Typing speed can vary widely between students and increasing the time limit of the exam will NOT resolve the problem in a fair manner; but it will create the opportunity to cheat[a]. Rather, we propose modifying the exam questions (see relevant section below)[d]

[a]Initial concern/initial setup provision by IT
[b]Identified after running the first exams
[c]Reported in literature (e.g. Nguyen et al., 2020 but also see discussion)
[d]Used as a solution by the authors
[e]Other potential solution

students' overall grade, whether this refers to a grade inflated due to cheating, should this occur, or affected negatively due to difficulties, technical or otherwise (also see Nguyen et al., 2020). Care should be taken to not overload the students, however; if multiple tests are to be held, each should cover less material than the usual, longer one.

Considerations When Planning the Exam

Our overall process is broken into four discrete phases: (a) Delineating the desired type of exam, its' requirements (both technical and practical) and what type of cheating it would be most vulnerable to. (b) Modifying the exam questions to better suit the online environment, both in regard to safeguarding the integrity of the exam, but to also facilitate it, and eliminate some of the requirements stated before, if possible. (c) Preparing a set of rules and setting up the exam in such a way as to avoid preventable issues, and making contingency plans. (d) Running and assessing the integrity of the exam, monitoring before, during and after for any signs of suspicious activity. Actions taken in case cheating is detected are not discussed, as these largely depend on the school's policy.

Step 1: Rethinking the exam mode

Traditionally, the two main modes of face-to-face written exams are "open-book" and "closed-book" exams; however, care should be taken to elaborate on what these terms mean in an online setting. In a face-to-face open-book exam, access to books and/or notes may be common, but in a remote setting it can be difficult to ascertain

what the student is using as a source, or whether they have a device hidden among their papers, to communicate with a classmate. And while it might at first seem logical to allow students to access their files online, or find sources on the internet, one should remember that free access to the internet also means access to communication software, and social networks can be used for cheating (Monteiro et al., 2018). We recommend that access to the internet is restricted.

Another important issue, especially for closed-book exams, is writing by hand, as it is difficult to know what the student is looking at. This may mean back-of-the-envelope notes before typing, or an exam that needs to be answered by hand (e.g. solving mathematical/chemical equations, or genetics problems that require drawing). Further complications arise if the workings need to be uploaded and sent to the instructor for grading.

Other, finer points may be added to the discussion above, like are the students allowed a calculator? How about a list of formulas, or a conversion table? Different scenarios, and the solutions we used to resolve the issues are elaborated on in Table 7.1.

Step 2: Determining technical and other requirements

The questions above lead to the second part: What will the student have to do to complete the exam and what type of technical skills and/or equipment will they need? Consequently, what allowances will the instructor need to make for them? It is important to consider that certain allowances may create opportunities for cheating. For example, if the students are required to upload their handwritten solutions, they are typically allocated a certain amount of time after the exam to scan and upload them; however, this is time that could be used to confer with a classmate and change an answer. Such considerations should be addressed before the exam, and safeguarding mechanisms should be designed when planning it.

Step 3: Threat assessment

After considering all the minute details of the exam process, an instructor should have a more comprehensive view of the potential issues associated with each type of question. Solving a long problem in the classroom, for example, wouldn't run a significant risk of a student answering in place of another; in most cases there could be limited collusion, or maybe a student looking up a formula they were not allowed to. Having a student solve the same problem at home and upload their workings does allow room for a classmate to correct their entire answer though.

Therefore, by having a clear idea about the entire exam process, an instructor should be able to identify potential threats to its integrity. Is it unauthorised access to the course materials – and in what form? For example, if an instructor is monitoring students through their phones, hardcopy notes may be less of a problem than digital notes. In regard to collusion, what form could that take? Classmates communicating between them? A third-party sitting off-camera, browsing the course materials and feeding answers to the student? Someone who knows the subject and is answering in place of the student in an unmonitored exam? Depending on what

the main threats are, small changes can be implemented in an exam to discourage cheating (Table 7.1).

Recommendations When Planning an Exam: Lessons Learned

We recommend that computer-based exams should be locked down somehow (meaning that the student is not running other programmes at the same time), to avoid issues like online searching for answers, communication between students, copy-pasting of questions and answers (be it copying huge excerpts of text inside a monitored exam or copying the exam questions out of the exam, to use later – for example to pass to a classmate), etc. This can, to some extent, be achieved through the LMS system. If an e-proctoring solution is available, it can be set to block browsing out of the exam. Another solution could be to use the students' phones to monitor their activity; these could be placed on their desks in such a way that their desk surface and/or screen is visible (it is unlikely that the resolution/angle would allow the proctor to read what the student is typing, but it should be possible to see if the student has many windows open).

A very important point to remember: if using a video conferencing platform to monitor students, remember to disable private messages between participants, to avoid the monitoring system becoming a means for collusion instead.

If the exam is going to be unmonitored, it should be set up so that it is synchronous (so that a student will not be able to take it, then relay the answers to their classmates before they take the exam) and, if possible, different between students so that communication between them becomes more difficult. Again, there can be multiple ways to achieve this. The most basic one is to set the exam so that it shuffles the questions/answers for multiple choice questions. For the more technologically advanced faculty, the LMS may have a randomisation function worth using. For example, Moodle allows the use of a "random" question, that can be set to draw a question from a specific folder – this means that the same problem can be presented to students with different numbers, or the same description with different names etc. A small, five-question exam, with five alternatives for each would produce over 3000 different versions; and it would only take one mismatched question/answer version to know an exam attempt is suspect. Alternatively, the instructor can set up a few separate exams and distribute the students between them (the technological equivalent of printing two separate sets of questions when there are a lot of exam takers in a small classroom).

Due to the potential problems, hand-written answers should be avoided, to the extent possible; in order to do this, the instructor should consider why a student would need to write and provide alternatives (Table 7.1). If students are allowed to write notes, they can be asked to show their desk surface and both sides of two to three sheets of papers they will be using at the beginning of the exam. Many of our lecturers asked students to show their handwritten work on camera before going away to scan it, to avoid having them correct errors before uploading. While this is

a good strategy, the writings may not be discernible in the video afterwards; we recommend that some parts of the answer are typed in before the student submits the exam.

Technical requirements are largely the domain of the university's IT team, but whatever software an instructor chooses to use (the LMS's integrated tools, video-conferencing systems, e-proctoring solutions, etc.), should be tested on the students' systems early on. The mock exams our IT team set had the additional benefit of reducing our students' stress levels as the exam process was no longer unknown to them (see also Asgari et al., 2021); and allowed them time to bring any specific concerns to our attention so they could be addressed before the exam. A mock exam won't necessarily prevent all technical issues; for example, while the uploading process for handwritten answers was included in our mock exams, some students ran into issues only during the actual exam, because of the number/size of the files that needed to be uploaded (the advice of running smaller exams first becomes particularly relevant here). But while it can't prevent all issues, a mock exam can help troubleshoot the majority of them, or at least provide sufficient time to arrange for alternatives; students should therefore be instructed to run it at least a day before, and to notify their instructor about any issues.

Mock exams can also be invaluable from an instructors' perspective, for example to train the students if they are required to use a specialized LMS function, get feedback from them about any issues with the exam process, provide a baseline as to what constitutes suspicious behaviour for a particular student (for example, squinting or reading aloud), and more.

Creating Exam Content

Step 4: Redesigning questions

During our early faculty meetings regarding the exams, a common proposal among faculty (and the CYQAA itself), was to use critical thinking or scenario-based questions, suitable for open-book exams. However, the ability to do so depends on the nature of the course and the material covered. A major concern was knowledge/comprehension questions, that are especially common in introductory-level courses. A typical question asking to "describe X"/"explain how Y works" is particularly prone to copying from a cheat sheet, looked up online, or even having the answer supplied by an accomplice in the room. While some of these questions may be converted into a critical thinking question, it would probably be impossible to convert an entire exam in such a format. Another caveat is that descriptive questions can require lengthier answers than critical thinking ones, and some of our early year students were slow typists.

Such questions can be rephrased to resolve some of these issues. A common parameter in the cheating scenarios above is the need for a keyword, whether to look it up online, in the course's notes, or to discreetly inform an accomplice what the

question is. We devised alternative ways to pose such questions in order to avoid giving students such keywords, while also minimizing the amount of typing that is required. While some of these modifications may make collusion easier between classmates, this can easily be resolved by shuffling/randomising the questions, as described before – again, the overall exam context is important. In other cases, questions can be reformulated by utilising the tools unique to the online format. Some examples include:

(a) Using an image. For example, instead of asking "Explain how the heart works and how the blood flows through it", the instructor may provide a diagram of the heart and ask "Identify parts A – F. In what order does the blood move through them? Which parts of the heart contain oxygenated blood?" Seeing a picture will actually be helpful to a student that has studied the material; however, it should render any cheat sheet containing a paragraph useless, and would also make some types of collusion difficult, as a collaborator would have to be looking at the picture in order to help provide an answer. Additionally, alternative question versions can be created, with the labels on the picture being different for each student (i.e., A–F should correspond to different parts of the image).

(b) Providing certain steps of a process. For example, instead of asking the students to explain cell division, some key events could be provided as a list, with the instructions of arranging them in the right order and filling in the steps that are missing. Instead of a lengthy answer, the student can now type an answer of the format: "C -> A -> the nuclear envelope breaks down -> F -> attachment to the spindle -> E" etc. Moodle also has "drag and drop" questions that could be used for this purpose (though again, it is important for any special function questions to be tested in a mock exam, both to familiarize students with them and to make sure that they work on all of their systems).

(c) Providing a paragraph with the key terms missing. This eliminates a lot of the "dead" words (words that do not convey the knowledge examined but are necessary in order to construct a meaningful sentence) a student needs to type, while also making it impossible to just copy from a cheat sheet, since the examinees need to produce a paragraph with a specific format. For example, instead of asking "Explain how blood types are determined in the ABO system", the question could be: "Blood types are determined by the presence of (A) on a person's (B). There are (C) types of (A), namely: (D)…" and so on. The student will now only need to type "A=antigens, B=red blood cells, C=two", if this is set up as a simple essay-style question; alternatively, special function LMS questions may be used (where the student selects words from a list, or types directly in the gaps).

(d) Flipping a question, providing a description or example (preferably a lesson-specific one) instead of a searchable term. For example, instead of "What do you know about the X disease?" the question could become "A patient has symptoms X and Y. Which of the diseases we covered in our course are they suffering from?" etc. This way, the student can't google "X disease" on a hidden device or have someone show them the corresponding excerpt in their book;

in this particular example, even if they had a doctor in the room to help them, they wouldn't be able to, unless he/she had taken the specific course.

(e) Providing a series of True/False statements, instead of asking the students to explain a series of events, or a mechanism. For example, instead of having them describe "A activates B which inactivates C", they could be asked: Activation of A results in activation of C – true or false? This kind of question could again utilize the LMS's specialized types of questions or not – in the former case, the instructor could supply an empty essay question for the student to write some quick notes to assist them.

(f) Breaking down a question, or problem, into smaller parts. For example, consider a simple mathematics problem: "A dealer bought 20 cars, for 20,000 euros each. He sold 80% of them and earned back the money he spent, plus a profit of 2000 euros. How much did he sell each car for?" For the online exam the question could be broken down into: "(a) How much money did he spend? (b) How many cars did he sell? (c) How much money did he earn? (d) How much did he sell each car for?" This can significantly decrease the need for handwriting, and also make it impossible to change the answers during the uploading time.

(g) Similarly, even a non-numerical question can have versions with small variations. For example, a simple scenario about "Mr Black" in one version versus "Mrs Jones" in an alternative one, could provide an indication that something is amiss in a student's answer.

Other ways to reformulate questions can be devised. Administering the exam through an LMS provides unprecedented opportunities – even videos could be used as part of a question. It should be reiterated that some of these types of questions are better constructed using the LMS's special questions, than allow for shuffling and randomisation, otherwise the risk of collusion may increase (a series of True/False answers would be easier to send via chat, for example); but alternative versions of an exam can easily be created manually, as discussed before. The decision of how to reformulate questions should depend on the threat assessment done earlier.

Parameterization of the Exam Conditions and Running the Exam

Step 5: Setting the exam parameters, Defining and communicating the rules and Making contingency plans

In the sections above, several points were raised regarding what the students should, and shouldn't be, allowed. The type of examination and general process may, of course, be predetermined in collaboration with the rest of the faculty/administration. However, fine points like whether notes are allowed, under what terms, the use of calculators or additional resources etc., should be clearly communicated to the students beforehand. Similar to a paper-administered exam, students should also be

informed about any other aids, like a list of formulae or a table, that will be available to them, as this may not be immediately obvious to them.

It is also recommended that the instructor has a contingency plan, and clear instructions are given to students about what they are expected to do in case of technical problems. This will ensure that any problems arising can be resolved swiftly. This does not mean that every detail of the alternative plans should be disclosed to the students; this could be both overwhelming to the students, and perhaps counterproductive in regard to ensuring the assessment's integrity. The aim here is to assure the anxious students that they will not miss their exam due to technical issues, and to deter anyone that would be falsely reporting a technical issue – hoping to get a makeup exam and a couple of extra days of studying – from doing so.

Possible contingency plans could include setting up an online meeting beforehand (to have a quick oral exam as an alternative, if the student only needed to add a few details), keeping a meeting open for the students to come in and talk to their professor if they are facing issues, creating a (hidden) copy of the exam on the LMS to use in case there is a bug with the main one, etc; precautionary measures that only take a few minutes when prepared with a clear mind, but could be more challenging when trying to remember all the appropriate settings under pressure. If the exam has been set up in two parts, the student can be instructed to work in part two, while their issues with part one are resolved (something that proved helpful in a couple of instances in our exams). At the very least, students should have the university's technical support contact details, and instructions about how and when to contact their instructor to report the issue.

A last point is that the examiner should be available during the exam, even if they are not directly supervising it and there is an excellent technical support team standing by; some decisions may just be outside of the support team's authority to take.

Assessing the Integrity of the Exam

Step 6: Identifying suspicious behaviour

Depending on the mode of the exam, different behaviours may be deemed suspicious. However, there are some points that different types of exams share in common, that may not be immediately discernible. A lot of these involve the use of the LMS and the wealth of information hidden in its records.

The ability to inspect the exam largely depends on how many students took it. In classes where there is a large audience, it may be necessary to identify which student records to focus on first. Student activity, timestamps on exam actions etc, can help an instructor form an idea of what is happening in their class. For example, a student that hasn't logged in the course for a month, and only logs the day before the exam and downloads all the course material in one session, should probably raise concerns. A less obvious example is the following behaviour during the exam: a student browsing the exam for an hour without answering any questions, then

suddenly going back at the last moment and answering everything, without taking any time to think. In this case, it would be a good idea to check if there was a student who submitted just before and compare their answers. A similar behaviour could be observed with applied problems: a student not writing any notes or doing calculations, but suddenly typing in the answer. Having run previous, smaller quizzes can also help identify the students that are most "at-risk" where cheating is concerned.

On the other hand, if a student exhibits unusual behaviour that cannot immediately be classified as suspicious, examining the mock exam records can help set a sort of baseline. Maybe a student is particularly slow when answering, or fidgets a lot/looks away because of hyperactivity, or simply squinting at the screen because of bad lighting. The mock exam can also offer an additional instance to determine where the student is located, in case there is suspicion that they have relocated to a friend's house in order to facilitate collusion; all of the above were behaviours we observed.

Unless a camera is set up, impersonation is also a serious risk; and even if there is a camera, it is still a potential issue in large audiences. Students should be showing some form of ID, but the timestamps of exams and IPs, if those are recorded, can also provide useful information. An exam attempt starting right after another one has ended, and from the same IP is obviously something to be investigated. Issues may also arise with use of double monitors or similar; e-proctoring software can be used to block these.

Another peculiarity that should raise concerns is students providing the same answer, that was not covered in the course, and is not 100% correct; this was observed both by us and others (Nguyen et al., 2020). The source of a correct answer by the top scoring students could simply be another course the students are taking, but a quick google search is well worth the time spent; an instructor may find the not-exactly-correct answer being the top result. For an examiner that is learning by doing, while under the stress of an emergency situation, it is only too easy to omit adjusting a setting, or to simply not know about it, allowing for vulnerabilities that could be exploited; so it is always better to check.

These are just a few examples, but the overall idea is that peculiarities should be investigated (if only for the peace of mind of the examiner), and that clues as to their meaning can be found outside the exam (and may actually predate it).

Bringing It All Together: An Exam Case

To showcase how some of these points work together, we present an example from one of the authors' exams in early May 2020. This was a laboratory exam, where students were asked a few multiple-choice (MCQs) background questions, and then performed analyses similar to their work during the semester; for example, calculate solution concentrations, x^2 values of experimental data, or analyse pedigrees to determine how a disease is inherited. In-class, this was a closed-books exam,

although some formulas were provided; the problems part required extensive work-ings, which were marked.

The online exam took place during our weekly Webex session (private messag-ing disabled), to monitor the students and provide assistance if needed. To facilitate remote invigilation, MCQs were set up in a separate exam (during which notes were not allowed), with questions/answers shuffled to minimise the risk of collusion. The second part of the exam contained the problems that required handwritten answers; any necessary formulas were provided within the exam. The students showed their empty desks/papers at the beginning of the exam and were allowed to use their cal-culator (not their phone) as needed, after showing it to the camera. Five alternative exams (containing different versions of the same problems) were set up, and stu-dents were assigned to them so that teammates had different quizzes. They were required to type their final answer in Moodle; additionally, problems were split into separate parts so that some interim answers were also entered, and there were a few short explanatory questions (for example, asking them to judge the "experimental" results using the calculated x^2 value). A timed "Assignment" activity was used for uploading their workings; students were already familiar with the uploading process from their lab work during the semester. Students completed their work without issues and uploaded their workings within minutes after submitting. All workings agreed with the answers entered in Moodle (whether right or wrong), with no incon-sistencies or indication of changes, and there were no similarities in the MCQ answers. The exam in itself ran very smoothly, as the students were accustomed to the Webex meetings.

The sole abnormality arose when a similar exam was administered during Spring 21. Having more experience and resources, only one exam was set up, using "Random" and "Calculated" (a special type of Moodle mathematics question that can produce different numbers every time the problem is ran) questions to create a different version for each student; this exam was monitored, and most importantly, locked, using e-proctoring software (which also provided a calculator within the exam). Similar questions as always were used, though by having multiple versions selected at random by Moodle, hundreds of different combinations were possible.

Strikingly, a pair of friends gave exactly the same wrong answers for two of their questions; these answers would have been 100% correct for the original versions of the questions, but both of the students had completely different questions. A quick look at Moodle's logs revealed that none of their classmates had this particular com-bination of questions, ruling out collusion; rather, it seemed like the students acquired and memorized the answers from one of the Spring 20 exams, that appar-ently one of the students had kept (a point for minimizing handwriting and locking exams so that they can't be copy-pasted). Their answers being grossly different than what they should be, the students received zero marks without need for disciplinary action; it was explained to them though that they shouldn't be trying to get questions from older students, something that is often a grey area for students.

Conclusions

Emergency Remote Teaching and online teaching can diverge significantly; we have discussed their main differentiating points and outlined the context and constraints imposed by the pandemic. Although the COVID-19 pandemic is an exceptionally rare occurrence, emergency situations of a more local scale are much more common. Emergency remote teaching can become necessary to bridge disrupted teaching norms in cases of adverse weather conditions, humanitarian crises, topical or regional wars, natural disasters, health crises and others. Therefore, the methodological process to identify useful directions for ERT, as well as the practices outlined here, could be reapplied in other instances.

We have followed a structured approach to derive recommendations with regards to the design, supervision, and analysis of exam records. A similar structured approach could be utilised in order to better train all involved stakeholders and prepare them for the future. Perhaps the current crisis can lead us to a better understanding of the similarities and differences of face-to-face and online courses, and help us improve both, as well as the entire spectrum of hybrid courses between them.

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Chapter 8
Assessing Students Online – Enablers and Barriers to Using e-Proctoring and Alternative Methods

Check for updates

Jarret Dyer, Zeenath Reza Khan , and Christopher Hill

Abstract The COVID-19 pandemic created widespread chaos and disruption and forced an immediate and unprecedented move to fully online teaching, learning and assessment across all levels of education (Coronavirus and School Closures, 2020). In the initial stages of this transition, the focus was on survival and ensuring some level of activity and continuity was established. As the pandemic continued, focus naturally shifted to levels of quality assurance of teaching and ensuring the authenticity of student submissions. The very integrity of student assessment became a focal point of debate, activity and concern. There was a concerted effort among universities to transition to an online proctoring system in order to more effectively support faculty and staff during online examinations. This chapter explores the issues underpinning this transition and the lessons learned from activity undertaken, with particular focus on responses recorded from a workshop conducted at the 7th European Conference on Academic Integrity by European Network for Academic Integrity, 2021 on an ethical pathway to responsible implementation and use of proctoring technology.

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Introduction

Assessments are a vital part of teaching and learning experience because they help to understand and measure how effective the teaching techniques have been in class, and whether the students are reaching the learning objectives of the subject. In fact, one of the definitions posed in a UNICEF report on quality education states that quality education includes:

> ...Processes through which trained teachers use child-centred teaching approaches in well-managed classrooms and schools and **skilful assessment** to facilitate learning and reduce disparities… UNICEF, 2000, p.4

Assessments help students learn, to see how they are progressing, to track their learning journey. However, assessment without integrity does not add the value that it is meant to. If assessments are not designed in a manner that ensures validity of the content, do not assess subject's learning objectives, are repetitive, or students are finding ways to cheat, then the effectiveness of assessments as a critical part of teaching and learning diminishes.

Academic misconduct can mean a range of behaviours such as those identified by Newstead et al., (1996), and Khan (2014) such as students cheating in exams, to fabricating data, misrepresenting authorship, to plagiarising, contract cheating and so on (UOW, 2022). With as high as 80% of students self-reporting to having engaged in some form of misconduct in universities (Bowers, 1964; McCabe, 1997; McCabe et al., 2012), academic dishonesty can have a direct impact on the student's future, the reputation of the university, devalues the degree and makes students less employable (Carpenter, Harding and Finelli, 2006). As a matter of fact, studies have posited that the impact can go beyond classrooms into professional practice and workplace ethics (Nonis & Swift, 2001; Khan et al., 2007). Moreover, studies by ICAI (2022) postulated that cheating in exams was the highest and most common form of misconduct behaviour students engaged in.

Upholding integrity in assessments, particularly in summative exams, then becomes a crucial area of focus and concern for academics, researchers and policymakers. While institutions have put in place numerous measures to minimize cheating in exams, from educating students to using honour codes, pledge statements, creating authentic assessments, providing clear instructions (Penn State, 2016) to using invigilators, metal detectors, monitored washroom breaks, no device policies and much more (Reis, 2010).

With the scramble to adopt emergency distance learning at the onset of the COVID-19, some academics and institutions focused on ways to preserve the integrity of online exams and quizzes by using proctoring software. However, the backlash from both faculty and students has been resonating, making headlines globally (Swauger, 2020). It is important to note that currently, no international standards have been approved for the regulation and use of e-proctoring vendors. Best practices have been created by the Association of Test Publishers (ATP) and the National College Testing Associations (NCTA) (ATP-NCTA, 2015), but did not cover the full spectrum of services offered today. Further, technology has changed significantly

since that time. Over the past several months, diligent work has been conducted to conclude a multi-year project by ATP and NCTA to develop standards (NCTA, 2018), however until approved, universities need to consciously weigh all the aspects of e-proctoring before engaging in these practices. That said, with recent findings indicating that e-cheating may be on the rise (Lancaster & Cotarlan, 2021), it is imperative to prepare now.

Recognising the need to understand e-proctoring and to explore if there exists a responsible path to using such software, this paper is part of a collaborative, staggered multi-phase project called SmartEd Crisis Readiness Project that has been initiated by faculty and researchers from different countries in response to the COVID-19 pandemic. The paper presents a case study of the state of e-proctoring in one US university and presents findings from a workshop held during the seventh European Conference on Academic Integrity (ECAIP 2021) that identifies enablers and barriers to using e-proctoring services for online assessments. The paper further introduces the possibility of guidelines and presents a framework to govern and monitor such service use, discuss possible alternatives and review definitions of commonly used terminologies that need to evolve to recognise and include parameters such as crises, technology advancements, perceptions of privacy and data security and more.

The rest of the paper is organised as follows - the next section highlights the importance of summative assessments, following by the impact of COVID-19 on online assessments and exams, then focus shifts to look at e-monitoring methods, pros and cons of e-proctoring as discussed by workshop participants, case study from College of DuPage using proctoring software, to the kinds of alternatives universities have used to e-proctoring and finally looking at responsible pathway forward.

Summative Assessments and Their Place in T&L

Assessment provides the opportunity for both teachers and students to understand progress being made and identify areas for improvement. While formative assessment ensures ongoing provision and discussion throughout the term, summative assessment takes place at the end of the teaching period and with the culmination of a module, class, or unit of delivery. Typically, summative assessment involves a formal grading approach and constitutes a significant component of the teaching and learning experience.

Summative assessment takes the form of examinations, standardized tests, final projects or essays and is firmly linked to final grades. From this perspective, these forms of assessment carry a lot of weight and importance, if not value, in the teaching process (Entwistle & Entwistle, 2003). Given this reality, it is paramount that summative assessments are correctly aligned with the learning objectives and intended outcomes of the teaching module. Summative assessments have a clear

and established place within teaching and learning but they must be managed correctly in order to maximise their effectiveness.

It is important to ensure that a proper assessment rubric is implemented as this can help students to benchmark their activity against a set of defined criteria (Gibbs, 2006; Boud & Falchikov, 2007). There are of course issues with this approach, particularly when compared to formative assessments, as the learning experience can appear overly-prescribed and regulated. The nature of this type of assessment has implications for pedagogy and skill development, it also has significant implications for how assessments are monitored. This issue became increasingly apparent during the fully online teaching, learning and assessment period of COVID-19.

Online Teaching and Online Exams During the Pandemic

The immediate response to the COVID-19 pandemic was one of panic and research posits, survival where attention turned to core elements of delivery, mostly revolving around the immediate use of technology, and issues of pedagogy became somewhat secondary (Khan et al., 2021). As time went on, and the online delivery model became more established, if not accepted, underlying issues of engagement, assessment authenticity and integrity became increasingly prevalent. Some of the most glaring findings include the exponential increase in student-use and access of answer-providing services (Lancaster & Cotarlan, 2021), increase in contract cheating cases (Curtis et al., 2021; Erguvan, 2021), exam cheating (Comas-Forgas et al., 2021) and others.

The education sector's response to the pandemic was rapid and constituted a wholesale change to the approach of teaching and learning. While online learning had clearly been in place prior to the pandemic, its comprehensive use was a novelty and one that brought with it a host of new problems, and a resurfacing of old ones (Garrison & Vaughan, 2008). Among the key issues were teacher capability; equivalency; transparency and accountability; access; family engagement; mental health and wellbeing; and integrity, cheating and the practice of online assessment (Balanskat et al., 2006; Bognar, 2016).

A key issue with online exams, particularly during the pandemic, was the security and integrity of the approach. Exams taken using laptops, or other electronic devices, provide flexibility, and while during the pandemic were a necessity, there are considerable drawbacks to an institution's ability to accurately monitor this. There are approaches and software that can help promote integrity, engagement and completion but the need to have a well-regulated and monitored approach became increasingly apparent.

Options Universities Used – A Lens on e-Monitoring

It is very important before discussing the types of e-monitoring used by universities and colleges during the pandemic to first contextualize the types of remote proctoring solutions available during the COVID-19 pandemic. It is generally recognized that there are two key proctoring solutions (the use of a human to monitor the administration of tests) and monitoring solutions (the use of technology, most frequently with artificial intelligence, to record the administration of tests). Proctoring Best Practices (ATP-NCTA, 2015) defines both proctoring and a proctor as follows:

> Proctoring is the process of observing test takers while they take a test. The proctor is the person with the responsibility and authority to take the various actions to prevent the test taker from stealing or removing any confidential test materials, or from performing any unauthorized activity that would enable the test taker to gain an unfair advantage during the test. (p. 9)

Further, it states that:

> Effective proctoring not only requires careful monitoring of the testing environment, but also having the opportunity to intervene in the face of suspicious activity... Such intervention must include the opportunity to communicate with the test taker to eliminate the suspicious behaviour or improve the environment as well as the opportunity for the proctor to terminate the test. (p. 46)

While this definition has created an excellent understanding of the role of the human proctor in the test administration, it had not anticipated the advent of numerous technology-enhanced solutions that would come to the forefront during the COVID-19 pandemic. Thus, leaving the industry without clear descriptors for all the various types of solutions available that did not rely solely on a human proctor.

In addition, industry experts had clearly stated that record & review, a generalized term to describe when a test administration is recorded and then either watched in full by a human reviewer for test irregularities or watched in part for irregularities only when a technology flagged suspicious behaviours of the student, did not meet the definition of a proctor (ATP-NCTA, 2015).

Per this definition, the e-proctoring modality consists of all tests administered remotely that are observed by a proctor in real time and either use artificial intelligence to flag test taker irregularities or do not use artificial intelligence to flag test taker irregularities. E-proctoring is used to describe the watching and recording of a student in a test session by another human proctor/invigilator that can both communicate with the candidate or respond to irregularities in real time as necessary. The process is live and synchronous with a trained proctor present for student ID verification, exam administration and conclusion.

This, however, leaves a gap in the literature for students involved in other modalities of testing that do not fit under the proctoring definition. Therefore, in an attempt to define these modalities, testing experts followed a modified Quality Glossary Process for Vocabulary Development Framework (US EPA, 2020) to develop terminology that could effectively describe and define the modalities that did not fit the proctoring definition. Initial feedback was shown to support covering these

modalities under the blanket term "monitoring" (Dyer, 2021). This term would cover, therefore, all asynchronous remote test administrations.

Examples of the monitoring modality consist of the recording of tests administered remotely that are not observed by a proctor in real time and are able to be reviewed at a later time. The recording can either include the use of artificial intelligence to flag test irregularities or not use artificial intelligence to flag test irregularities. Monitoring differs from proctoring as it is asynchronous and recorded with the intent of faculty or staff to review the entire video or, if artificial intelligence is used, video clips containing the flagged irregular behaviours as indicated by the software. Different options are provided by most companies to further assist in the review and include a trained specialist present to check the identity of the student or human review of the video prior to faculty review are commonly offered. In the latter, a trained reviewer watches the video to screen against false positive flags, and a summary is included in the report with the intent of saving review time by the faculty.

Technology assisted monitoring is the use of artificial intelligence to review the actions and behaviours of the student and flag those behaviours for further review. While these definitions are still within the draft stages, it is clear that the necessity of additional terminology to define these modalities and formalize the terminology across all user groups for standardization and clarity in the literature is necessary.

Barriers and Enablers of e-Monitoring

Having developed this understanding of e-proctoring, the workshop conducted at the ECAIP221 (held during June 9–11, 2021 virtually and hosted by ENAI, Uppsala University in Sweden and Mendel University in Brno in Czech Republic) used Mentimeter & Padlet to next capture the responses of the participants who attended the workshop on understanding their attitude towards e-monitoring or e-proctoring. Approximately 15 participants joined the session and shared their opinions while accepting to be recorded for research purposes. It is also important to note that both of the tools used to capture responses were set to anonymous and did not require the collection of any personally identifiable information, hence ensuring anonymity of responses collected. The participants were from diverse backgrounds and varying countries, some were seasoned researchers, some were PhD students and early career researchers. It is interesting to note that the response was quite varied as illustrated in the word cloud in Fig. 8.1. While some said it "could be dangerous", "suspicious", "confusing", "unsure", "impossible", others said "hopeful", "promising choice", "optimistic", "to boldly go". The responses clearly showed a diverse attitude from participants which is in alignment with findings from Alessio & Messinger (2021).

We wanted to know why the participants had such diverse feedback to how they felt about e-proctoring and associated technologies. So, we next asked the participants to share if they could identify some barriers and enablers to using
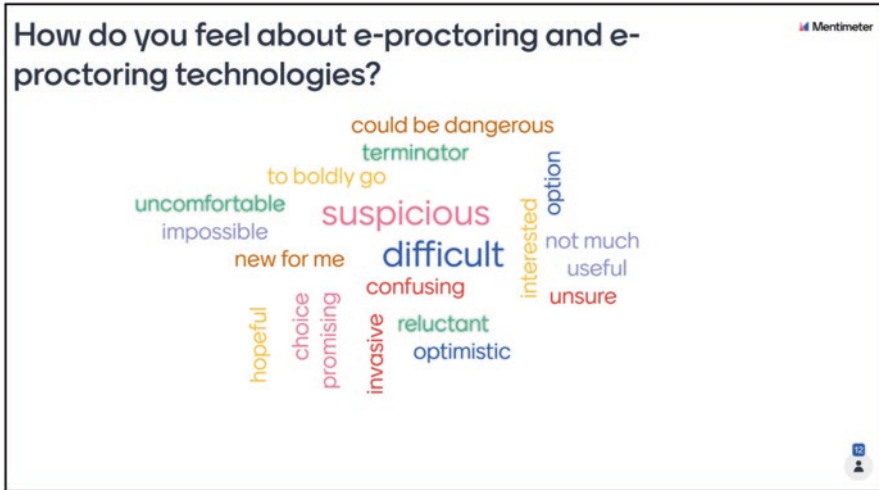
Fig. 8.1 Workshop participant attitude towards e-proctoring and associated technologies

e-proctoring. Using a Padlet, the participants' responses were recorded as shown in Fig. 8.2.

Participants felt that if students had good technical capabilities, this would act as an enabler to using e-proctoring for online assessments. Along the same line of thinking, participants also pointed to "convenience", "ease of use", and "affordability" as possible enablers of using e-proctoring. Some participants found that having the "choice" as an enabler in itself, along with "potential" due to "lots of online learning" and ability to "supervise students wherever they are studying". These feedbacks are in alignment with the Technology Acceptance Model (TAM) that posit that drivers of technology acceptance are "perceived usefulness" and "perceived ease of use" (Davis, 1989; Tang and Chen, 2011; Musarrat et al., 2013).

On the other hand, studies have highlighted barriers with using e-proctoring such as privacy intrusion and operational issues (Haq et al., 2015; Ertmer et al., 2012; Lilley et al., 2016; Armstrong, 2016). The responses collected from the workshop participants suggest similar concerns as barriers such as "privacy", "lack of information and training", "equipment", "increasing mistrust".

The results suggest that while there are some positive enablers to faculty wanting to use e-proctoring solutions, the concerns range mostly towards the privacy issues and operational ones. These findings provide an understanding of the concerns that exist among faculty when looking to use e-proctoring technologies in their subjects.

The participants were then presented with a case study of an American college, College of DuPage, that implemented e-proctoring solutions. The case is detailed in the next section.
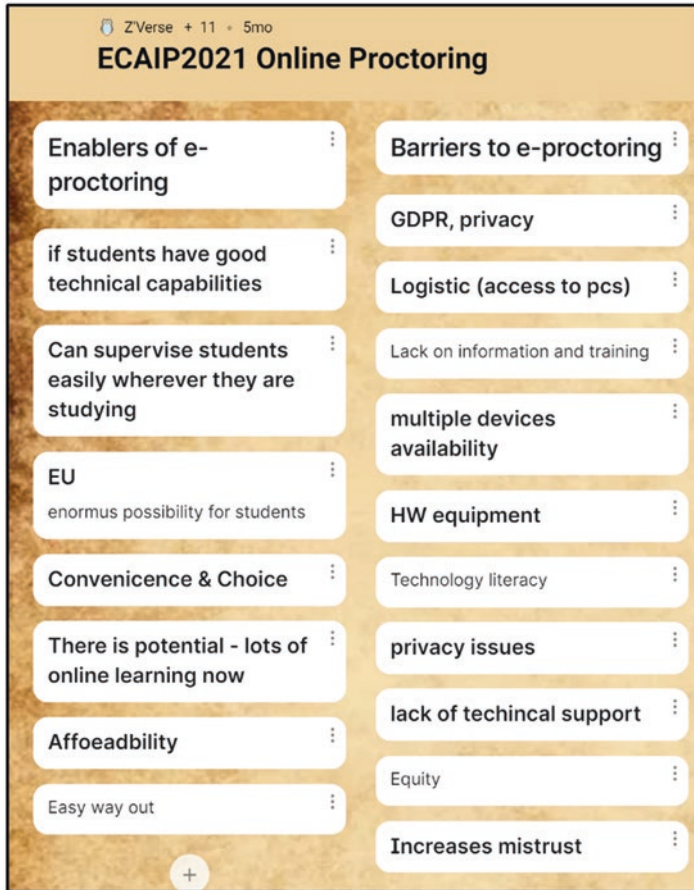
Fig. 8.2 Workshop participants' responses to identifying enablers and barriers to using e-proctoring

Case Study – College of DuPage

Having elicited both enablers and barriers of e-proctoring, we decided to share one case for the use of e-proctoring from the College of DuPage in the US. College of DuPage is a public community college and is the second largest institution of higher education in Illinois with around 25,000 students. Prior to the COVID-19 pandemic, the College of DuPage Testing Centers had administered placement tests in proctored test environments at the five campus testing centres.

At the beginning of the COVID-19 pandemic, however, all testing centres closed and the need to administer unproctored placement tests was accepted as the only course of action at the time. Students were therefore allowed to test remotely at home without a proctor.

In 2021, the testing centre staff were presented with the math placement graphs presented below. The graphs were then reviewed for a comparison of testing time periods of spring 2019 when placement tests were proctored and spring 2020, when the placement tests were unproctored. In 2019, 6592 students tested in a proctored environment at a testing centre. The most frequently occurring score was 32 out a possible 100 with 180 students receiving this score). This was followed by 30 and 11 as the second and third most frequently occurring scores (Fig. 8.3).

It is important to note that proctored student test score data for 2019 were consistent with student test score data from spring of 2017 and 2018 all administered in a proctored environment. In these previous years, student test score data for proctored environments were similar to those presented below for 2019. This further highlights the significance of the results shown in the unproctored student test score data from 2020, and makes this data set even more compelling and supports previous findings (Dyer et al., 2020).

In 2020, however, 4746 students took tests and while the most frequently reported score remained about the same at 32, the second and third most frequent rose significantly 82 and 80 respectively (Fig. 8.4). A score of 76 or above places a student into the highest math course range from a placement test, Calculus and Analytic Geometry 1. This is the highest course a student could place into with the math placement test.

While there could be many contributing factors to these findings and while further study will be required, it is clear that, given the sheer scale of students testing, the data are suggestive that students gained a considerable advantage in an unproctored testing environment over a proctored environment.

Regardless of the cause, it was an indicator to staff and administration that test proctors were an essential part of test administration. This echoes what has been found previously, students self-reporting that unproctored testing environments lead to higher levels of academic dishonesty than tests administered in proctored environments (Dyer et al., 2020).

In addition, as a point of clarification, it is also important to articulate at this point that both the data and graphs above are the property of the College of DuPage
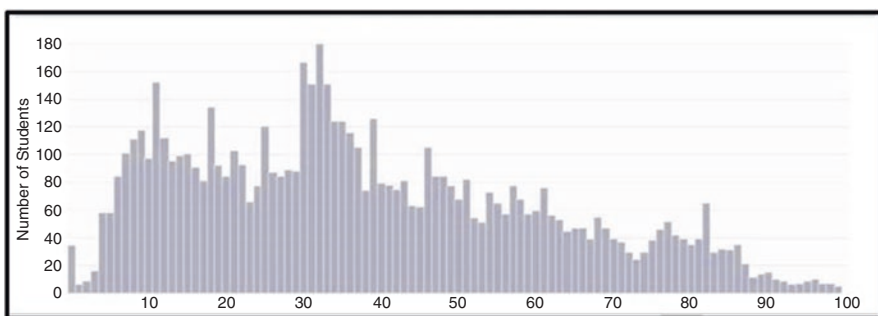
Fig. 8.3 Proctored math placement test scores for spring semester 2019
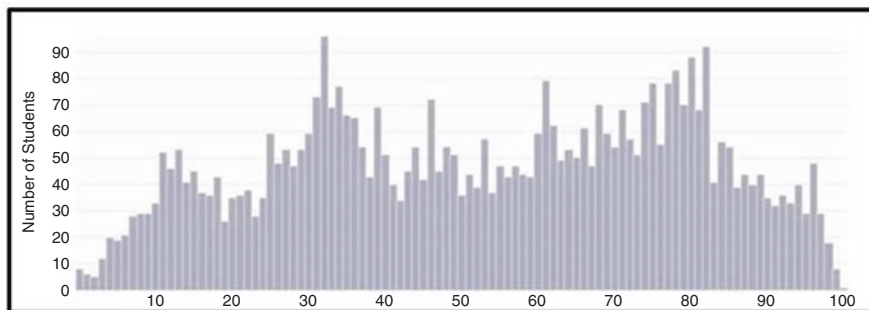
Fig. 8.4 Unproctored math placement test scores for spring semester 2020

and shared with the consent of the custodian of record and with permission of the institutional review board.

Alternatives to e-Proctoring

Having discussed participants' own attitudes towards e-proctoring and the case of successfully using e-proctoring at College of DuPage, we asked the participants to next reflect on their own practices and share with us some alternatives they used to e-proctoring (see Fig. 8.5).

These responses were a great contribution from the workshop as the participants provided a wide range of alternatives they actually used in their own classrooms. The alternatives suggested included:

- setting up of authentic questions that focused on "knowledge application",
- varying formats of exams,
- conducting oral exams that followed written ones to have academic discussions with students which helped faculty gauge student understanding and ability to formulate answers as provided on written exams,
- open book exams,
- timed and sequential questions so students cannot go back and forth,
- times case studies, and
- alternative assessments instead of summative exams.

In fact, many of these alternatives have been described by Silverman et al. (2021) as people-centred approaches. It is important to note here that the study noted how faculty were not always very receptive or confident of alternatives such as open book exams, or worried that there would be collusion, or contract cheating from answer providing sites for such exam types (Silverman et al., 2021). This kind of concern is supported by studies such as Lancaster and Cotarlan (2021) and Lancaster and Clarke (2014).

Fig. 8.5 Workshop
participants' responses to
alternatives used instead of
e-proctoring

Alternatives to e-
proctoring

Questions to test the
knowledge application

different examination
forms (not testing the
knowledge, but abilities)

Oral exams, academic
discussion

Open materials exam

Open Assessments

Oral exams

Consult exams (students
had access to books and
other materials)

More creative approaches
for exam tasks

Timed Case Studies

alternative Turnitin
assessment

In addition, studies have posited time and again that "tests" have been determined to give rise to long term learning than just passive restudying (Bjork, 1994; Gates, 1917; Batsell et al., 2017; Fernandez & Jamet, 2017).

Given that studies such as Ardid et al., (2015) and Nizam et al., (2020) have found that there are no major differences between online and face to face exams as long as they were proctored. So it can then be posited that in order to uphold integrity, besides the alternatives discussed, e-proctoring can be a method to use during summative assessing. However, as seen in the existing body of literature and from

the responses by the workshop participants, there are serious concerns over ethical, social, and operational issues surrounding the implementation and use of such technologies.

Pathway to Responsible e-Proctoring

Having discussed with the participants' many of the alternatives to e-proctoring used in their own classrooms, we moved on to ask participants to share how they envisioned making e-proctoring a responsible practice. The responses are captured in Fig. 8.6.

The responses collected here were a very informative part of the workshop as the participants provided the guidelines they would like to see in the use of e-proctoring in their own classrooms. The guidelines were as follows:

Fig. 8.6 Workshop participants' responses to guidelines the participants wanted for responsible e-proctoring
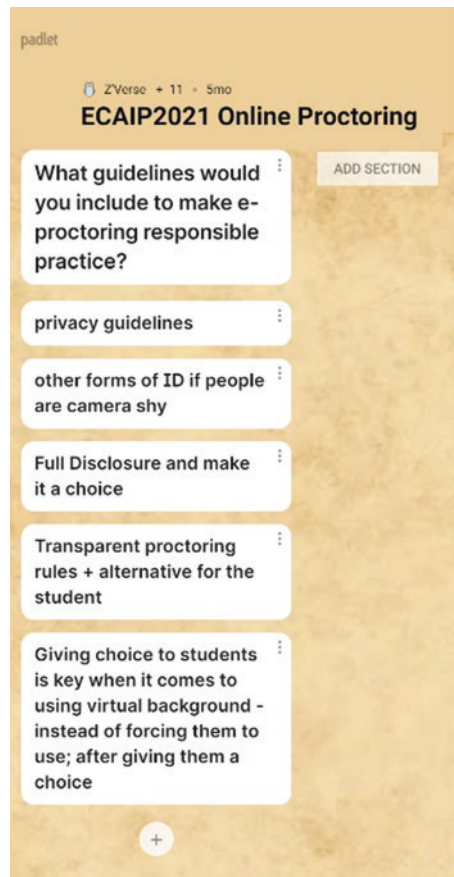
- considering privacy,
- alternative forms of acceptable student identification if the student was unwilling or uncomfortable with using a camera,
- ensuring that there is full disclosure in the use of the e-proctoring service and that students were allowed a choice in e-proctoring.

Participants also commented that the rules for e-proctoring needed to be very transparent and that the students should be afforded alternatives as appropriate to e-proctoring. There was also a healthy discussion on what can be viewed in a student's personal area and if a student is given the choice of using a virtual background.

Conclusion

The pandemic forced most academics to rethink their assessment strategies, redesign them and look to online proctoring services as alternatives to ensuring integrity of online exams. While e-proctoring and e-monitoring has merit, these are not magic pills and cannot ensure any kind of guarantee that students will not engage in academic misconduct. Moreover, e-proctoring has raised concerns over bias, privacy and security of data and information, among others. This paper provides information that will facilitate further investigations into whether there exists a responsible path to using e-proctoring. The feedback collected and presented in the paper has added greatly to the areas outlined in this paper and will assist further investigations into the impact of COVID-19 on online assessments and exams. Discussions have clarified the need for further terminology in e-proctoring and e-monitoring methods, as well as the pros and cons of e-proctoring as discussed by workshop participants. The case study of College of DuPage showed how strong the need for e-proctoring remains. Finally, the feedback shared by participants on alternatives universities have used to e-proctoring and guidelines for a responsible e-proctoring framework will strengthen this continued investigation. While these investigations continue, it remains clear that based on this workshop, upholding integrity in assessments, particularly summative exams, continues to be a crucial area of focus and concern for academics, researchers and policy-makers.

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Part III
Academic Integrity and Technology

Introduction

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Technology gives great opportunities to mankind. Computers can easily perform certain tasks that are too demanding for the human brain. Also, in the field of academic integrity, technology can serve us and help us a lot. Only 20 years ago, plagiarism detection on a larger scale was basically impossible. Humans – teachers – were able to compare a student's text with just a few published sources that they were familiar with. On the other hand, humans – students – were able to go to a neighbouring town, visit the local university's library, find a suitable thesis, copy it and submit it as their own. Could you imagine a teacher detecting this 20 years ago? And could you imagine a situation when a student does this nowadays?

When students copy verbatim from an accessible source, detection of this act is easy, thanks to technology. Still, we as educators see other academic integrity challenges beyond our human capacities, which until now has been beyond the capacity of technology as well. Such challenges are translation plagiarism, detection of contract cheating or detection of cheating in an online environment. The following three chapters describe promising technology advances in these above-mentioned directions.

The chapter "Cross-language plagiarism detection: a case study of European languages academic works" introduces an approach to detecting translation plagiarism based on machine translation combined with deep learning neural networks. The authors tested the method on an artificial dataset and also on real data – theses from European universities. The results were very promising – they were able to detect official translations and improper text reuse as well.

The chapter "Developing decision support for marker detection of contract cheating: an investigative corpus linguistic approach" is based on an idea that

commercial essay writing differs from genuine students' writing in the style, and this can be distinguished by the use of linguistic components. Ten linguistic components provide the basis for a predictive text classification model, which reached an astonishing 82% accuracy within the experiments! And what might be positive for readers who are teachers – some of these components such as "lexical sophistication" can be easily distinguishable by a human eye when reading a student's essay. Therefore, while waiting to have this feature in our own computer, we can focus on these features in students' essays and therefore support our intuition.

Collusion in online unproctored tests is a teacher's nightmare, and when a test is computer evaluated, teachers have no chance to even check for signs of collaboration by students. The chapter "Data mining of online quiz log files: Creation of automated tools for identification of possible academic misconduct in large STEM courses" introduces a method which enables technology to raise suspicions about students' collusion instead of humans. Data mining of the quiz records enables the detection of suspicious behaviour based on values outside of expected norms. The tests which are marked by the computer as suspicious are reported and they can be investigated further by humans.

Chapter 9
Cross-Language Plagiarism Detection: A Case Study of European Languages Academic Works

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Abstract The chapter investigates the problem of cross-lingual plagiarism in academic works of European universities. Although the possibly massive problem of incorrect text reuse, most text reuse detection systems generally focus only on the monolingual plagiarism text reuse: when both the analysed document and source of text reuse are written in one language. In this chapter, we analyse a more difficult setting: when the languages of the analysed document and reused language are different. For this problem solution, we present a system of cross-lingual text reuse detection. The system composes the methods of statistical machine translation and deep learning methods based on the contextualized word embeddings, such as BERT and its multilingual version, LaBSE. To analyse the efficiency of the proposed method, we conduct experiments both on the synthetic dataset generated using machine translation systems and on the real dataset of academic graduation theses. We experimented on the collection of 10202 documents and found 103 documents with a significant amount of cross-lingual text reuse. Although these results are preliminary and should be verified further, they confirm the massiveness of this problem in academic science.

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Introduction

Over the past two decades, the research of methods of cross-language plagiarism detection and text reuse detection has been rapidly evolving. The key prerequisites for such development are, on the one hand, a significant improvement in the methods of machine translation that facilitate the generation of translated texts, and, on the other hand, in natural language processing methods, especially those using deep learning. However, despite growing interest in this problem, only a small amount of work is devoted to industrial-scale cross-lingual text reuse detection. The ambiguity of translation, high requirements for equipment, and significant time inputs for building indexes, configuring the algorithm, and processing a single document during the research were the most significant obstacles to the broad-scale use.

In this chapter, we propose a cross-lingual text reuse detection method, which can be effectively scaled for industrial needs. This method is based on the monolingual approach, investigated in (Bakhteev et al., 2019; Kuznetsova et al., 2021). The proposed method for detecting translated plagiarism cases is implemented in two stages: finding the so-called candidate texts and comparing text fragments in the analysed document with the candidate documents. The shingles method (Broder, 2000; Vashchilin & Kushnir, 2017) for document search in a large collection of documents is used at the candidate selection stage. For each document in the collection, the text is normalized, split into n-grams, and the hashes of these n-grams are then saved in the index. During the search for cross-language plagiarism cases, an automatic machine translation system translated the document into the language of the search collection. At this stage, the requirements for the quality of machine translation are not high. Multilingual methods of sentence vectorization are used for document comparison: all the sentences from the analysed document and the documents in the collection selected at the first stage are placed in the vector space using the deep learning models. As such a deep learning model, the distilled version of the Language-agnostic BERT Sentence Embedding model is used (Feng et al., 2020).

The present study aims to search for cases of cross-language text reuse in the papers published by European universities in their open access repository. We test the hypothesis stipulating that some authors, who wanted to benefit from the imperfection of plagiarism detection tools, used translated parts of texts by including them in their works and not referring to actual authors. In this research, we used the scientific papers from the repositories of the 25 large universities in the countries with a high level of education, where English is not the official language: France, Germany, Portugal, Spain and Sweden. The experiment is conducted by comparing the collection of more than 10 thousand multilingual documents against the large web collection of documents. The collection contains a subset of papers available in

the Antiplagiat system (https://antiplagiat.com), its size approximately equals to 50 million. The analysis of detected cases is provided in the chapter.

The chapter is organized in the following way. The following section is dedicated to related work. The next two sections are about the formal problem statement and the proposed method. Finally, experiments, including large-scale real-world data experiment, are described in the final section of this chapter.

Related Work

There are constant concerns about the plagiarism problem in academia (Shahabuddin, 2009). Researchers from a variety of countries try to investigate and prevent the phenomenon of academic plagiarism. For example, the investigation of this problem can be met in Bulgarian-German research (Vassileva & Chankova, 2019). The awareness of growing plagiarism cases is reported in Pakistani (Ramzan et al., 2012), Iranian (Ghazinoory et al., 2011), and Nigerian (Maina et al., 2014) universities. The academic community searches approach to discourage plagiarism by educational means (McCabe, 2005; Fischer & Zigmond, 2011; Hopp & Speil, 2021). Another domain of research is software development for automatic plagiarism detection (Foltýnek et al., 2020; Clough, 2003; Meuschke & Gipp, 2013). Cross-lingual plagiarism is the most challenging plagiarism type to detect automatically. Given a fixed language pair, one can propose a machine translation-based family of methods. The analysed document, say in Russian, is translated to the language of the search collection, say in English. Then two texts in English are compared to find similar passages (Muhr et al., 2010; Bakhteev et al., 2015). Different modules of machine translation systems are used for text comparison. For instance, the paper (Barrón-Cedeño et al., 2010) uses the IBM-1 model to extract information about the similarity between two texts. Various n-gram and term statistics are used in the approaches (Ehsan et al., 2016; Alaa et al., 2016). Recent advances (Wang et al., 2019) in machine translation can boost machine translation-based branches of methods. For example, in (Aharoni et al., 2019) authors propose massively multilingual machine translation, which is encapsulated into a single algorithm. Paper (Zhu et al., 2020) incorporates Bidirectional Encoder Representations from Transformers (BERT) (Devlin et al., 2019) embeddings into the task to achieve state-of-the-art results on several benchmarks. Paper (Sennrich & Zhang, 2019) investigates the ways to work with low resource language pairs within a machine translation framework. However, machine translation from each to each of large pool of languages is computationally very expensive. Due to this fact, we used translation chains which consisted of more lightweight translation models (Koehn et al., 2007).

There is a branch of the research that proposes to incorporate additional resources such as thesaurus and ontologies. Papers (Franco-Salvador et al., 2016a, b; Erritali et al., 2016) propose to use WordNet (Miller, 1995) and BabelNet (Navigli &Ponzetto, 2010) for the extraction of a text similarity. Text similarity estimation was done by representing language as a graph and measuring similarity between

graphs. The work (Franco-Salvador et al., 2016a) describes a method of combining the neural network approach with knowledge graphs. The main drawback of this approach is the resources requirement: the approach requires using multilingual ontologies, such as BabelNet (Navigli & Ponzetto, 2010), which is delivered as a service and cannot be easily used in large-scale industrial products. Bibliographic data also can be used for the task as proposed in the paper (Mazov & Gureev, 2017). Current state-of-the-art (Roostaee et al., 2020) employs multilingual word embeddings for the text reuse detection problem. In (Søgaard et al., 2018) it was shown that usage of such word embeddings may lead to suboptimal results, the quality of multilingual word alignment significantly depends on the analysed language pair.

There are several recently proposed methods developed for the case of predefined language pairs. A system for Russian-English plagiarism detection is proposed in (Bakhteev et al., 2019; Kuznetsova et al., 2021). The corpora for the text reuse detection for the Hindi-English and Urdu-English language pairs are proposed in (Agarwal, 2019; Haneef et al., 2019). In (Nguyen & Dien, 2019) authors develop Vietnamese-English cross-lingual paraphrase detection method using siamese recurrent networks. The same language pair is considered in the paper (Chi et al., 2021), but the proposed algorithm utilizes BERT (Devlin et al., 2019) contextual embeddings. Paper (Fu et al., 2020) proposes multilingual sentence representation mappings based on GAN. Another modern approach (Zhang et al., 2020) combines latent semantic analysis with contextual BERT (Devlin et al., 2019) embeddings to solve the task of plagiarism detection.

Problem Statement

The problem of text reuse detection is considered an information retrieval problem. Given a collection of documents to analyse $D_{an} = \left\{ d_{an}^i \right\}, i \in \left\{ 1, \ldots, n_{an} \right\}$. There is also an external collection of documents, that potentially can be sources of text reuse for the analysed documents $D_{ext} = \left\{ d_{ext}^i \right\}, i \in \left\{ 1, \ldots, n_{ext} \right\}$. In this chapter, we consider the most complicated case, when the documents from the external collection D_{ext} can be written in different languages.

Split all the documents into the text fragments. In the simple case, this splitting can be a splitting into sentences, however, we do not limit ourselves to this splitting only. Let $S_{an} = \left\{ s_{an}^k \right\}$ be a collection of all the text fragments from the documents to analyse D_{an}. Let $S_{ext} = \left\{ s_{ext}^l \right\}$ be the text fragments from the external document collection D_{ext}. Denote by S_{full} a Cartesian product of the sets S_{an} and S_{ext}. We introduce a binary relation g between the text fragments of the analysed document and the documents in the collection:

$$g : S_{full} \rightarrow \left\{ 0,1 \right\}.$$

$$(9.1)$$

his relation represents ground-truth for the text reuse problem and indicates whether there is a text reuse in the pair of fragments from the set $S_{\text{an}} \times S_{\text{ext}}$.

The problem is to develop an algorithm of cross-lingual text reuse detection $f : S_{\text{full}} \rightarrow \{0,1\}$, that maximizes the F_β score with β set to 0.5:

$$F_\beta = \left(1 + \beta^2\right) \frac{\text{precision} \cdot \text{recall}}{\left(\beta^2 \cdot \text{precision}\right) + \text{recall}},$$

(9.2)

where

$$\text{precision} = \frac{1}{|Ret|} \sum_{s_1, s_2 \in Ret} \frac{\left| \bigcup_{[s_3, s_4 \in Rel]} \left(s_1, s_2\right) \cap \left(s_3, s_4\right) \right|}{\left|\left(s_1, s_2\right)\right|},$$

(9.3)

$$\text{recall} = \frac{1}{|Rel|} \sum_{s_1, s_2 \in Rel} \frac{\left| \bigcup_{[s_3, s_4 \in Rel]} \left(s_1, s_2\right) \cap \left(s_3, s_4\right) \right|}{\left|\left(s_1, s_2\right)\right|},$$

(9.4)

where $Ret = \{s_1, s_2 \in S_{full} : f(s_1, s_2) = 1\}$, $Rel = \{s_1, s_2 \in S_{full} : g(s_1, s_2) = 1\}$. The cardinality of the pair of the text fragments $|(s_1, s_2)|$ is the sum of their lengths if both text fragments have non-zero length; otherwise, it equals zero. The intersection of a pair of text fragments $s_1 \cap s_3$ is a text fragment formed by the intersection of the beginnings and ends of these fragments in the corresponding texts. The intersection of the pairs of the fragments equals the pair of intersected fragments. In this chapter, we use micro-versions of precision and recall calculation from (Potthast et al., 2011) for better experiment reproducibility.

The optimization of F_β means that we are looking for an algorithm that gives a trade-off the precision and recall for text reuse detection. The β parameter sets the bias of our search toward precision: we want to find text reuse cases as precise as possible with a small number of false positives. We believe that in the task of text reuse detection, false-positive errors are more critical for users than false-negative ones: it is better not to find reuse than to find reuse incorrectly and accidentally blame a person for incorrect text reuse. Precision is especially important in multilingual settings, since in this case, validation of the correctness of the detected text reuse cases requires an expert to work with several languages.

The proposed problem of cross-lingual text reuse detection is computationally expensive since we need to compare all the documents from D_{an} and D_{ext}. To reduce this problem, we decompose our algorithm f into two functions: *candidate retrieval* and *document comparison*. In the first stage, *candidate retrieval*, we translate the analysed document into the language of the external collection D_{ext} and employ a shingle-based algorithm for relevant documents search. We find the top 10 most relevant candidates for each analysed document using an inverted index formed by

Fig. 9.1 The scheme of
the proposed method
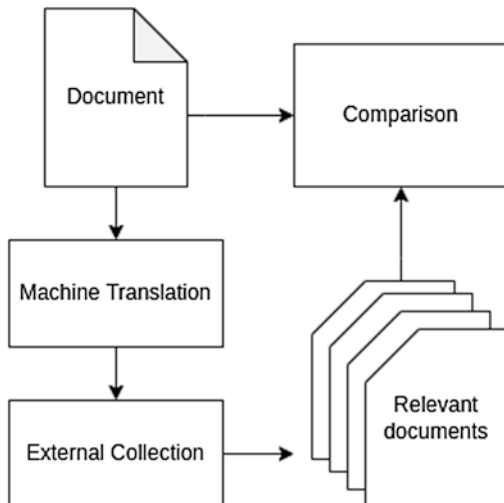
n-grams obtained from documents of the external collection. Next, at the *comparison* stage, we use deep learning methods to compare the text of the analysed document to the texts of the collection documents. Our method is based on the approach proposed in (Bakhteev et al., 2019; Kuznetsova et al., 2021). As opposed to it, currently, we use multilingual vectorization methods to compare documents. This small detail significantly changes the requirements for our algorithm and makes it easier to operate and maintain. The details of the proposed method are below. An overview of the proposed method is shown in Fig. 9.1.

Candidate Retrieval Problem

Since the exhaustive search of candidates is impossible for the large-scale document collections, we use a simple algorithm for this problem, which is based on *shingles* concept (Vashchilin & Kushnir, 2017). The methods based on shingles are used in the problems of verbatim text reuse detection and near-duplicate document search. The shingles are a set of overlapping *n*-grams. For the candidate retrieval, all the documents in the external collection D_{ext} and the analysed document d^i are split into shingles, after which the documents are searched for by the inverted index with the highest coincidence of shingles. We use a generalization of the shingles algorithm, which makes it possible to improve the search quality for candidates in the case of cross-lingual text reuse detection. For all the experiments in this chapter, we use *n* equal to 4: we found this value gives the best results for the large-scale document search.

We propose to use the shingle splitting on the analysed document after the translation into the languages of the external document collection D_{ext}. Since the

candidate retrieval step is only preliminary for the text reuse detection, we do not need high-quality machine translation. Therefore, we do not need to train distinct machine translation systems for each language pair. We can translate the original text into many languages using a sequence of machine translators. However, even using a very quality machine translation, the original document's translation can be ambiguous — there may be several correct versions of the same phrase.

To reduce the impact of translation ambiguity on the search for candidate documents, we remove stop words from the text and normalize the words. After that, we replace the words with the corresponding cluster labels. To take into account possible permutations of words that occur after the translation of the text, the words inside each *n*-gram are sorted in lexicographic order. The clusters are preselected from the text corpus and contain semantically related words. In this work, we obtain word clusters using the clusterization of word vectors from the FastText model (Bojanowski et al., 2017). The clustering is done using the K-means algorithm with the cosine distance function

$$\cos\left(\mathbf{c}_1,\mathbf{c}_2\right) = \frac{\mathbf{c}_1,\mathbf{c}_2}{\left\|\mathbf{c}_1\right\|_2\left\|\mathbf{c}_2\right\|_2},$$

(9.5)

where $\mathbf{c}_1$, $\mathbf{c}_2$ are the vectors from the same vector space.

Pairwise Documents Comparison

For the comparison of the retrieved documents from the external collection D_{ext} with the analysed documents D_{an} we employ the phrase embedding model. We split documents, both retrieved and analysed, into phrases and compare their vectors. For mapping the word sequence into low-dimensional space, we use the model of Language-agnostic BERT Sentence Embedding (LaBSE) (Feng et al., 2020). The idea of this model is in an extension of the BERT model (Devlin et al., 2019) for the multilingual case. The BERT model is a language model trained in an unsupervised way. The output of the BERT model contains vectors representing the vectorized text fragments. The obtained vectors satisfy the distributional hypothesis rule: the vectors of the sentences with a similar context of use will be close enough in the vector space. The LaBSE model extends this approach in a multilingual way: the vectors of the sentences, written in different languages, with a similar context of use will be close enough in the shared vector space, common for all the languages.

One drawback of the usage LaBSE model is that it requires a lot of computational resources. Therefore, its usage in industrial settings is a challenge. To simplify the vectorization procedure and make the model usage more effective, we conducted a knowledge distillation procedure for this model (Tang et al., 2019). The main idea of knowledge distillation is to transfer the useful information from the large model, called the teacher model, to the simpler model, called the student

model. As a student model, we use a bidirectional 1-layer LSTM with the hidden
dimension set to 300. In order to align the dimensional of the LaBSE model and
LSTM, we use an additional linear layer with a dimension equal to 300×768. To
distil knowledge between the LaBSE model and the LSTM model, we use l_2 optimization loss:

$$\sum_{s \in \mathcal{S}} \left\| \mathbf{f}_{\text{LaBSE}}(s) - \mathbf{f}_{\text{linear}}\left(\mathbf{f}_{\text{LSTM}}(s)\right) \right\|_2^2 \to \min,$$

$$(9.6)$$

where $\mathcal{S}$ is a dataset of sentences for knowledge distillation, $\mathbf{f}_{\text{LaBSE}}$ is a LaBSE
model, $\mathbf{f}_{\text{LSTM}}(s)$ is a bidirectional LSTM model, $\mathbf{f}_{\text{linear}}$ is a linear layer. We distil
LaBSE for each language distinctly, with a distinct LSTM model and linear layer.
For the distillation we used sentences gathered from Wikipedia: for each language,
we used a random sample of sentences with a size of not more than 10^6 sentences.

As an example of the obtained model performance, consider the results of vectorization with the original LaBSE model and distilled models for the first thousand
parallel sentences of the WMT-News corpus (Tiedemann, 2012) for the English-
Russian language pair. The histograms in the Fig. 9.2a and 9.2b show the distribution of cosine distances between similar and dissimilar sentences from this corpus.

The comparison of the performance of both these models is given in Table 9.1.
As we can see, the distilled model preserves the original model properties, but its
performance is significantly higher.

As a next step we consider the problem of vector comparison as the nearest
neighbour search: we consider that two text fragments s_1, s_2 are similar if the cosine
distance between them is small enough:

$$\cos\left(\mathbf{f}_{\text{linear}}\left(\mathbf{f}_{\text{LSTM}}(s_1)\right), \mathbf{f}_{\text{linear}}\left(\mathbf{f}_{\text{LSTM}}(s_2)\right)\right) < \delta,$$
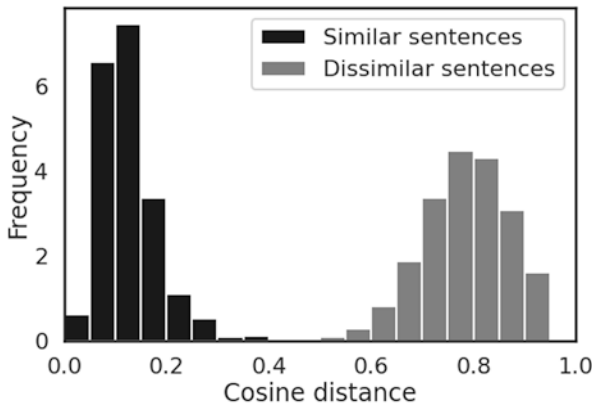
$$(9.7)$$

Fig. 9.2a The distribution of distances between pairs of similar and dissimilar sentences with different phrase embedding models: LaBSE model
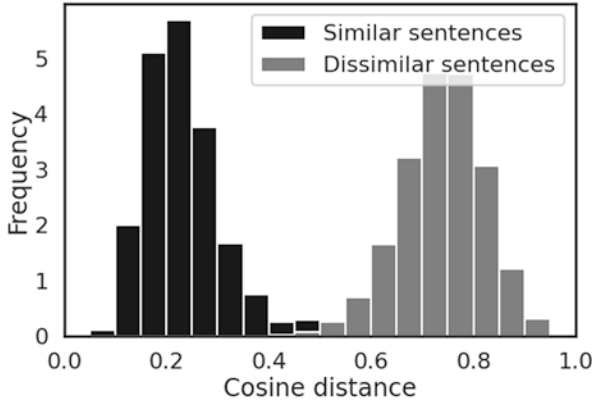
Fig. 9.2b The distribution of distances between pairs of similar and dissimilar sentences with different phrase embedding models: LSTM model

Table 9.1 The performance of processing one thousand English sentences from the WTM-News corpus using the LaBSE model and LSTM model. For better interpretability of the results, we ran the vectorization on Amazon EC2 instances: m5.xlarge for the CPU run, and g4dn.xlarge for the GPU run

Model	CPU time, sec	GPU time, sec
LaBSE	57.4	3.6
LSTM	0.9	0.3

where δ is hyperparameter of the proposed algorithm, which is tuned during cross-validation. For the fast nearest neighbour search we employ Annoy library (Bernhardsson 2018), which enables to efficiently find approximately nearest neighbours.

As a final step in document comparison, we use simple post-processing: we merge the found text fragments if the distance between them is not more than k_1 tokens and delete the resulting fragments if their length is less than k_2 tokens. Both k_1 and k_2 are treated as hyperparameters.

Experiments

In order to analyse the performance of the proposed cross-lingual text reuse method, we conducted two experiments: both on the synthetic dataset and a corpus of real theses obtained from the repository of Open Access Theses and Dissertations (https://oatd.org/). Note that the results (Bakhteev et al., 2022a) obtained in this experiment are preliminary and require further additional validation.

Synthetic Dataset Experiments

To illustrate the performance of our method, we conducted an experiment on the synthesized datasets (Bakhteev et al., 2022b) for three pairs of languages: English-Russian, Italian-German, and Swedish-Czech. As an origin of the synthesized data-set, we used documents randomly sampled from Wikipedia (https://wikipedia.org). The algorithm of document synthesis is the following:

- For each document from the analysed documents D_{an} :
- Randomly sample from 1 to 10 text reuse source documents from the external collection D_{ext} .
- Randomly pick sentences from candidate documents $\{d^i\}$ and translate them into the language of the analysed document collection D_{an} .
- Replace random sentences from document d^i_{an} by the translated sentences from candidate documents.

We used only sentences containing at least 15 tokens for the translation and reuse, including words, digits, and punctuation characters. For each document from D_{an} we replaced from 20 to 80% of such sentences. We grouped the reused sentences into blocks from 3 to 7 sentences to make the reuse passages more solid. We believe this makes the synthetic documents more similar to the real-world text reuse cases. For the machine translation step, we used open-source machine translation systems (Tiedemann & Thottingal, 2020). The document statistics are given in Table 9.2. The resulting dataset contains a set of generated documents, an external collection, and an XML markup with positions of sentences reused in the analysed documents. The markup is written in a format similar to the markup of datasets used in the PAN external document plagiarism detection competition (Potthast et al., 2011).

To evaluate the performance of both the document comparison step and candi-date retrieval step, we evaluated each step's quality distinctly. For the candidate retrieval step, we used Weighted recall, which is similar to recall:

$$\text{Weighted recall} = \frac{\left| \bigcup_{d^i \in D_{an}, d^j \in \text{Retrieved}(d_i)} \left(d_i \cap d_j \right) \right|}{\left| \bigcup_{d^i \in D_{an}, d^j \in \text{Relevant}(d_i)} \left(d_i \cap d_j \right) \right|}, \tag{9.8}$$

Table 9.2 The statistics of the synthesised dataset

Analysed documents D_{an} language	External collection D_{ext} language	♯ D_{an}♯	♯ D_{ext}♯
Ru	En	100	10,000
It	De	99	10,000
Sv	Cs	91	9977

where Retrieved(d_i) is a set of documents from D_{ext} retrieved at the candidate retrieval step for the analysed document d_i, Relevant(d_i) is a set of true text reuse sources from the analysed document d_i. As a cardinality of the intersection of d_i and d_j documents we consider the number of reused characters in d_i from the document d_j. To improve the reproducibility we again used the machine translation systems from (Tiedemann & Thottingal, 2020) during the machine translation step.

For the document comparison, we used precision, recall, and $F_{0.5}$ criteria. We compared our LSTM-based document comparison method with a simple baseline that employs a shingle-based algorithm not only for the candidate retrieval but also for the document comparison. This algorithm was described in Sect. 9.4.1: we considered two text fragments similar if their shingles are equal after the translation of the analysed document into the language of the external collection. The results of the experiments are shown in Table 9.3. As we can see, the proposed method shows rather competitive results and outperforms the naive baseline method.

Real-World Dataset Experiments

For the real-world experiment, we analysed 10,202 documents from Open Access Theses and Dissertations documents repository. This is a repository of open access dissertations of undergraduate and graduate students from European universities. We downloaded the papers from the 25 large universities from various countries: Germany, France, Portugal, Spain, Sweden. The list of universities from which we downloaded documents is shown in Table 9.4.

As an external collection D_{ext} we used a subset of scientific documents indexed in the Antiplagiat system that are likely to be sources of text reuse. The size of this collection is approximately equal to 50 million documents including documents mined from open web resources and scientific documents corpora such as a collection of papers available in the Wiley online library.

As a preliminary analysis, we gathered statistics for the analysed document languages and their topics. For the topic analysis we employed a multilingual topic model trained on scientific documents and Wikipedia articles. The topic model is based on the Bigartm library (Vorontsov & Potapenko, 2015; Vorontsov et al., 2015). The language distribution and topic distribution are shown in Tables 9.5 and 9.6.

Table 9.3 The results for the synthesized dataset. We used the shingle-based method both for the candidate retrieval stage and document comparison as a baseline. We used the shingled-based method for the candidate retrieval stage and LSTM-based document comparison as a proposed method

Language pair	Weighted Recall	Proposed, Precision	Proposed, Recall	Proposed, $F_{0.5}$	Baseline, Precision	Baseline, Recall	Baseline, $F_{0.5}$
Ru-En	0.98	0.94	0.85	0.92	0.97	0.48	0.80
It-De	0.98	0.91	0.86	0.90	0.97	0.30	0.67
Sv-Cs	0.86	0.92	0.77	0.89	0.95	0.26	0.63

Table 9.4 Universities whose papers were analysed

Germany	France	Spain	Portugal	Sweden
Universität Ulm	Aix Marseille Université	Universidad de Cantabria	Universiade Nova	Karlstad university
Universität Tübingen	Sorbonne Paris Cité	Universitat de Valencia	Universidade do Porto	Linnaeus University
Universität Würzburg	Université Paris-Saclay (ComUE)	Universitat Autònoma de Barcelona	Universidade do Minho	Malmö university
Freie Universität Berlin	Lyon	Universitat de Barcelona	RCAAP	Umeå university
Philipps-Universität Marburg	Université Grenoble Alpes (ComUE)	Universidad de Sevilla	Universidade de Aveiro	Uppsala university

Table 9.5 The language distribution of analysed documents

Language	Document percentage, %
German	28
Swedish	24
Spanish	22
Portuguese	16
French	5
English	4
Other	1

We took documents from 5 countries, assuming that, basically, the languages of the documents will correspond to the most spread language of the country. As we can see, this turned out to be incorrect for the French language. It can be seen that we have a significant imbalance of classes: we have a lot of medicine and biology. Note that we took documents from the collections at random. Therefore, we believe that this imbalance reflects the composition of the documents contained in the public domain.

After the provided analysis we processed all the documents using the proposed method. We filtered the results for further processing: we analysed only the document with a significant percent of reuse, more than 10%. During filtering we considered only rather large blocks of reuse, more than 250 characters. The statistics for these documents are shown in Tables 9.7 and 9.8. For the documents written in English, we did not find any significant cross-lingual text reuse. The part of the documents written in it was relatively small. Therefore, we believe the small data sample can explain this. As we can see from the topic distribution, some ratios have changed compared to the whole set of analysed documents. There are more documents on sociology and education. The ratio of documents under the law has also increased. The last fact is due to the presence of cross-lingual references to laws and

Table 9.6 The topic distribution of analysed documents

Topic	Topic percentage, %
Medicine	20
Media and communications	13
Biological sciences	11
Psychology	7
Engineering	7
Languages and literature	6
Sociology	6
Economics and business	4
History and archaeology	4
Law	3
Other	19

Table 9.7 The language distribution of detected documents

Language	Document percentage, %
Portuguese	39
Spanish	27
German	26
Swedish	7
French	1

Table 9.8 The topic distribution of detected documents

Topic	Topic percentage, %
Medicine	20
Law	15
Educational sciences	12
Biological sciences	10
Economics and business	9
Psychology	8
Sociology	8
Media and communications	5
Engineering	5
Other	8

regulations that our system also found. Note that the obtained results show all the found text reuse cases, including correct citations and official scientific papers translation. Figure 9.3 shows a distribution matrix of the pairs of analysed documents and documents from the collection. Each column corresponds to the
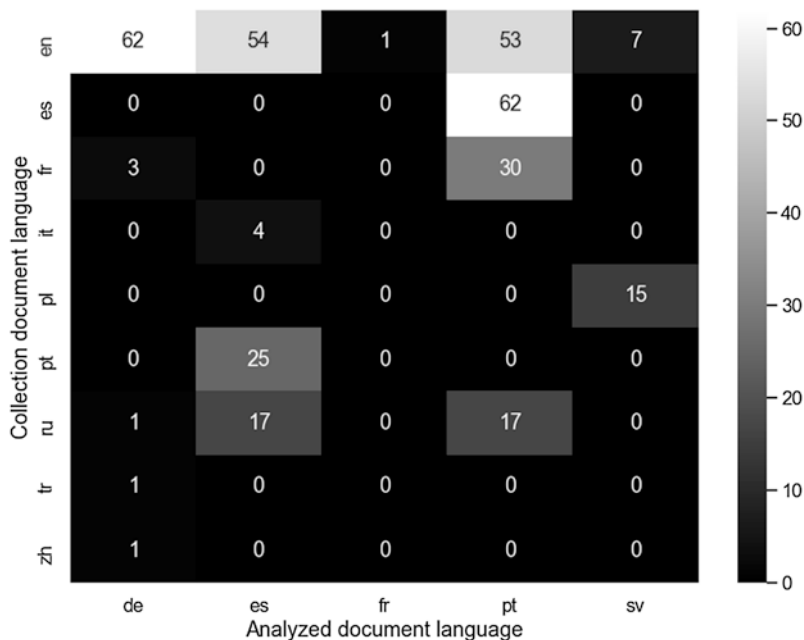
Collection document language	Analyzed document language				
	de	es	fr	pt	sv
en	62	54	1	53	7
es	0	0	0	62	0
fr	3	0	0	30	0
it	0	4	0	0	0
pl	0	0	0	0	15
pt	0	25	0	0	0
ru	1	17	0	17	0
tr	1	0	0	0	0
zh	1	0	0	0	0

Fig. 9.3 The matrix of the pairs of languages for the analysed documents and documents from the collection. Each column corresponds to the language of the analysed document, the rows correspond to the languages of the retrieved documents from the collection. Each matrix element reflects the absolute value of the detected cases of text reuse with the language of the analysed document corresponding to the column and the source written in the language from the row. A zero value indicates that we did not find any significant cross-lingual text reuse for this language pair

language analysed document, the rows correspond to the languages of the retrieved documents from the collection. Note that for some documents, we found more than one source. Therefore, the total sum of the elements in the matrix does not equal the number of the analysed documents. We see that for almost all languages, English is the most popular language for reuse. We see an interesting correlation between documents written in Spanish and Portuguese. We believe that this is primarily due to the significant cultural and international exchange. In addition, since the languages are quite lexically close, the system can find more reuse from these languages.

From 10,202 documents, we found 103 documents with significant text reuse. These results are preliminary and should be verified and classified by experts.

We categorised the obtained results into several groups:

- Self-citations: document pairs with significant text reuse when the authors of the documents intersect.
- Cross-lingual text reuse: document pairs with significant text reuse without author intersection.
- Law reference and common knowledge: references to translations of laws, regulations, standards, etc.

Table 9.9 The categorization of obtained results

Detection type	Detection number	Detection type percentage, %
Self-citations	53	15
Cross-lingual text reuse	80	23
Law reference	76	21
False-positive	114	32
Other	31	9

- False positive: incorrect text reuse detection.
- Other: the type of detection is difficult to determine.

The results of this categorisation are shown in Table 9.9.

Note that the obtained results are preliminary and require further refinement. We also did not analyse the context of the reuse: whether a reference to the source was provided. We did not analyse the direction of the reuse as well: whether the analysed document was written later than the source or earlier. Despite rather impressive results on the synthetic data, we found that about 32% of them were false positive cases when the proposed method detects text reuse between document pairs by error. The main problem of false-positive matching is that the phrase embedding model often matches general passages like "The paper is structured as follows" or sentences that have many common words we use in everyday life. For example, consider the sentences from psychological papers devoted to family relationships: the motivation and introduction of such works often contain many occurrences of the words "family", "house", "work", "relationships" which makes the documents similar for the phrase embeddings model. The most interesting case we found is presumptive incorrect text reuse in a master's thesis from 2016. Note that the found case is not evidence of incorrect text reuse but only an example confirming the performance of the presented algorithm. Several reasons can be explained for such similar passages, written in different languages, including reasons that do not contradict academic ethics, so further, more detailed analysis of these works is required.

Conclusion

In this chapter, we investigated the problem of cross-lingual text reuse in academic works of European universities. We proposed a method of cross-lingual text reuse detection able to work in high-performance production settings. The method decomposes into two parts: first, we use a shingling method with a combination of machine translation to find the most relevant documents to the analysed one. Secondly, we employ an approach based on multilingual deep learning neural networks to find similar text fragments from the analysed and relevant documents. We demonstrated the efficiency of the proposed method on the synthetic dataset. We analysed its performance on a real collection of the theses obtained from the universities from the different European countries. Out of the 10,202 documents analysed, we found 103

documents with significant cross-lingual text reuse. These cases include not only incorrect reuse but also officially translated papers and citations. Therefore, further work will be aimed at clarifying these results. We gave brief statistics on the analysed results. The future work for this method will be concentrated on improving the performance of the developed method and more detailed analysis of the cross-lingual text reuse cases in European academic works.

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Chapter 10
Decision Support for Marker Detection of Contract Cheating: An Investigative Corpus Linguistic Approach

Olumide Popoola

> ***Student***: *Is my referencing OK?*
>
> ***Me:*** *Mostly….but UKessays.com is not a good source*
>
> ***Student:*** *Why not, I found it on Google Scholar. You said in your workshop we should use Google Scholar not Google.*
>
> ***Me****: You are right, I did say that…*

Extract from a 1-2-1 tutorial conversation with Masters student at a UK university

Abstract Essay mills providing contract cheating services over the Internet are a thriving twenty-first century industry. In the UK, this has resulted in legislation prohibiting commercial academic writing services and a shift in priorities from prevention to detection of contract cheating. This in turn has placed university assignment markers on the frontline of contract cheating detection efforts. Linguistic analysis of texts written for university assignments using stylometric authorship analysis (Crockett and Best, 2020; Juola, 2017; Turnitin Authorship Investigate, 2019) has proved a useful tool for investigations of suspected cheating, linguistic tools to support contract cheating detection during routine assignment marking are limited. Fortunately, the commercial practices of essay mills have led to the wide availability of known commercial and student-written essays on the Internet. This

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research exploits this resource by applying investigative corpus linguistic methods utilised in fake news and fake online review detection to the problem of 'fake essays'.

756 commercial and student Law, Business and Nursing essays, a subset of a sample of over 12,000 essays downloaded from a leading UK-based essay mill website, were analysed using cognitive, affective and functional linguistic features drawn from a range of academic writing frameworks. Deploying natural language processing tools and a data pipeline consisting of four separate principal components analyses followed by logistic regression text classification, this research demonstrates that commercial essay writing is distinguishable from authentic student essay writing with ten distinct linguistic components. Commercial academic writing was found to display a superficial quality with writers maximising the appearance of quality through lexical sophistication and adherence to classic academic writing conventions whilst minimising cognitive effort through repetitiveness, redundancy, verbosity and text inflation strategies. A predictive text classification model with fivefold cross validation achieved 82% accuracy (12% above the majority class baseline). A contract cheating detection matrix is presented that can be used to guide markers in marking assignments on dimensions of cognitive effort as well as quality.

Introduction

Contract Cheating and Essay Mills

Contract cheating, first defined by Clarke and Lancaster (2006) to describe the practice of students submitting as their own work computer science coding assignments purchased from freelance programmers via 'auction' websites, is now an umbrella term for any outsourcing of educational assessment requirements to third parties i.e. getting someone else to do your work (Lancaster & Clarke, 2016; Draper & Newton, 2017; Newton, 2018; Bretag et al., 2019). Although this expanded definition now covers a range of third parties including: family and friends, older students and alumni, freelance 'academic writers' and commercial business entities, the most recent legal and professional focus in the UK and Europe has been on commercial writing services provided by so-called 'essay mills' (QAA, 2020; Draper & Newton, 2017; Foltýnek & Králíková, 2018). This research focuses on this narrower definition of contract cheating and uses the term interchangeably with commercial essay writing and academic ghost-writing.

'Essay mills', advertising a range of written academic genres including reports, case studies and reflective accounts, are a thriving internet industry in the twenty-first century; at time of writing one comparison website lists over 1000 commercial essay writing websites (uktopwriters.com). Essay mills can be mapped at the extreme end of a spectrum of outsourcing (Fig. 10.1 below). Where forums such as Reddit and gig websites like Fiverr are used by writers themselves to reach out to prospective student customers, essay mills themselves further outsource writing jobs to their pool of contract writers.

Greater depth of outsourcing is indicative of greater commodification of the assignment writing process. The essay mill websites offer product guarantees such as being 'plagiarism-free' as well as an array of customisable options including: required grade, referencing format, word count and turnaround time (Draper et al., 2017; Medway et al., 2018). They also deploy commercial strategies such as customer service representatives communicating through live chat who negotiate with students and treat them as 'clients' as well as persuasive messaging targeting student vulnerabilities (Rowland et al., 2018).

Essay mills also use sample essays from in-house writers for website content as part of search engine optimisation strategies targeting students looking for help (Lancaster, 2020). As Lancaster points out, borderline deceptive practices are used to boost SEO and thus reach more potential student customers. One of these is 'free' plagiarism checkers whose terms and conditions gives companies the 'right' to publish student work as part of an essay bank. As the student dialogue extract in the epigraph shows, Google® Scholar is unwittingly amplifying and providing credibility to these activities. Fortunately, the commercial practices of essay mills have led to the availability of an abundance of both commercial and student-written essays on the Internet. This research exploits this resource for the development of data-driven approaches to the development of heuristic guidance on contract cheating detection for assessment markers.

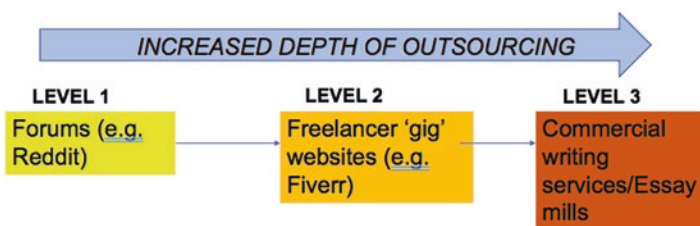**Fig. 10.1** Three categories of commercial writing platforms identified in by Lancaster and Clark (2008) aligned with my spectrum of outsourcing with three levels: 1 = direct and unmediated contact between student and commercial writer; 2 = direct contact between student and commercial writer mediated by 'auction' platform; 3 = indirect contact mediated by commercial writing service provider/essay mill

Contract Cheating Detection Using Linguistic Text Analysis

Rogerson (2017) delineates three stages for contract cheating detection: preparation involves designing assessment and marking criteria/rubrics to support detection; grading (marking) involves examining the assignment submission for inconsistencies and irregularities; evaluation involves further analysis to assess the case for contract cheating accusation. The forensic linguistic technique of authorship analysis has been shown to work in educational/academic contexts (Juola, 2017) at Rogerson's evaluation stage i.e. where a student is already suspected of potential contract cheating. Crockett and Best (2020) demonstrated that stylometric authorship analysis can be used to distinguish texts written by different authors and cluster texts written by the same author. Thus, it is rightfully considered powerful evidence at the evaluation stage for academic misconduct investigations.

Stylometric authorship analysis is less suitable at the grading stage for a number of reasons. Stylometric analysis uses computationally intensive techniques that require statistical expertise or training in specialist software packages. Authorship analysis also requires comparison of a student's work over time as well as between student's work and the potential ghost-written work. Turnitin® *Authorship Investigate* is a case management software that can automate diachronic comparison of student work and conduct basic stylometric analysis. Dawson et al. (2020) demonstrated that this software can improve contract cheating detection rates but the use of such software is currently not incorporated into routine marking. This research aims to inform both preparation and grading stages through providing assessment markers with empirically-generated heuristics that can be incorporated into marking criteria and used during routine marking to support markers' dual responsibility of grading student work and confirming its academic integrity.

Despite these limitations stylometric authorship analysis has contributed to a nascent linguistic understanding of the features of commercial essay writing. Linguistic indicators of academic ghost-writing that have been suggested in the literature are:

- Anomalous high quality in subject content and written English (Crockett & Best, 2020)
- Sophisticated writing expression and lack of in-depth analysis (London Economics, 2014, in Lines, 2016)
- Irrelevant material, generalized text, misrepresented/inappropriate references (Rogerson, 2017)
- High level of English expression: good use of grammar, spelling and phrasing (Rogerson, 2017)

All the above research was conducted in a case work context with small samples of contracted and student essays. This research analyses a corpus of 756 essays authored by commercial writers and students, itself part of a larger corpus of 12,347 commercial and student essays which will be made publicly available by the author for further analysis. It uses natural language processing, advanced statistical techniques and investigative linguistic methods used in the detection of deception and disinformation to identify linguistic features unique to commercial essay writing.

Essay Mills and Deception/Disinformation Detection

Essay mills share characteristics with the factories and outlets that produce fake reviews and fake news online. All produce textual content written in inauthentic contexts; as assignments are written without attending classes, reviews are written without experiencing the product and news stories are fabricated, patched together or simply copied without any adherence to journalistic protocol. Content production is by gig economy writers completing multiple assignments to tight deadlines; many operate through networks of website fronts with SEO optimised domain names (e.g. customwritings, get reviews, DonaldTrumpNews).

A range of linguistic approaches has been used to identify features of fake news and fake online reviews at a variety of levels from simple bag-of-words/n-grams, through analysis of syntax, semantics, sentiment and discourse structure. These tools have been used to distinguish satirical stories and 'clickbait' from genuine news stories as well as develop general models of information quality to be used in the development of critical thinking and information literacy (Rubin et al., 2016; Rubin & Chen, 2012). In the context of Amazon book reviews, Popoola (2017, 2018a) identified a link between the deceptive situational context of paid review writing – "individuals producing multiple reviews, under time constraints that prohibit proper reading, in order to maximize income" (Popoola, 2017, p. 61) – and the language used in review writing, finding that fake i.e. commissioned five-star book reviews used more descriptive language focused on plot and synopsis rather than evaluative language, and authentic five-star reviews would still contain hedging and caveats unlike fake five-star reviews. Similarly, this research hypothesizes that 'fake essays' will have linguistic features that distinguish them from authentic student essays due to the different – and deceptive – situational context of commercial essay writing.

Word categories and frequencies generated by computational linguistic analysis have been applied to 'learn' linguistic features that can be used to build predictive text classification models that 'detect' genuine and deceptive texts. Models constructed to judge the veracity of online reviews and news articles have achieved classification accuracy between 75% and 90% (e.g. Ott et al., 2011; Fornaciari & Poesio, 2014). Text classification algorithms used range from traditional statistical multivariate analysis techniques to more computational techniques such as neural networks, often with multiple data analyses conducted in a sequence known as a 'data pipeline'. This research deploys a data pipeline of multiple principal components analyses followed by logistic regression analysis with fivefold validation to build a text classification model with 82% accuracy. This compares favourably with the software-aided marker detection experiment in Dawson et al. (2020). This model validates ten linguistic components that can be used as heuristics to identify potential contract cheating at Rogerson's (2017) grading and preparation contract cheating detection stages.

Research Questions

This research used a large dataset and advanced corpus linguistic techniques to provide empirical evidence of the linguistic indicators of academic ghost-writing as well as to generate new heuristics to support marker detection. Specifically, this exploratory research sought to answer three broad questions:

RQ1: What linguistic features characterise commercial essay writing compared to student writing?
RQ2: Can a linguistic feature model classify student and commercial texts at a rate significantly above chance?
RQ3: To what extent are these linguistic features related to writing quality?

Method

Investigative Corpus Linguistics

This paper defines an investigative corpus linguistics approach that departs from its traditional cousin in three key areas: data collection, research focus and statistical analysis. Investigative corpus linguistics aims for data completeness i.e. to collect as much data as possible once the required data for observation has been defined; representativeness is a feature of traditional corpus linguistics (e.g. Biber, 1993). Where traditional corpus linguistics seeks to determine the common characteristics of a text-type or genre, investigative corpus linguistics is particular interested in atypical instances of genre, deviations from the norm, outliers and inconsistencies. Perhaps the key distinction is in the type of statistics used. Where traditional corpus linguistics uses descriptive statistics, investigative CL builds predictive models that can accurately classify future data instances. Investigative corpus linguistics has close ties to the work of investigative and data-driven journalism; prototypical ICL approaches have been used in fraud and deception detection e.g. Fornaciari and Poesio (2014), Kao (2017), Popoola (2018a, b).

Data Collection

The first step was to find as many student and commercial sample essays as possible. Following consultation with the above-quoted student and their peers, Google® searches were made from the perspective of a student looking for *help* with essays/university assignments (rather than to buy an essay). Three search terms were used across a range of subjects following the format in Table 10.1 below. The essay mill found by the student quoted above, UKEssays, was listed first or on the first page of all searches made. I also used UKEssays as a search term on Google®

Table 10.1 Example search terms used to find essay mills

'Business essay'
'Business essay example'
'Business essay help'

Scholar and found several more essay mill websites as well as an 'essay aggregator' site that claimed on its home pages to have over 100,000 samples. This suggested that UKEssays samples were being shared across multiple websites. This finding coupled with the evidence of strong SEO allowed me to focus data collection on this website and aim for completeness.

Over 3 weeks in December 2018 and January 2019, essays were downloaded from 'UKEssays.com' using the Bootstrapping Corpora and Terms (BootCat) procedure implemented with the BootCat webcrawler (Baroni & Bernardini, 2004). This process involves iteratively querying search engines with seed words and then harvesting the resulting webpages and downloading them as plain text files. BootCat also incorporates a number of basic web crawling tasks, such as duplicate removal, cleaning and language identification.

BootCat downloads files based on search queries. As seed words I used combinations of the following:

– most common English words in a subject domain (e.g. business, sales, market),
– words typically found within the academic register (e.g. analyse, define) e.g.
– most frequent English words (e.g. 'and' 'the' 'to' 'of')
– document headers ('undergraduate essay'; '2:1')
– document identifiers ('expert writer'; 'student written essay')

BootCat searches can also be limited to specific domains. I used this feature to download essays directly from UKEssays.com. After viewing the URLs and learning the website architecture it was possible to download student essays from specific subject discipline directories (see Fig. 10.2 below). Subject discipline for the commercial essays was identified through document headers which all took form in Fig. 10.3 below.

Each essay was classified as either student or commercial using the identifiers below:

• Commercial essay identifier: "expert writers" "bespoke sample" [specified grade]
• Student essay identifier: "student written essay"

In total, 12,347 student essays and 509 commercial essays were harvested from UKEssays across 30 subjects. Table 10.2 provides a breakdown of the commercial essays by subject. For this research, a 70:30 student to commercial essay sample distribution was chosen; a 50:50 split does not reflect the prevailing estimates of contract cheating (c. 5–15% of student assignment submissions according to Draper et al., 2017), while a 90:10 student to commercial text ratio would be difficult to evaluate in a predictive model. A 70:30 split reflects the fact that contract cheating

```
2:1 essay assignment site:ukessays.com/services/samples -site:books.google.* -
site:translate.google.com -site:www.google.* -site:www.googleadservices.*

a As In site:ukessays.com/services/samples -site:books.google.* -
site:translate.google.com -site:www.google.* -site:www.googleadservices.*

management examine explore site:ukessays.com/essays/business -
site:books.google.* -site:translate.google.com -site:www.google.* -
site:www.googleadservices.*

Of In To site:ukessays.com/essays/business -site:books.google.* -
site:translate.google.com -site:www.google.* -site:www.googleadservices.*
```

Key: Seed words source domain excluded domains

Fig. 10.2 Example BootCat search queries

```
'Sample [University Level] [Grade] [Subject] [Assignment genre]
e.g. "Sample Undergraduate 2:2 Nursing Report"
```

Fig. 10.3 Document header format for commercial essays

Table 10.2 Cheat-AI corpus: commercial essays

Subject	Number of essays
Business	79
Law	50
Nursing	45
Health	30
Education	25
Other business cognate disciplines	98
Other humanities and social sciences	128
STEM	54
Total	509

is less common but still allows for realistic model evaluation. This ratio was also used in the Dawson et al. (2020) research which was used as a benchmark for the model produced in this research.

This research extended a pilot study of this approach conducted on business essays and presented at the International Center for Academic Integrity 2021 conference (Popoola & Smeliova, 2021) by adding Law and Nursing essays to the sample. These three disciplines were selected for this research as they represent vastly different ends of the academic writing spectrum, thus decreasing the likelihood that any heuristics generated would be discipline-related.

Table 10.3 Research sample (N = 500word chunks)

	Student	Commercial
Business	766	326
Law	474	200
Nursing	404	171
Total	1644	697

Following the 70:30 distribution, 580 Business, Law and Nursing student essays were added to the 174 commercial essays in these subjects (Table 10.2). These texts were split into 500-word chunks, exceeding the minimum 400 recommended for corpus-based text analysis in Biber (1991) and meaning more data to build the text classification model. This created 2631 commercial and student texts in total (Table 10.3).

Model Features

Significantly expanding the stylometric approach used for authorship analysis (Crockett & Best, 2020; Juola, 2017) linguistic features and their categorisation were drawn from a variety of academic writing analysis frameworks.

Writing Quality and Development Features

Writing quality and writing development in academic contexts have been evaluated from two main perspectives: lexical richness and textual cohesion. Lexical richness is a general term for three specific dimensions: lexical diversity (the number of different types of words used); lexical density (the ratio of content to grammar words) and lexical sophistication (variously calculated by length, language frequency, complexity and salience). Textual cohesion evaluates how parts of a text are linked together by a writer, at the level of sentences (local cohesion) or larger segments e.g. paragraphs, sections or chapters (global cohesion). Both sets of features are theoretically-driven cognitive phenomena that have been shown to distinguish between writers of different abilities and correlate with human judgements of writing quality and proficiency (see Crossley, 2020 for a review). 22 indices of lexical sophistication were calculated using the Tool for the Automatic Analysis of Lexical Sophistication (TAALES; Kyle et al., 2018) and 33 cohesion indices calculated by the Tool for the Automatic Analysis of Cohesion (TAACO; Crossley et al., 2016) were used.

Register/Genre Features

Register analysis (Biber & Conrad, 2019 is the most up to date overview) has been used to identify typical linguistic characteristics of academic writing in contrast to other genres (such as newspaper articles or fiction) and to distinguish academic writing across subject disciplines. It uses a range of lexico-grammatical and syntactic features in conjunction with multivariate analysis to generate bottom-up functional linguistic dimensions representing specific language functions such as 'narrative' or 'information production' or 'hedging'. The MAT Tagger (Nini, 2019) and the Stanford Tagger (Toutanova et al., 2003) were used for tokenisation, part-of-speech tagging and to compute 60 features.

Sentiment/Affect Features

Although less commonly used for academic writing analysis than the above frameworks, linguistic features related to emotion and humour have also been analysed, with positive emotion found to be related to 'accessible' academic writing (Crossley et al., 2014) and humour being related to human evaluations of writing quality (Skalicky et al., 2016). Sentiment analysis techniques are used here to capture any potential affective features that might discriminate between student and commercial writing. 14 indices of Sentiment were calculated using Sentiment Analysis and Social Cognition Engine (SEANCE; Crossley et al., 2017).

Statistical Analysis

The steps for the statistical analysis were as follows:

1. Following the aforementioned text analysis frameworks, 152 features were initially selected across the cognitive, affective and functional categories to represent: (i) Lexical Richness, (ii) Cohesion, (iii) Affect, and (iv) Register. Following preliminary testing, 25 were removed for multicollinearity ($r > .900$) and if they were not normally distributed skewness (≤ 2) and kurtosis (≤ 3) leaving 127 features (summarised in Table 10.4).
2. In order to aid interpretation of the findings, the aim was to reduce the 127 features to a more manageable set whilst preserving as much information as possible and keeping the possibility to evaluate the relative contribution of cognitive, functional and affective aspects. With these aims in mind, the Principal Components Analysis (PCA) dimensionality reduction method was conducted using SPSS v27.0.1. Four rounds of PCA were conducted on the combined set of commercial and student texts using the features from each linguistic category

Table 10.4 Linguistic feature categories with summary of key features

Cognitive	Sentiment	Functional
Lexical richness (22 features operationalised using TAALES, Kyle et al., 2018)	*Sentiment/Affect* (12 features operationalised using SEANCE, Crossley et al., 2017)	Register (60 features operationalised using MAT Tagger, Nini, 2019)
Familiarity	Negative words	Grammatical classes (nouns, adjectives, adverbs)
Concreteness	Positive words	Tense; aspect
Meaningfulness	Valence (pleasantness)	Syntactic features (relative clauses, passive voice, participial clauses)
Contextual distinctiveness	Arousal	Semantic features (hedges, speech act verbs)
Word length	Dominance	
Lexical diversity		
Lexical density		
Cohesion (33 features) operationalised using TAACO Crossley et al., 2016)		
Sentence overlap		
Synonym overlap		
Semantic overlap		
Connectives (e.g. additive, causal, reason, logical, temporal, opposition)		
Demonstratives		
pronoun/noun ratio		

See Appendix 2 for a full list of features

Table 10.5 Number of components derived from total number of linguistic features

Feature category	Total number of individual linguistic features	PCA Reduced number of linguistic components
Lexical richness (Lex)	22	7
Cohesion (Coh)	33	9
Sentiment/affect (sent)	12	5
Register (Reg)	60	9
Total	**127**	**30**

in turn. A Promax rotation was used as the derived components were assumed to be correlated. I used a cut-off point of $\lambda \geq .50$ to ensure that only salient indices were included in the analysis. This process reduced the feature set from 127 to 30 components (Table 10.5).

These 30 components were used to build a predictive text classification model. Binary logistic regression (conducted using SPSS v27.0.1.) was used as a classifier with essay authenticity as the dependent variable (Commercial = 1; Student = 0) and component scores as independent variables. The model was evaluated using precision, recall and f-score measures and validated with fivefold cross-validation (implemented in Python).

Results

Principal Component Analysis

The number of components extracted from each of the four domains was based on analysis of the scree plot in each instance. 127 individual features yielded 30 components across the four categories as specified in Table 10.6 below. These components, which together explain over 80% of the linguistic variation, describe the key dimensions of academic writing found across the whole corpus of student and commercial texts. The subsequent Tables 10.7, 10.8, 10.9, and 10.10 indicate the individual indices from which the components are composed in each domain.

Logistic Regression: Text Classification

Using the 127 features the logistic regression analysis classified texts with accuracy (f-score) of 81.9% (Table 10.11). This represents the highest performance of the model. Using the 30 components, the performance of the model fell to 77.6% (Table 10.12). However, both the full and reduced feature models outperform the results in the Dawson et al. (2020) workshop experiment (see Table 10.13) thus validating the feature reduction process.

Table 10.6 30 linguistic factors in 4 categories identified by principal component analysis

Component categories → Component number ↓	Cohesion (Coh) (71.1% variance; KMO 0.68)	Lexical richness/ choice (LexC) (79.2% variance; KMO = .60)	Sentiment/ affect (Sent) (82.5%; KMO = .51)	Register (Reg) (32.5% variance; KMO = .48)
1	Lexicosemantic overlap	Lexical sophistication	Positivity	Citation
2	Additive connectives	Lexical diversity	Confident	Negative statements
3	Unspecified/vague reference	Lexical sparsity	Positive evaluation	Speculation
4	Reason/logical connectives	Lexical concreteness	Agitated/ argumentative	Description
5	Contradiction/contrast	Semantic similarity	Positive action	Present tense
6	Disjunction/negation	Sentence length		Informality
7	Causal connectives	Lexical stance		Adverbials
8	Temporal connectives			Perfect aspect
9	Summarising noun phrases (Shell nouns)			Subordination

Table 10.7 Cohesion components

Component	Key indices and loadings		%variance	%cumulative variance
Coh1: Lexicosemantic overlap	Word overlap (adjacent sentence) Synonym overlap	0.91 0.82	16.7%	16.7%
Coh2: Additive connectives	Additive connectives Basic connectives	0.98 0.92	13.2%	29.9%
Coh3: Underspecified/vague reference	Unattended demonstratives Pronoun-noun ratio Lexical subordinators	0.87 0.85 0.75	12.6%	42.5%
Coh4: Reason/logical connectives	Reason and purpose Sentence linking connectives (transitions)	0.94 0.78	7.1%	49.6%
Coh5: Contradiction/contrast	Opposition Negative logical connectives	0.99 0.98	5.5%	55.1%
Coh6: Disjunction/negation	Disjunction Negative connectives	0.99 0.98	4.8%	59.9%
Coh7: Causal connectives	Causal connectives Positive intentional connectives	0.85 0.76	4.2%	64.1%
Coh8: Temporal connectives	Order Temporal connectives	0.99 0.86	3.6%	67.7%
Coh9: Summarising noun phrases (Shell nouns)	Attended demonstratives Determiners	0.76 0.53	3.5%	71.2%

Table 10.8 Lexical richness components

Component	Key indices and loadings		%variance	%cumulative variance
Lex1: Lexical sophistication	Word length Lexical density (tokens) Contextual distinctiveness MRC familiarity	0.81 0.68 0.77 −0.84	26.7%	26.7%
Lex2: Lexical diversity	TTR (nouns) TTR (verbs)	0.98 0.63	14.3%	41.0%
Lex3: Lexical sparsity	Type token ration (function words) Lexical density (types)	0.83 −0.74	11.8%	52.8%
Lex4: Lexical concreteness	MRC meaningfulness MRC concreteness	0.99 0.88	9.9%	62.7%
Lex5: Semantic similarity	Semantic (LSA) similarity	0.89	7.0%	69.7%
Lex6: Sentence length	Sentence length	0.99	4.9%	74.6%
Lex7: Lexical stance	TTR (adjectives)	0.92	4.6%	79.2%

Table 10.9 Sentiment components

Component	Key indices and loadings		%variance	%cumulative variance
Sent1: Positivity	Positive nouns	0.99	45.6%	45.6%
Sent2: Confident	Valence	0.99	16.1%	61.7%
	Dominance	0.99		
Sent3: Positive evaluation	Positive adjectives	0.98	8.6%	70.3%
Sent4: Agitated/argumentative	Arousal	0.99	6.6%	76.9%
Sent5: Positive action	Positive verbs	0.99	5.8%	82.7%

Table 10.10 Register components

Component	Key indices and loadings	%variance	%cumulative variance
Reg1: Citation	Public verbs 0.67 That verb complement 0.66 Subordinator that deletion 0.62 Private verbs 0.51	6.6%	6.6%
Reg2: Negative statements	Synthetic negation 0.55 Analytic negation 0.58	5.0%	11.6%
Reg3: Speculation	TO-infinitive 0.52 (Necessity modals 0.48) (Predictive modals 0.46)	3.8%	15.4%
Reg4: Description	Predicative adjectives 0.87 Be (main verb) 0.84 Adjective complements 0.58	3.5%	18.9%
Reg5: Present tense	Present tense 0.73 Nominalisations 0.57 Past tense −0.66	3.2%	22.1%
Reg6: Informality	Do (main verb) 0.57 Contractions 0.52	2.9%	25.0%
Reg7: Adverbials	Split auxiliaries 0.66 Adverbs 0.65	2.6%	27.6%
Reg8: Perfect aspect	(Perfect aspect 0.47)	2.5%	30.1%
Reg9: Subordination	Relative clause subject 0.67 Independent clause −0.67	2.4%	32.5%

Table 10.11 Logistic regression text classification matrix (all 127 features)

	Predicted STUDENT	Predicted COMMERCIAL	%Correct
Actual STUDENT (1643)	1384	215	84.2%
Actual COMMERCIAL (698)	185	501	71.5%
Nagelke R^2 = .525; Hosmer Lemshow = .193		Overall accuracy	82.5%
		Majority class baseline	70.0%

Table 10.12 Logistic regression text classification matrix (30 components)

	Predicted STUDENT	Predicted COMMERCIAL	%Correct
Actual STUDENT (1643)	1372	271	83.5%
Actual COMMERCIAL (698)	253	445	63.8%
Nagelke R^2 = .351; Hosmer Lemshow = .299		Overall accuracy	77.6%
		Majority class baseline	70.0%

Table 10.13 Comparison of current research model performance

	127 Feature model	30 Component model	Dawson et al. (2020)
Sensitivity	0.72	0.64	0.48–0.59
Specificity	0.84	0.83	0.80–0.76

Table 10.14 Significant predictor components from logistic regression

Component description	Sig	Exp(B)	Component no.
Lexical sophistication	0.02	2.217	Lex1
Underspecified/vague reference	0.03	1.695	Coh3
Adverbials	0.03	1.605	Reg7
Summarizing noun phrases (shell nouns)	0.04	1.353	Coh9
Lexical sparsity	0.04	1.243	Lex3
Lexicosemantic overlap	0.05	1.199	Coh1
Informality	0.02	.489	Reg6
Additive connectives	0.04	.753	Coh2
Positivity	0.04	.759	Sent3
Lexical concreteness	0.04	.764	Lex4

Linguistic Characteristics of Commercial and Student Writing

10 of the components were significant ($p < .05$) and accounted for 99% of the component model (accuracy = 76.8%; see Table 10.14).

In Table 10.14, components with odd ratio (Exp B) >1 are predictors of commercial writing; components with odd ratio < 1 are predictors of student writing. Six components are significant predictors of commercial writing. Five of these were from the cognitive category: lexical complexity, lexical sparsity, underspecified reference, summarising noun phrases, lexicosemantic overlap. One functional component was a significant predictor: adverbials. Four components are significant predictors of student writing: informality, additive connectives, positivity, lexical concreteness. Descriptions and example texts for each predictor component follow below.

Commercial Writing Predictor Components

1. Lexical Sophistication (Lex1; 26.7% Variance)

Commercial essays are more likely to use the terminology and jargon of the discipline and less likely to use familiar or general words. Essay extracts in this component were densely packed with longer than average words as well as subject-specific words that are unfamiliar outside the discipline context.

Sample A (Commercial)

> Luo (1996) noted that **strategic alliances** can be thought of as an organising framework where **partnership** and **relationships** facilitate the knowledge and **capabilities** required to sustain an international growth strategy. Perceptions of **strategic alliances** from a Chinese perspective have also been explored with Dong and Glaister (2007) exploring the **cultural** differences from a Chinese perspective.

Sample B (Commercial)

> **Technological** advances during the last decade were insufficient to deliver a substantial improvement in commercial and industrial **productivity** (Foda, 2016). Arguably, there is potential for **sustainable** improvements in **productivity** with **technological** disruptions; however, many of these **innovations** have not yet materialised (UN, 2013). Therefore, recent **productivity** gains are less likely to be **sustainable** for the UK and the US.

2. Underspecified/Vague Reference (Coh3; 12.65% Variance)

Commercial essays were more likely to use vague and ambiguous referential language
Essay extracts in this component frequently used 'dummy it', 'they' instead of passive voice, and 'this' + reporting verbs. These weak cohesive links are typically used to fulfil the communicative function of interpretation but can be considered lazy in academic writing style guides.

Sample C (Commercial)

It would be up to the Canadian All Reds to show that **they** did have goodwill in the goods and the logo; **they** would also have to prove that there had been some form of false representation, **whether it** was intentional or not, to the public, by virtue of the goods being offered by John. For **this** to be the case, **it** will be necessary for **them** to show that there is a likelihood that the public would be deceived, but it has been established that the standard is not that of a 'moron in a hurry', but rather the public at large. The court will determine whether or not there is a similarity in terms of the goods. **This** may result in a difference of opinion in terms of whether or not the scarves without the words ''All Reds' on them would be deemed passing off, in comparison to the ones without the words on the scarves.

Sample D (Commercial)

This demonstrates that in order to achieve this end, close cooperation was necessary with the community health-care providers, and a multidisciplinary consultant team was needed to coordinate the care provision. **This research demonstrated** that intervention patients spent a smaller proportion of the last month of life in nursing homes than was possible for the control sample (Jordhøy et al., 2010). **This illustrated** that to increase the proportion of patients who were able to die at home, a significant investment of resources would be needed. **This manifested itself** in the need for greater levels of training in palliative care for community care staff, **thus** increasing the costs associated with the provision of care (Jordhøy et al., 2010).

3. Adverbials (Reg7; 2.6% Variance)

Commercial essays were more likely to contain more adverbs particularly degree and conjunctive types. These were often used in sentence initial position to explicitly signal transitions or with adjectives to add emphasis. The adverbs used do not add much information; their redundancy indicates a strategy of text inflation.

Sample E (Commercial)

> **Furthermore**, Canadian labour law **also** offers an interesting comparison with the US since the policy debate is **very** different, **even** though the labour policy issues are **very** similar to the ones on the United States. Labour law reform in Canada, for the **most** part, is not accompanied by litigious considerations regarding the need to secure the sanctity of the "secret ballot", but **only** a recognition that, **even** with Canada with its rapid elections and strict adherence to deadlines, limitations on employer electioneering, and tougher punishments for unfair management practices, majority signing up makes organizing easier for workers, whereas contested representation elections make organizing **much more** difficult.

Sample F (Commercial)

> **Moreover,** it has been stated that Brexit has high probabilities of affecting not **only** the United Kingdom but **also** the rest of the EU economy through various transmission channels, for instance, uncertainty, trade, investment, as well as migration. **In addition,** it is evident that in the near term, the major effect of Brexit is heightened uncertainty, both political and economic. **Accordingly**, these issues are likely to slow investment growth and private consumption, **as well as** affect foreign trade, **primarily** in the United Kingdom; even though other EU member states also are likely to be **adversely** affected by Brexit. **Also,** Brexit has caused unexpected exchange rate fluctuations, as well as financial market instability.

4. Summarising Noun Phrases (Coh9; 3.5% Variance)

Essay extracts in this component used demonstrative 'this' and definite article 'the' in combination with general nouns (sometimes known as 'shell' nouns) and abstract nouns that are used to summarise and repackage information previously presented. This is a common cohesion strategy recommended for graduate and professional writing but tends to be overused by commercial academic essay writers.

Sample G (Commercial)

This <u>introductory chapter</u> outlines **the** <u>central research context</u> and introduces key concepts. In order to understand **the** <u>nature and importance of knowledge transfers</u>, **this** <u>chapter</u> defines **the** <u>meaning of knowledge</u> drawing on both its tacit and explicit forms. In addition it introduces **the** <u>reader</u> to **the** <u>growing importance of international strategic alliances</u>, with a central focus on the Chinese market. Recognising that there is a strong link between strategic alliances and competitive success in **the** <u>literature</u>, **this** <u>research</u> focuses upon the Chinese market in particular in order to understand what such alliances look like, **the** <u>nature of knowledge transfers</u> and **the** <u>specific challenges</u> that exist within **this** <u>growing and important market.</u>

Sample H (Commercial)

This <u>piece</u> has shown how essential it is that **the** <u>approach</u> to care is adapted to **the** <u>individuals' need</u> to reduce distress and enhance their quality of care. Implementation of **the** butterfly scheme was helpful to a degree in **this** <u>particular scenario</u> but I also recognise that not all staff adapted their practice because of this. **This** <u>piece</u> has demonstrated **the** <u>complexity</u> of delivering care for a person with a communication difficulty and highlights that provision of care is largely influenced by personal attitudes and beliefs towards care delivery. **This** <u>piece</u> has illustrated **the** <u>importance</u> of not using medical jargon when communicating with patients, particularly those with Dementia as **this** could exacerbate confusion and cause distress.

5. Lexical Sparsity (Lex3; 11.48% Variance)

Commercial essays were more likely to have a low information content. Essay extracts in this component contained a high frequency and diversity of function words and verbs, with few noun phrases. This gives the impression of being long-winded, with many words being used to make few points. It is also indicative of draft writing that has not been compressed to maximise word count.

Low lexical sparsity Sample I (commercial)	High lexical sparsity Sample J (student)
Research **has therefore** suggested **that another** <u>significant benefit</u> **of** breastfeeding **may be that** **it** acts **as a** <u>protective factor</u> **against** obesity **in** childhood. Kramer **was the** first **to** report **that** breastfeeding **may** result **in a** "significantly reduced" risk **of** obesity **in** children (1981, p. 4). **In the** next two decades, **a** number **of** similar studies **also** suggested **an** association **between** breastfeeding **and a** reduction **in the** risk **of** <u>childhood obesity.</u> **In the** mid-2000s **this** research **was** collated **into** three seminal meta-analyses **which** concluded **that**, overall, breastfeeding **for the** first six months **did** reduce **the** risk **of** childhood obesity.	Difficulties **in** gaining admission **to** inpatient beds (i.e. inefficient bed management **or** insufficient bed capacity) **The** congestion **in the** emergency department. Incorrect retention **of** patient beds. Need **for** improving different administrative processes associated **with** patient flow arises **for** efficient **and** effective management **of** hospital beds **and** other resources. **The** effective management **of** hospital beds is essential **if the** growing demand **of** inpatient beds is **to** be met. **With the** limited supply **of the** medical resources **and** excess **of** demand, **the** hospital beds are **in** short supply.

6. Lexicosemantic Overlap (Coh1; 16.73% Variance)

Essay extracts in this component frequently deployed the repetition of words across adjacent sentences as a primary cohesion strategy; frequent use of synonyms is indicative of the "thesaurus thinking" writing strategy promoted in UK primary schools.

Sample K (Commercial)

Once the product has arrived at the regional distribution centre, the consideration is that full pallets of a product are still too large to handle for the kind of stores operating within the Spar chain. As such, full pallets of washing powder are broken down and mixed with other products onto a range of devices such as cages which can then be used to distribute a large variety of products to a store in small quantities, thus facilitating a wide range of product availability in store, without incurring large levels of wastage due to the over stocking of products. Considering the distribution channel of the microwave meal in the same chain of stores the overall distributional channel is quite a different one, this is largely the function of the nature of the product in its self. Here the primary concern is that the amount of time which the product spends in the distribution channel must be much lower than that of a non-perishable item such as a washing powder

Sample L (Commercial)

Half of the studies (n=3, 50.0%) concluded that active acupuncture is more effective than sham acupuncture for reducing blood pressure in people with hypertension. For example: in the trial conducted by Flachskampf et al. (2007), there was a mean reduction in participants' blood pressure of 6.4mmHg (systolic) and 3.7mmHg (diastolic), while there was no reduction in the sham acupuncture group (p<0.001). In Yin et al.'s (2007) trial, the mean blood pressure for the group receiving acupuncture decreased from 136.8/83.7mmHg to 122.1/76.8mmHg, while again there was no change in the mean blood pressure for the control group (p<0.01). Similarly, in Zheng et al.'s (2018) trial, acupuncture resulted in an average decrease in participants'

Student Writing Predictor Components

1. Informality (Reg6; 3.1% Variance)

Student writing is more likely to use spoken language conventions. Essay extracts in this component used contractions for negatives and auxiliary verbs, and 'do' as main verb. While these linguistic features were the most common signs of informality, they were typically accompanied by other indications that the writer is unaware of academic writing conventions (such as phrasal verbs, delexical verbs and colloquialisms).

Sample M (Student)

Well, the main reason that most people **don't** like sales is because of having to deal with rejection. No one likes to be rejected but if **you're** in a sale, **that's** all part of the game. The more rejections you get, the closer to a sale you will be. Now just because you expect your sales people or yourself to go out there and make those sales calls like a machine, it **doesn't** mean motivation should be neglected. If you are a sales person, take the time to read and listen to motivation material. By **doing** this, you will constantly be feeding your mind with positive and encouraging thoughts that will help you get through those days where everyone prospect seems to be in a bad mood.

Sample N (Student)

Having a law degree offers a world of opportunities. You **don't** have to be solely a solicitor. One area you can choose to look at is become a barrister. If **you're** not too fond of working with the public and just want to specialize and work mostly in the court room, then being a barrister would be a good choice. Barristers are usually hired by solicitors to help them in creating legal arguments that will convince the juries to side with case of the solicitor. The way barristers summarize the reasons why the court should rule in favour of their client can also be a big help in supporting the case of the solicitor they are assisting. Another thing that barristers do is to cross-examine witnesses. Great barristers can sway or influence the **court's** decision towards their perspective.

2. Additive Connectives (Coh2; 13.2% Variance)

Student writing is more likely to link information by making lists of points or enumerating steps. Essay extracts in this component featured the use of basic and additive connectives (such as 'and', 'but', 'also', 'or' and 'so'). The preference for additive relations rather than contrast, comparison or causation – indicates that student writing tends to lack a more critical or analytical focus.

Sample O (Student)

> Planning is the **first** managerial function **and** it is the process that is established to determine future position **and** decide how to get the goals. The second function is organising, the process of designing jobs **and** determining the tasks **as well**. Leading, the third function is the process of motivating employees, group dynamics **or** resolving conflicts in organisation. Controlling, the fourth function, is the process of comparing, monitoring **and** correcting performance with goals of the organisation (Griffin & Moorhead, 2010). The successful managers should perform effective functions **and** different roles in organisation. The interpersonal roles that are the main tasks of managers **and** are relative to employees, the interpersonal roles are including the figurehead, the leader **and** the liaison.

Sample P (Student)

> **First**, the United States should recognize the flaws **and** failures of its laws to fully protect women **and** eradicate sexual harassment in all spheres. They should take necessary measures to ratify CEDAW **and** enact legislative provisions that ensure the safety of women in **and** out of workplaces. There should **also** be proper punishment measures set forth for the perpetrators, such as termination of employment **and** prison sentences where necessary. Too many harassers get away with their crimes **and** they must be stopped. I believe that the US should **also** allocate funds to organizations, foundations, **and** movements like Time's Up **and** #MeToo that properly identify harassers **and** provide defence for the victims of sexual assault. **Next**, countries in the European Union that have ratified CEDAW should regulate **and** measure the extent of implementations within their respective governments **and** institutions.

3. Positivity (Sent3; 8.6% Variance)

Student writing is more likely to describe and evaluate using positive language. Essay extracts in this component displayed frequent use of positive adjectives and other words associated with positive emotions. This indicates that students are more likely to talk about advantages than limitations – another sign of lack of analytical focus.

Sample Q (Student)

> In practice, if a leader does not have **good** communication skill, he or she cannot encourage the team to fulfil the goal. The skill holds staffs together and their communication with each other become **free** flow in both directions. For **effective** communication a leader should be **honest, approachable, open** and **good** at listening. It indicates that, during practice a leader has to be **honest** to staffs and also be **ready** to listen their problems, not just at briefings and assessments of care, but also at handovers and any other time. It is also necessary for a **good** leader to be **open** in decision so the staffs can accept the decisions (Morgan, 2010).

Sample R (Student)

> Baccalaureate prepared nurses also are more **beneficial** to their patients and workplaces by providing patients with **safer** care, and also with the ability to advance their career **quicker** than the associate prepared nurse. These nurses differ from ADN prepared nurses because they possess **greater** knowledge regarding health promotion, disease prevention, and reduction of risk. Knowledge in leadership and management, community nursing, and overall wellness also make the ADN nurse and BSN nurse dissimilar. Both **educated** nurses' work to achieve the **best** possible level of wellness for their patients.

4. Lexical Concreteness (Lex4; 9.9% Variance)

Student writing is more likely to use a colloquial register. Essay extracts in this component use everyday vocabulary that is familiar but not necessarily informal. Attempts are made to conform to academic standards of grammar, although knowledge of discipline-specific terminology is low.

Sample S (Student)

> **Basic steps** in the money laundering process are showing below, Placement:
> In this step large **amount** of **black money** placed into the financial system,
> used to **buy high dollar** goods or smuggled out of the country. This idea is to
> transform the **cash** as quickly as possible into other types of assets and thus
> avoid detection. Cash deposited into bank often with complicity of staff or
> **mixed** with proceeds of legitimate business. In placement process cash are
> physically transported out of the country. Cash is used to **buy high** value
> goods, properties or business assets.

Sample T (Student)

> Pepsi. Co is a **big** company, which is well known in over the world. If go to
> the **main** website of Pepsi family, you can **easy** to find out that Pepsi is attend-
> ing in nearly 200 countries in globe. With the mission that to become the
> world's premier consumer products company concentrated on convenient
> foods and beverages,(Our vision and Vision), there are **hundreds** of product
> **lines** in **four** divisions majoring to **lead** global in food, snack and barrage
> company. In the Pepsi. Co's "Built to grow" report 2001; Pepsi was classified
> in the **third** (3 grate) of "World's leading foods and beverage companies."

Discussion

Characteristics of Commercial Essay Writing

Commercial academic writing has a superficial quality. It has a conventional aca-
demic writing style and sophisticated vocabulary but it is also defective, due to its
repetitiveness, high levels of redundancy and verbosity. Specifically, the commer-
cial writing features that generalised across Business, Law and Nursing essays were:

- Formal academic writing style (e.g. use of transition adverbials, summarising
  noun phrases and shell nouns).
- Combination of lexical sophistication and sparsity, indicating sesquipedalian
  prose style where writers sprinkle big words amongst circuitous language.
- Ambiguity and vagueness due to under-specified reference words
- Repetition of content words and use of synonyms across adjacent sentences sug-
  gesting thesaurus use.
- Text inflation (padding) with redundant use of grammar and function words.

These are all signs of a writing strategy through which commercial writers aim to maximise the appearance of quality by following traditional and recommended academic writing conventions whilst minimising their cognitive effort. Thus this research suggests that ghostwriting is characterised by writing that is high quality but low effort; ghostwriting deploys text inflation strategies – e.g. padding, repetition, waffle – whilst maintaining the appearance of complexity and criticality (long words and argumentative tone).

In contrast, student writing differs primarily from commercial writing in its lack of formality, neutrality and abstraction i.e. it tends not to resemble generic academic writing. This may be because students are less advanced in their academic careers than commercial writers but also because students are – somewhat paradoxically – less motivated by written academic conventions than commercial academic writers. Student writing is further distinguished by use of elaboration strategies that add and list information in order to demonstrate as much knowledge as possible; writing "everything they know" rather than answering the specific question is a common criticism of student writing.

Quality/Effort Model of Commercial Essay Writing Detection

In terms of the significance of writing quality, these results suggest that quality is a key dimension in detecting contract cheating but that it needs to be considered in conjunction with a dimension of effort. Figure 10.4 (below) proposes a Quality/Effort model of ghostwriting detection. High quality, low effort suggests a writer has taken intentionally lazy writing strategies.
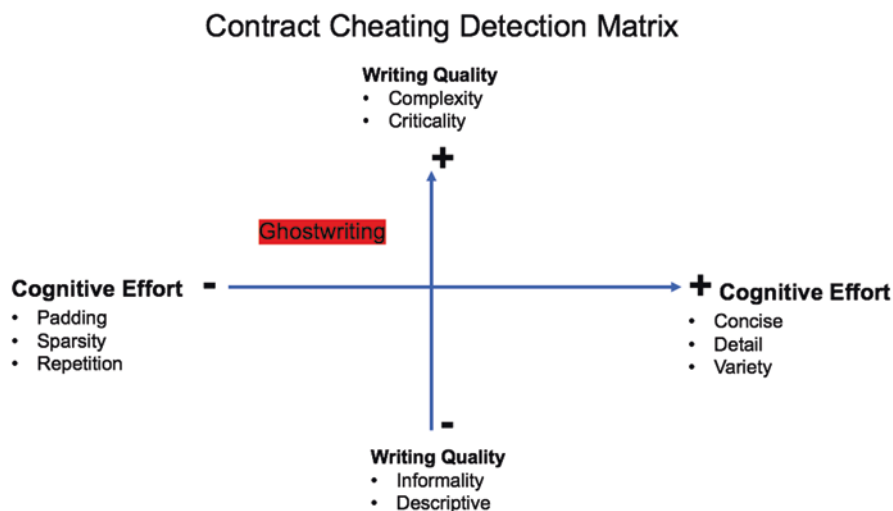
Fig. 10.4 Contract cheating detection matrix

> 1) aims and argument are clearly stated and sustained;
> 2) content is logically organised and clearly signposted;
> 3) word limits or timings are observed;
> 4) references are consistent and accurate;
> 5) at least five scholarly references are included;
> 6) the work is presented accurately: terminology is used correctly; figures/diagrams/tables are accurate and relevant; writing has been proof-read and abbreviations made clear.

Fig. 10.5 Example of 'quality of academic writing' marking criteria

This model suggests that looking for signs of cognitive effort invested in the writing process and separating this dimension from writing quality in marking rubrics would support detection of ghost writing. Giving marks for signs of cognitive effort such as conciseness, detail and variety is not common practice in marking rubrics. As the example below shows (Fig. 10.5), marking rubrics tend to give marks for 'quality of academic writing' typically defined by features related to consistency, clarity, accuracy and relevance – features which this research has shown can still be achieved even in conjunction with writing strategies designed to waste words. The model also suggests that short assessments that require compression and summarisation of a range of information would be more likely to expose contract cheating.

Conclusion

This research has shown that commercial essay writing can be distinguished from student writing by linguistic features easily recognisable by assignment markers (RQ1). A text classification model built on these linguistic features detected commercial essay writing at a rate significantly above chance (RQ2). This research contributes to the question of the quality of outsourced academic writing by demonstrating how quality is moderated by effort and providing empirical evidence for a model of ghost-writing as high quality, low effort writing (RQ3). An important limitation of this research is that the use of 500-word text chunks from an essay as the key unit of analysis rather than the whole essay means that overall essay flow i.e. global text coherence was not measured. Future research will measure global text coherence as well as test the discriminating linguistic features identified here on other subjects available in the corpus. An additional contribution of this research is its expansion of the range of linguistic features used in contract cheating detection beyond the stylometric features used in authorship analysis, thus providing a clear direction for software development in the fight against contract cheating.

Appendices

Appendix 1: Sample List of BootCat Search Queries

brand sales evaluate site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

analyse describe evaluate site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

discuss report summarise site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

2 1 essay assignment site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search_files

essay business health site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

a As In site ukessays.com_services_example-essays_business -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

Of To This site ukessays.com_services_example-essays_business -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

undergraduate assignment 2 1 site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

but for and site ukessays.com_services_samples -site books.google.* -site translate.google.com -site www.google.* -site www.googleadservices.* – Google Search

Appendix 2: Full List of Linguistic Features Used

Cognitive

Lexical richness features	Description
MRC_Familiarity_AW (Coltheart, 1981)	Mean unigram familiarity score
MRC_Concreteness_AW (Coltheart, 1981)	Mean unigram concreteness score
MRC_Meaningfulness_AW (Coltheart, 1981)	Mean unigram concreteness score
McDonald Contextual Distinctiveness (McDonald & Shillcock, 2001)	Co-occurrence probability of word with 500 highly frequent context words
Semantic Distinctiveness (Hoffman et al., 2013)	Semantic variability of contexts (1000-word chunks of text) in which word occurs
LSA Contextual Distinctiveness (Landauer et al., 2013)	Maximum/average LSA cosine score for related words (for each word in the text)
Word length	Mean number of characters in all unigram
Sentence length	Mean number of unigrams in all sentences
Lexical diversity (all words; function words; nouns; verbs; adjectives; adverbs)	Type-token ratio (number of unique words (types) divided by the total number words (tokens))
Lexical density (tokens; types)	Percentage of text tokens/types that are content words
Text cohesion features	
Lexical overlap	Number of words that occur at least once in the next sentence
Semantic overlap	Average sentence to sentence overlap of noun synonyms.
Sentence similarity (Landauer et al., 1998)	Average latent semantic analysis cosine similarity between all adjacent sentences.

Connectives
  Basic
  Addition,
  Conjunction,
  Disjunction,
  Subordination,
  Reason,
  Causation,
  Opposition,
  Order,
  Purpose,
  Logical,
  Temporal
  Sentence linking
	Number of connective words

Determiners	Number of determiners
Demonstratives (unattended; attended)	Number of demonstrative words/phrases
Givenness	pronoun_noun_ratio

Affective

Affect features	Description	References
Negative emotion words NRC Word-Emotion Association Lexicon (Emolex)	Mean unigram negative association score	
Valence The Affective Norms for English Words (ANEW)	Mean unigram valence score	Bradley and Lang (1999)
Arousal The Affective Norms for English Words (ANEW)	Mean unigram arousal score	Bradley and Lang (1999)
Dominance The Affective Norms for English Words (ANEW)	Mean unigram dominance score	Bradley and Lang (1999)
Polarity	Mean unigram positive/negative score	Hu and Liu (2004)
Negative adjectives component	NRC negative adjectives, NRC disgust adjectives, NRC anger adjectives, GI negative adjectives, Hu Lui negative adjectives	SEANCE (Crossley et al., 2017)
Positive adjectives component	Vader positive, GI positive adjectives, Laswell positive affect adjectives	SEANCE (Crossley et al., 2017)
Positive noun component	Hu and Lui nouns	SEANCE (Crossley et al., 2017)
Positive verb component	Hu and Lui positive verbs	SEANCE (Crossley et al., 2017)

Functional

Lexicogrammar and syntactical classes of features (identified in Biber, 1991)	Examples
Tense and aspect markers	Do, did, done
Place and time adverbials	Here, already
Pronouns and pro-verbs	She, it, do, be
Questions	Where, how, do you
Nominal forms	Station, walking, my understanding of the situation
Passives	'Was held'; 'must be done'
Stative forms	'Know'; 'seem'
Subordination features	'Although', 'even if' 'rather than'
Prepositional phrases, adjectives and adverbs	'Under treatment', 'suitable for', 'for its age'

(continued)

Lexicogrammar and syntactical classes of features (identified in Biber, 1991)	Examples
Lexical specificity	'Practice'; 'practices'; 'a practice'
Lexical classes	'Noun', 'verb', 'pronoun'
Modals	'Can'; 'should'; 'might'
Specialized verb classes	Suasive verbs; public verbs; private verbs
Coordination	'Warm and cosy'; 'and so'; '. And'
Negation	'No worse than'; 'did not'

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Chapter 11
Data Mining of Online Quiz Log Files: Creation of Automated Tools for Identification of Possible Academic Misconduct in a Large STEM Course

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Abstract Breaches of academic integrity remain a concern at post-secondary institutions. In early 2020, the COVID-19 global pandemic forced universities to rapidly switch to remote (online) learning. This new learning environment amplified instances of particular behaviours that violated the Student Academic Misconduct Policy, including collusion, unauthorized file sharing, and contract cheating. Although some methods of student evaluations are more resistant to breaches of academic integrity, testing of the understanding and application of concepts administered through popular Learning Management Systems (LMS) are more susceptible to students looking up or sharing answers. However, one benefit of LMS-based evaluation is the extensive student activity data that is collected. We describe a new method of data mining LMS activity logs to identify suspicious activity during exam/quiz administration. This method examined variables such as quiz duration, IP addresses, question duration and question order/timing to flag students who performed outside expected norms. In a large (800+) undergraduate course, our data mining flagged ~10% of test takers, half of which were pursued for a formal investigation of academic misconduct. We show that data collected by most LMSs can be used to flag students for potential academic misconduct and can assist in the development of fair and resilient evaluation methods even in an online environment.

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Introduction

Breaches of academic integrity are common in higher education. Over more than half a century, repeated studies have shown that upwards of a third of undergraduate students engage in acts of academic misconduct every year, with results being similar in both the United States (Bowers, 1966; McCabe, 2016) and Canada (Christensen Hughes & McCabe, 2006). In addition, only a small portion of the suspected academic misconduct identified by instructors is reported (Bowers, 1966; Coren, 2012; MacLeod & Eaton, 2020; Nadelson, 2007).

The rapid shift to remote course delivery in March 2020 during the COVID-19 pandemic presented a significant challenge for administering fair and reliable student assessments. As was the case across much of North America, the University of Calgary moved to an online delivery framework approximately two-thirds of the way through the winter 2020 semester. Students and instructors who were not specifically trained for an online learning environment were forced to adapt and transition to a remote mode of teaching and learning. In most cases, remote delivery implied reorganization of student assessments to online frameworks. To help with this transition, instructors were provided with the list of the features available in the online management system to consider when setting up an online assessment. For the University of Calgary where the majority of courses and their components are normally delivered in person, the online tools available were not particularly optimized for the large volumes of student assessment that were moved to online delivery, specifically the final exams of relatively large (600+ student) first- and second-year courses.

In our project, we collected information from the University of Calgary learning management system (D2L/Brightspace) and used simple statistical data mining techniques to look for connections between students' individual quiz timings for viewing and saving of randomized questions. Data mining refers to the process of extracting meaningful information from often vast amounts of raw data (see e.g., Coenen, 2011 and references therein). This can be through statistical connections between various pieces of information, or through more advanced artificial intelligence frameworks such as neural networks. In all cases, data (often in very large quantities) is mined for information relevant to specific topics. Data mining techniques are used extensively in research communities that rely on large data sets and are often foundational to observational sciences (those that collect vast quantities of data from distributed sensors) such as environmental science and space science. Within the teaching and learning community, data mining has recently emerged as a valuable tool for guiding decision making in areas of teaching and learning (Baepler & Murdoch, 2010; Baker & Inventado, 2014). For example, Baepler and Murdoch (2010) discussed the details of data mining within the context of academic analytics as a method for gathering meaningful student data for business intelligence to support data-driven decisions applied to student learning. The learning management platform used at our university, D2L, includes an analytics module that mines student data within its system to provide analytical insights for student success.

The goal of this chapter is to highlight future possibilities enabled by semi-automated analysis of learning management system log files for the detection of potential academic misconduct. We present here, the outcome of our pilot project utilising a newly developed methodology and computer program framework. We note that its was not a research project in the traditional sense. We are reporting the results of an administrative intervention to flag possible cases of misconduct. The purpose of our chapter is not to share research results, but rather to describe what we did and how we did it, so others might learn from our process to implement similar administrative interventions at their own institutions.

Organisation of the Chapter and Rationale

In this chapter, we present a semi-automated method for flagging potential breaches of academic integrity based on system logs from online quizzes. In our case, the information being assessed was not submitted by the student but rather collected by an online platform as a student navigates through a web-based assessment. Similar projects have been conducted before with other systems (see e.g., Burlak et al., 2006; Burke, 2009). The general approach is to perform a forensic analysis of information collected during a formal assessment and look for key indicators of potential breaches of academic integrity. Similar to keystroke and clickstream analysis that has been used in the detection of contract cheating based on student behaviour during the writing process (e.g. Leijten & Van Waes, 2013; Trezise et al., 2019), here we use data from quiz/exam navigation to detect and classify student behaviour. In the sections that follow, we present our methodology and results as they pertain to the D2L system in the context of the COVID-19 transition to online assessment. We conclude with recommendations for practice and future directions.

We wish to highlight for the reader that within our institutional context, the term "academic misconduct" is used in our policy and procedure documents. As such, we use the phrases "academic misconduct", "violations of academic integrity", and "breaches of academic integrity" synonymously.

Literature Review

A particular topic of concern in recent years has been contract cheating, a term coined by Clarke and Lancaster (2006) to describe student academic outsourcing. Bretag et al. (2019) identified seven types of student academic outsourcing behaviours. These behaviours were arranged along a continuum of least to most egregious: (a) buying, selling or trading notes; (b) providing a completed assignment to another student; (c) obtaining a completed assignment from someone else; (d) providing exam assistance; (e) receiving exam assistance; (f) taking an exam for someone else; and (g) arranging for someone else to take one's exam (p. 1839).

Inappropriate or unauthorized student file-sharing and other forms of academic collusion have been highlighted by researchers as a growing concern (Rogerson, 2014; Rogerson & Basanta, 2016), with particular concern focused on commercial enterprises who profit from students who pay to download files, which can include completed assignments, notes, and other course materials (Wolverton, 2016). The background discussions for this study included an inquiry into the availability of course content online. We found academic course content and related material directly related to this specific course on four commercial file-sharing sites. Sharing unauthorized materials on commercial file-sharing sites is prohibited at our university and would constitute academic misconduct, and more specifically, collusion. We have intentionally opted not to name these companies in this write-up, though we wanted to highlight that it was easy for the research team to find copies of course assignments and other assessments online in a matter of minutes.

To the best of our knowledge, extensive empirical studies have yet to be conducted on the effect of the COVID-19 crisis on breaches of academic integrity in higher education. However, there are early indicators that academic misconduct increased in the first half of 2020 during the pandemic, with contract cheating and file-sharing sites proliferating during this period (Eaton, 2020; Rossiter, 2020; White, 2020). In this chapter, we offer details of a project undertaken in one faculty at the University of Calgary (Canada) to identify and address potential breaches of academic integrity from unauthorized collaboration between students during the writing of a final exam that was to be done individually.

From the standpoint of academic integrity, data mining and more advanced tools such as machine learning frameworks have shown promise for their ability to provide rapid and uniform assessment of student work. Early work on assessment of computer programming submitted work led to the creation of the MOSS (Measure Of Software Similarity) tools (Bowyer & Hall, 1999). These tools can discern the percentage overlap between submitted student code, a valuable tool for assessing potential breaches of academic integrity. More recently, Amigud et al. (2017) introduced a machine learning technique to assess the written works of students (i.e. research reports, computer code, etc.). Within their technique, a machine learning framework was trained to identify the unique features of a student's writing with an accuracy of 93%, as opposed to the baseline 12% accuracy for a human. These types of systems are valuable for automatically assessing subtle changes in student writing style that may be indicators of potential academic misconduct.

Materials and Methods

The question that guided our project was: How can we use information within the university learning management system (LMS) to assess students' behaviours during online tests?

Statement of the Problem

For the University of Calgary where the majority of STEM courses and their components had been delivered in person prior to COVD-19, the online tools available were not particularly optimized for the large volumes of student assessment that were moved to online delivery, specifically the final exams of relatively large (800+ student) first- and second-year courses. The problem of practice that informed our study is that students were using online file-sharing sites to rapidly share test answers. Because our university opted not to use any kind of electronic or remote proctoring software, we wanted to see if we could find a way to identify violations of academic integrity using the tools we had available through existing university resources, namely the LMS.

During unsupervised online quizzes, the only information available to instructors about events occurring during the quiz are contained in the quiz log files. This information is often too large to manually process, since each student can interact with the online web platform hundreds of times throughout the quiz (as they push buttons, submit answers, navigate between pages, etc.). In our case, one instructor had considerable experience in dealing with large multi-dimensional datasets and was able to leverage these skills to generate scripts that processed quiz log files automatically. The choice of data mining techniques was, therefore, in this case, driven primarily by the authors' experience with existing tools rather than a directed research effort to solve a specific problem. We present these tools here, since they provide a potentially unique viewpoint of how automated processing of quiz logs can support the identification of academic misconduct.

We consulted with the institutional research ethics board about this project. After extensive consultation, we were granted an exemption to consent under sections 5.5A and 5.5B of the national Tri-Council Policy Statement (see https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html).

Learning Context

This project was conducted at a large, urban university in Western Canada in a first-year undergraduate science course. Total course enrolment has consistently been around 800 students per semester. The course was offered over a 13-week semester from January to April 2020. During this time, the university moved to an emergency remote teaching mode to provide learning continuity during the COVID-19 crisis. As a result, the first 7 weeks of the course were taught in a traditional face-to-face context with 4 hours per week of lectures and 2 hours per week of labs. From week eight onwards, the entire course was moved to a remote format.

Reported cases of academic misconduct were sporadic in similar previous course offerings. For example, 0.1% of students who wrote the final exam were found responsible for academic misconduct in the winter 2018 offering. In the subsequent

offering (winter 2019), 1% of students were found responsible. In this chapter, we share our techniques and the results of the course offering from winter 2020.

Data Sources and Instruments

In the course for which the data mining was performed, all recommendations by the University were implemented. In order to help students better adapt to the online quiz format, part of the weight of the final exam was shifted toward additional quizzes taking place during the last month of the term and worth between 3% and 10% (depending on the quiz and the course). Remote proctoring software was unavailable, and in an effort to provide a fair and equal environment to all students (even those who relocated to other geographic regions) a decision was taken to allow a 24-hour window for the completion of remote final exams and other course assessments, in this case quizzes (University of Calgary, 2020). The exam and quizzes had enforced time limits that were extended by 100% to further accommodate any potential impediments created by the shift to online assessments. For example, a nominal 30-minute in-class quiz, in this model, once shifted to online would be given as a 60-minute online quiz with each student starting the quiz at their convenience within a 24-hour window.

Description of Data Set Available

Learning management platforms are commonly used amongst post-secondary institutions to provide instructors and students with an online space to communicate, connect, share learning resources, manage submissions and grades. The Brightspace (formerly Desire2Learn [D2L]) platform is used for all the courses at the University of Calgary. It was the obvious choice for the teaching teams (of which two of the authors were a part) to continue using this platform to administer final assessments rather than ask students to get familiar with another type of online environment suitable for administering online quizzes. Most of the assessment for this course was designed to be in person except for the online D2L quizzes prior to the COVID-19 pandemic. Online quizzes were implemented mostly in the form of formative assessments: pre-reading quizzes, pre-lab quizzes or even weekly quizzes allowing students to test their understanding in a low-risk environment and be provided with feedback. The weight of a single online quiz prior to March 2020 was 1% of the total final grade or less. In March 2020, the teaching teams faced a challenge of how to make the transition to an online environment for formative assessments, traditionally administered in person and worth 20–40% of the final course grade. The solution implemented was to have a few online quizzes (one worth 3% and three worth 4%) during the last month of the term and the final assessment (worth 25%) online during the time a final exam would take place. The questions in the quizzes

were of two different types: multiple-choice questions with randomized order of answers (and worth up to 20% of the final grade), and calculation questions where a formula is used and variables for each student changed allowing each student to work with a different set of numbers. Some of the calculation questions required multiple calculation steps to be taken by the student to arrive at the final answer. Additionally, the order of questions (multiple-choice and calculation) was randomized. For the final assessment, there were also pools of questions (testing the knowledge of the same topic at a comparable level), from which students were given one or two questions at random. The data set analysed using the data mining code was for the three online quizzes worth 4% each (the first quiz worth 3% was omitted as students were given two attempts) and the final assessment.

The D2L LMS allows online exam administration, which was an option used during the pivot to remote learning during the coronavirus pandemic. In disciplines where subject matter requires students to master calculations, an instructional team can design numeric questions where random numbers from a provided range are generated for each user. Other types of questions available include multi-section questions, multiple-section questions, and matching questions. Question types other than short and long answer questions are graded automatically and feedback is provided to students.

Each interaction between the student and the D2L Quiz is logged by the internal systems. For example, the entry into the quiz is logged, as are all "button pushes" such as saved answers or page navigations. The complete information for all students who took a quiz can be downloaded as a single Excel file. This file contains a column with each student's name, attempt number, date and time stamp of each interaction, and a description of each interaction (event). For example, moving to another page or saving a response would be captured under the event column. The last column provides the IP address indicating the location from where the quiz was accessed.

Project Design: Data Mining Technique

A single class quiz log file for a large (800+ student) section with ~30 questions can be in excess of 120,000 lines (records of activity). The tools developed by the authors systematically parse all records, creating a set of multi-dimensional arrays for each student (a database). For example, all 'page views' (i.e., the time at which a student began viewing a page/question) are stored in an array that is $N \times M \times O$, where N is the number of students, M is the number of pages in the D2L quiz (number of questions with one question per page), and O is the number of page views. Since the number of times a student views a page is not set, this dimension of the array is set to a static value (in most cases this is set to 20, but it can be modified as required) and fill values are inserted to indicate no recorded activity in the log file. Within the page view array, each student's activity is accessed by referencing the appropriate array index. For example, the list of times that student #1 viewed page

#1 is found in the array location [0,0,0:20]. None of the students exceeded 20 page views, therefore the static array value was deemed to be sufficient. The complete set of arrays generated by our methodology include:

1. Master reference of student ID numbers [One dimensional, N records]
2. Master reference of student Name [One dimensional, N records]
3. Quiz Entry Time Array [One dimensional, N records]
4. Page View Time Array [Multi-dimensional, N × M × O]
5. Page Save Time Array [Multi-dimensional, N × M × O]
6. IP of Activity Array [Multi-dimensional, N × M × O]
7. Quiz Completion Time Array [One dimensional, N records]

Since each line/record in the log file contains both the student ID number and the student name, these values are used to ensure each record is filed in the appropriate location in the set of arrays.

Once the entire log file has been processed into the associated arrays, it is possible to use the information in an automated fashion and query for certain conditions. The queries conducted during this investigation include the Quiz Duration, IP Address Filtering, Question Duration, and Question Order and Timing. In the following paragraphs, we provide a description of each query along with the data utilized to assess/flag potential breaches of academic integrity.

Quiz Duration

The total time spent on the quiz is assessed by analysing the quiz completion time minus quiz entry time. The resulting duration of activity is then compared to a static (changeable) threshold, and users who complete in a time less than the threshold are identified. For this investigation, a threshold of 8 minutes was utilized on quizzes and 38 minutes on the final exam. This corresponds to an average time per question of less than 1 minute. Users who completed an assessment in less than the threshold time were flagged by the system and their associated data were outputted to a spreadsheet in readable format for manual investigation.

IP Address Filter

The log files contain a listing of the IP address for each mouse click within the quiz. For each student's ID number, the IP address for all associated mouse clicks is confirmed to be constant throughout the quiz (i.e., the quiz was not taken simultaneously from multiple internet access points). Each IP is also cross-checked against other students' IP addresses. When multiple students write from the same IP, this is provisionally flagged within our system. We note that this flag is then cross-checked against quiz entry and completion times. Students who live together will often have

the same IP, and this is never the sole reason for flagging a student. The intention is to flag coordinated behaviour. If there are multiple students who write from the same IP and had similar quiz entry and completion times (entry and completion times within 5 minutes of each other) for this assessment, they were flagged for a more detailed manual assessment. We further note that for synchronous exams, this is not a useful assessment. However, since our exam timeframe spanned 24 hours, this was used to identify potential cases of coordinated effort (i.e., collusion) on the quiz.

Question Duration

Time spent on individual questions can be assessed by isolating the duration of page viewing for each of the questions. Within the D2L logs, the time spent on a page/question can be derived by the 'page movement' and 'page save' times, both of which are parsed and listed as part of our data extraction. In cases where a student navigates to a page multiple times, this information is less useful and must be deciphered manually in coordination with other flags from the system. Instances, where students accessed the page only once and correctly answered a detailed numeric question (sometimes requiring multiple steps of calculations) in less than 1 minute, were easily flagged for possible academic misconduct. Within the database, information about question viewing and saving are contained in two arrays. For the purpose of flagging potential breaches of academic integrity, this information was only used for cases in which a single page view occurred with saved answers in 2 minutes or less (as in the example above). If the student viewed a page more than once, the information was only used in a manual assessment, in which case the page view and page save times are output as a comma-delimited ASCII file and read into a spreadsheet for manual viewing. For more detailed cases, individual student logs were assessed independently as evidence. The key value of this filter was to identify individual students who repeatedly answered questions quickly compared to an instructor's expectations for the quiz. The nature of the flag (as implemented) also implies that those students who were flagged did not revisit the questions. Their answers were entered quickly with a single-page view.

Question Order and Timing

The most detailed assessment performed in this study is the assessment of student navigation through the quiz. As mentioned above, the database contains lists of times for page view and page saves, organized by question and student. It is therefore possible to ask the question, if student X answers question 1 at time T, how many other students answered or viewed this question within N minutes of T? On its own, this is not necessarily a valuable indicator of misconduct, but with the large

number of data points associated with large enrolment courses, we are also able to address, what is the probability that two students view and answer the same question within N minutes? One potential observable behaviour for students working together on an exam (even in separate locations) is for them to sequentially work through the questions together. In a quiz with randomized question order, two students will have the same questions, however, the question number will be different. For example, if student A sees a particular question as question 1 on their quiz, for student B it is listed as question 13. An indicator of potential misconduct is to look for systematic behaviour of answering the same question at the same time. So in this specific example, if Student A & B logged onto the quiz at the same time, and student B immediately navigates to question 13, answering at the same time as student A's question 1. If this behaviour is repeated, for multiple questions in sequence, it is potential evidence of academic misconduct. We view this as a potential indicator, since the probability that Student B without prompting, decides to answer their quiz questions out of order and with the exact timing of another student, is essentially zero. The probability of two students answering the same questions together can be used across courses of similar type and exam format to provide evidence for further investigation. Within the context here, since we did not have other courses to compare with, we utilized this detailed analysis in cases where a student was flagged for other reasons (for example, shared IP address and quiz timing). It was used to find patterns within the quiz amongst multiple students. We can, for example, detect if a group of students all navigate to the same question at approximately the same time. If this behaviour is repeated for more than one question, particularly on a randomized question exam, this is a possible indicator of potential unauthorized collusion. Within our current system, this technique is rudimentary and requires further refinement (see Limitations and Future Work). Our case study utilized it mainly to flag cases, which were then manually assessed by outputting data into a spreadsheet viewable form. We also encountered difficulty with question pools and randomization within the exam. As applied here, a manual lookup table (e.g. spreadsheet) was required to cross-reference each student's questions to a master question list (again, see Limitations and Future Work). With the master question list, we can detect student's navigation to the same master question, regardless of its location within the randomized quiz view seen by the student.

An example of coordinated behaviour seen in log files is highlighted in Tables 11.1 and 11.2. In the data, we show (in **bold**) a correlation between the time and events of student 1 (Table 11.1, part a) and student 2 (Table 11.2, part b). This type of scenario would be flagged by the tools discussed here.

In all queries presented here, thresholds used for flagging are determined by the course instructors based on experience and expectations for the quiz/exam. The tools developed here are also adaptable, meaning for example, that a different completion time threshold can be used for a subset of the questions, or configured differently for individual questions.

Table 11.1 Part a – Student 1. Example D2L log file showing user, date, time of events, type of event, and IP address. Identifying details such as student name, ID, and IP address have been de-identified

User	Date	Time	Event	IP address
Student 1	DD-MM-20	11:06 AM	Quiz entry	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:08 AM**	**Response to question 1 saved**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:08 AM**	**Page movement from page 1 to 2**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:08 AM**	**Page 1 saved**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:09 AM**	**Response to question 2 saved**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:09 AM**	**Page movement from page 2 to 3**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:09 AM**	**Page 2 saved**	XXX.XXX.XXX.XX
⋮	⋮	⋮	⋮	⋮
Student 1	DD-MM-20	**11:12 AM**	**Response to question 3 saved**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:12 AM**	**Page movement from page 3 to 4**	XXX.XXX.XXX.XX
Student 1	DD-MM-20	**11:12 AM**	**Page 3 saved**	XXX.XXX.XXX.XX
⋮	⋮	⋮	⋮	⋮
Student 1	DD-MM-20	12:29 PM	Quiz submission confirmation screen	XXX.XXX.XXX.XX
Student 1	DD-MM-20	12:29 PM	Quiz completion	XXX.XXX.XXX.XX

Table 11.2 Part b – Student 2. Example D2L log file showing user, date, time of events, type of event, and IP address. Identifying details such as student name, ID, and IP address have been de-identified

User	Date	Time	Event	IP address
Student 2	DD-MM-20	11:00 AM	Quiz entry	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:02 AM	Response to question 1 saved	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:02 AM	Page movement from page 1 to 2	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:02 AM	Page 1 saved	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:04 AM	Response to question 2 saved	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:05 AM	Page movement from page 2 to 3	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:05 AM	Page 2 saved	Xxx.Xxx.Xxx.Xx
Student 2	DD-MM-20	11:07 AM	Response to question 3 saved	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:07 AM	Page movement from page 3 to 4	XXX.XXX.XXX.XX
Student 2	DD-MM-20	11:08 AM	Page movement from page 4 to 1	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:08 AM**	**Response to question 1 saved**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:08 AM**	**Page movement from page 1 to 2**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:08 AM**	**Page 1 saved**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:09 AM**	**Response to question 2 saved**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:09 AM**	**Page movement from page 2 to 3**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:09 AM**	**Page 2 saved**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:12 AM**	**Response to question 3 saved**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:12 AM**	**Page movement from page 3 to 4**	XXX.XXX.XXX.XX
Student 2	DD-MM-20	**11:12 AM**	**Page 3 saved**	XXX.XXX.XXX.XX

Outcomes of the Project

We utilized activity logs from an online quiz platform (D2L) and created tools for extracting key data relevant to identifying potential academic misconduct. The tools generated employ simple data mining techniques and look for connections between a student's individual quiz timings (viewing or saving) as a function of question number. The tools are flexible and can be tailored to the specific needs of the quiz in terms of thresholds for flagging potential cases, or potentially utilizing only a subset of a quiz if required. Information extracted from the system is organized in a way that facilitates analysis of overall quiz timing, individual question timing, IP address considerations, and potential coordinated question order from multiple students. These queries can be performed either as standalone assessments or coupled together to provide more constrained queries.

This technique and the tools generated were developed to minimize instructor bias and the amount of manual review required to identify patterns in behaviour and possible breaches of academic integrity. All queries are handled without the use of student information, using only system-logged timing and information about question numbers. Student identification numbers (IDs) and names are not utilized during any queries. Even when manually checking individual cases, student ID numbers are not present in the array of data being searched. Only an array location identifier is present (which is not in any particular order). Student ID numbers are only outputted once the cases have been flagged, and our tools output a spreadsheet-readable version of the information. All the flagged cases were then carefully reviewed by the course instructor and course coordinator.

Our experience has shown that the tools presented here are powerful for flagging potential breaches of academic integrity in large enrolment classes (800+ students) where the internal quiz logfiles quickly exceed 100,000 lines of information. They are an effective way to uniformly assess quiz information, in an automatic and unbiased manner. Within the context of the University of Calgary's rapid move to remote course delivery during the winter 2020 semester, these tools provided a valuable means to address academic misconduct in what was a new implementation of quizzes and exams for the instructors and students. During the course discussed here, approximately 10% of student quizzes/exams were flagged for potential academic misconduct by the automated systems. That was further reduced to ~5% with a manual inspection of the records (for example, removing students who were flagged because they left the exam early for other reasons). Processing of the individual cases was done manually, utilizing information from our tools, as well as other backup prepared manually during the investigation process. In total, approximately 3% of exams/quizzes were pursued for formal investigation of possible academic misconduct.

Discussion

Within the context of the course described here, rates of academic misconduct showed an increase from 2018 through 2020 (twofold increase in confirmed academic misconduct). Data from the final assessments (administered in person) from previous years were compared to our findings from online assessments. Our analysis shows that compared to previous course offerings when we did not use data mining, there was a twofold increase in confirmed cases of academic misconduct. The significance of this work is that, although we make no claims about differentiation between an increase in the rate of detection versus actual misconduct cases, we found that the tools developed in our study here have dramatically increased our ability to identify and provide evidence for breaches of academic integrity. Cases (27) identified as potential academic misconduct were flagged because of a student answering at least one challenging question (often requiring multiple steps of calculation) correctly in an unreasonably short amount of time. All the cases were formally investigated by the Associate Dean and none of them were dismissed. We assert that the tools developed here have dramatically increased our ability to identify (and provide evidence for) breaches of academic integrity.

Implications for Practice and Recommendations

During the COVID-19 crisis, several conditions changed with regards to teaching, learning, and breaches of academic integrity. The pivot to remote teaching led to assessments being delivered online. Student behaviour during online assessments differed from previous behaviour during face-to-face assessments. In addition, the University's decision to allow students a 24-hour window in which to complete their exam and allowing 50% more time for students to complete any individual exam (University of Calgary, 2020), further complicated the conditions under which assessments took place. Our data mining technique was developed in response to these simultaneous changes to allow us to identify possible breaches of academic integrity under these conditions. Data mining of quiz log files within our sample course brought forward some key evidence about how students can take advantage of online quizzes to engage in academic misconduct. We have shown that tools such as the one implemented in this chapter are beneficial for identifying possible misconduct. Group discussions and reflections on the findings of this study have revealed insights into the design of online assessments that reduce and/or illuminate breaches of academic integrity. Therefore, this pilot study has led us to the following recommendations.

Recommendation #1: Communicate Explicit Examination Conditions

The instructions, regulations on conduct, and list of authorized materials permitted during the writing of the assessment should be clear and precise to avoid any confusion on the part of the student. Be explicit on what is meant when using terms such as 'Open Book' as this is open to interpretation by the student and could mean all resources available to them - including the internet. During the pilot study described here, the exam conditions were explicitly communicated as part of the quiz. This was critical to the design of an ethical assessment, such that subsequent identification of possible misconduct was easier to investigate and manage. Making the exam conditions clear and transparent was part of the assessment design and proved to be helpful overall.

Recommendation #2: Synchronous Start Time

Assessment components should be designed in a way that ensures the students are all beginning at roughly the same time. This reduces the likelihood that students that have completed the quiz ahead of other students will be able to share questions and answers with students who choose to start later. If students are writing synchronously, the tools described here can more easily identify if students are collaborating. During this pilot study, we had the opportunity to assess quizzes that were administered with both synchronous and non-synchronous start times. The tools and methodologies developed were primarily in response to the processing of the non-synchronous start time data. This grouping of data showed many more types of potential coordination between exam participants, and the analysis was in general, not as concrete in terms of supporting the investigative process. We, therefore, recommend synchronous start times for online quizzes since it appears (from the limited pilot data) to reduce the types of coordination and makes the forensic analysis of quiz logs more straightforward.

Recommendation #3: Question Blocks

Organization of an online assessment in 'blocks' of similar content (for example, easy, medium, or difficult questions) will enable the tools described here to be utilized on multiple levels. Within our framework, it is possible to determine not only the quiz duration but durations for each block of content (i.e., time to complete four difficult questions). This has the potential to provide further evidence of possible collusion which may not be apparent when looking at the quiz-level data. We recommend question blocks based on how the developed tools assess start and finish

time. Using blocks (or breaks in the quiz structure) will give the tools more instances of concrete data to intercompare. While we were unable to implement this during the study period, we have experimented with this concept and it appears to significantly enhance the information available for forensic analysis.

Recommendation #4: Random Question Order, Random Variables, and Question Pools

Students should get the questions in a random order (question order for an individual student will be different than in the master template) to minimize the opportunities for collaboration on a given question. Each question is pooled from a question pool (e.g., one out of four questions) prepared by the instructional team. As a consequence, the number of exam questions prepared should be larger than the number of questions individual students are solving. For questions requiring calculations, each variable should be randomly generated from a pre-defined range. Exam questions should be grouped according to the concept being tested, type of question (e.g., multiple-choice questions, numeric questions), and the difficulty level. Each question on the assessment should be selected at random from a pool of questions.

Limitations and Future Work

As with any development of new tools, we observed many ways in which the current implementation can be improved. Most notably, we are limited by the information provided in the D2L log files (as available to the instructor). At the time of this chapter, that information did not include reference to any master question list (please see recommendation #4 for details). During our study, we noted that our quiz included randomized questions (at the quiz level) and some question pools. Since the D2L log files reference the question number as seen by the student, this created a barrier for assessing coordinated quiz timings amongst the full class. For this reason, we limited the detailed assessment of quiz question timing and order to only those students who were flagged by some other means. In each case, we manually viewed the student exam and created a look-up table that cross-referenced the student-viewed question number to a master question list number. This manual process was time-consuming and a significant impediment to the process. As a result of this work, the authors contacted D2L support who were later able to provide a custom report containing the information which allowed the authors to correlate the questions set up on the master question list (which were randomized by the system during the exam) with the question number on a given student exam. This allowed the authors to have all the questions in the log files associated with the master question list.

Other future work includes transporting these tools to a secure web framework that would facilitate easy access and configuration for other users. The authors envision an implementation that allows an instructor to upload their LMS log file, configure the types and details of queries, and then receive an output sufficient to facilitate further investigation as required. Our goal is to make this accessible, reliable, configurable, and useful to as many instructors as possible. If implemented in a scalable way, new queries can be added as the tools advance, and enhanced capacity could take advantage of data across courses. For example, if there are N years of course data available within the system, tools that leverage machine learning can be embedded that uncover deeper patterns of student behaviour. A current course can then be compared to other years, to look for anomalous activities. In the age of big data and data mining, the possibilities are nearly endless. We also note that student ID and name information can be readily removed from the database. Since they are independent arrays, they can simply be deleted. The student order in the array is based on the order in which students logged on to the quiz, and thus cannot be discerned once the master identification arrays are removed. Because this work is situated as a study of the technique of data mining for the purposes of identifying possible academic misconduct, we do not make any claims about student achievement.

Conclusion

The COVID-19 crisis challenged educators, students, and administrators to think differently about how teaching and learning are done. In turn, this prompted shifts in how we uphold academic integrity. We make no claims that suspicious activity on exams equates with academic misconduct taking place. Instead, through this study, we examined variables such as quiz duration, IP addresses, question duration and question order/timing to flag students who performed outside expected norms. Our study provides the basis for expansion of data mining as a tool to identify student behaviour patterns that could point to possible breaches of academic integrity. The current model still relies on manual review, but we believe this is an excellent tool for preliminary detection of potential breaches of academic integrity in large classes. We anticipate continuing to update and utilize this tool going forward in future offerings of this course, as well as expanding its use in more courses across campus. We are also using our findings to dynamically change the ways in which we assess students.

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Student Involvement in Building a Culture of Academic Integrity: Research About Students

Introduction

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The five chapters in this section feature authors from Canada, Portugal, Montenegro, United Arab Emirates and Finland, respectively. They represent very diverse experiences and perspectives about academic integrity. What these chapters have in common is that they all focus on the wellbeing of students and express how academic integrity, or lack of integrity, can impinge on different aspects of the student experience.

It is important that those concerned with quality, standards and integrity in education develop a broad appreciation of the range of threats that can affect the ability of students to progress and reach their full potential, at all levels of education. There is an implicit duty of care invested in the roles of teachers, librarians, professional support staff, administrators and leaders. Everyone involved in education has a responsibility to contribute to the development of skills and knowledge of students, but also of colleagues, as lifelong learners. This is especially true when we consider what needs to be understood about academic integrity within an academic community.

A culture of academic integrity implies that all members of the institutional community share the same values and expectations and work together to strive to maintain and improve standards and quality in all aspects of the institution's operations. The institutional policies and procedures relating to academic integrity must be fair, transparent, applied consistently and understood and followed by everyone, particularly students.

The picture I have just painted describes an ideal educational institution that I have yet to witness. In any institution there will be people who cut corners, break the rule and deliberately try to gain an unfair advantage, for various, well documented reasons. What makes a difference is how well incomers (both staff and students) are prepared to seamlessly transition into the institutional culture and how the rule-breakers are managed and supported to get back on track.

This acculturation process does not happen accidentally, it requires considerable effort to ensure that everyone understands what is required of them. Importantly we should not assume that newcomers joining our institution share our values and understand what we require of them. It is important that any deficits in knowledge and skills that would impede success are understood and remedied, through care, support, education and training.

The first chapter in this section, by Khoo and Irwin, describes a scheme for acculturation of new students in Canada. This was a voluntary scheme whereby new students studying remotely were required to complete a daily writing task, with regular feedback from a writing tutor. The evaluation suggests that students who participated most regularly benefited greatly from the scheme. Given sufficient resourcing, this type of initiative could be replicated in different educational settings with no geographical boundaries.

Two studies are included in this section that describe the results from surveying students about student attitudes to academic misconduct. The first study, by Caldas and colleagues, was focused on academic misconduct and involved 231 students from universities in northern Portugal. The second study, by Blečić and colleagues, focused on plagiarism and involved 774 students studying in Montenegro. These local studies are important to highlight the differences that can apply in various parts of the world, so that policies and practices can be custom designed to factor in local practices, requirements, culture and history. Both studies found that academic misconduct and plagiarism are common and almost normalised by the majority of students who took part in the studies. Interestingly, the Montenegrin study found differences in student attitudes according to their field of study. In the Portuguese study, many students said they believed cheating was a risk worth taking because they were unlikely to face any consequences.

There is a tendency for research into academic integrity to focus on higher education and research. Almost all researchers working in the field of academic integrity have advocated at some time that we should introduce academic integrity much earlier in education. The chapter by Khan and colleagues, describes one approach from the United Arab Emirates (UAE), where a module was created to prepare K-12 students from different stages of education, for their transition to the next stage of their education. The focus of the module was to develop skills and knowledge about academic integrity, writing for academic purposes and academic literacy. The authors describe the underpinning theory behind the development of the module and reflect on the impact on the students of attending the camp. An interesting feature of the module was the use of "near peers and role models" to help deliver the module. Students completing the module were encouraged to serve as ambassadors for academic integrity within their own school communities.

The final chapter in this section differs from the others because, rather than involving students directly in the research, it was based on documentary analysis of a random sample of 28 master's theses submitted to different Finnish universities. The fascinating analysis details referencing practices and particularly different types of errors found in students' work. This study clearly indicates that more needs to be done in Finland to educate both students and their tutors about academic writing, use of sources and the importance of accurately acknowledging sources.

All five of these chapters provide recommendations emerging from and specific to the study and research conducted. However, more importantly here are five ideas for research or initiatives that others could conduct locally, involving their own students, or their work, to improve learning and teaching. What these chapters tell us is that perhaps the most important contribution to knowledge about academic integrity comes from the students themselves. Research into the experiences, perceptions, preconceptions and values held by current students is essential for understanding how to respond to academic integrity threats.

It is tempting to rely on our instincts as experienced teachers or administrators, or refer to research carried out by others, perhaps some time ago or in another part of the world or at a different educational context. However, the work by these researchers demonstrates that, although some concepts are universal and solutions may be transferable to other situations, there are many factors that can influence educational experiences and student perspectives. As the threats and challenges to academic integrity can evolve quite rapidly, but also new solutions and ideas like these described here are emerging all the time, it is important that we ensure the evidence on which we base our strategies and policies is both up to date and relevant to our own environment.

Chapter 12
Academic Integrity Socialization and Language Competency Training for Canadian Undergraduate Students During the COVID-19 Pandemic

Elaine Khoo and Michèle Irwin

Abstract Given the cultural, linguistic, and socioeconomic diversity in the student population, supporting students so that they are equitably able to meet Academic Integrity (AI) expectations in their course assignments is essential. Taking a deep educative approach that includes academic language development and learner empowerment, this study of a one-month support program, modified during the COVID-19 pandemic to incorporate AI socialization for undergraduates, investigates a possible approach to AI socialization that students embraced during emergency remote learning. Over 1 month, of the 182 students in the program, 42% engaged in voluntary daily practice to write an average of 10,125 words on disciplinary topics. Another 14% engaged half the time and wrote 6422 words on average over the same period. Qualitative analysis of end-of-program reflections yielded pedagogical insights for AI socialization that is sustainable for students and will help them meet their individual learning needs. This suggests possible academic support solutions should consider equity, diversity, and inclusion in the area of addressing AI issues in a proactive and pre-emptive learner-driven manner.

Keywords Academic integrity · Plagiarism · Learner empowerment · Academic language · International students · Academic writing

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Introduction

Internationalization and massification of higher education have increased the diversity in the student population (Scott, 2019). International students face greater transition challenges related to their English language facility for learning and communication with others, and with others' perception of them (Heng, 2018; Lee & Rice, 2007). Massification and universal access, while democratizing higher education and access to knowledge, have resulted in demographically diverse large classes (Hornsby & Osman, 2014), which include equity-deserving students whose racial and socio-economic backgrounds place them at a disadvantage relative to their more privileged peers who have greater familiarity with academic writing expectations. Some international students may be unaware of academic integrity and writing expectations in Canadian higher education, have inadequate linguistic resources to cope with demands, and are unfamiliar with their junior scholar role. Thus, these students may inadvertently commit AI violations (AIVs).

COVID-19 exacerbated the challenges faced by international English language learners (ELLs) and equity-deserving students, increasing their vulnerability to accusation of plagiarism. International students living in their home countries, speaking their home languages, and immersed in their own cultures, as well as other students unfamiliar with academic writing, had to meet the academic expectations without preparation or support. Studying in isolation while not understanding academic requirements and struggling with mental health issues arising from pandemic-related stress confounded many students' problems (Ensmann et al., 2021; Nguyen et al., 2021; Stoesz, 2020). Awareness among educators to practice a pedagogy of care and compassion (Gibbs, 2017; Gill & Ursuleanu, 2017) during this difficult time was heightened (Vandeyar, 2021). Supporting students on AI needs revisioning in the light of the challenges caused by the pandemic. The goal of this research is to explore the viability of an AI socialization approach to addressing the underlying language competence issues impacting students engaged in remote learning during the pandemic, with the hope of contributing to solving higher-education's long-unrecognized issue of some students' lack of linguistic dexterity impacting their ability to uphold AI practices. This paper will first review the literature, define and coin the term *AI Socialization*, describe a re-envisioned support program incorporating this approach, and interpret the analysis of the results in light of AI socialization model in transforming students' learning experience. Pedagogical insights with wider application for addressing AI will be followed by recommendations for higher education.

Literature Review

Universities cannot assume that students come with the necessary competence for producing work that meets scholarship expectations (East, 2016) since AI practices may be interpreted differently in different cultures. Contract cheating (i.e., when a student contracts an assignment to a third party, and submits it as their own independent work) increased during the pandemic (Lancaster & Cotarlan, 2021). Reasons include not having the English skills necessary, or the knowledge to complete the assignment in a limited time (Ahsan et al., 2021). Since contract cheating providers have been found to subsequently blackmail students who used their services (Yorke et al., 2020), many educators are aware of "the need to protect students from the seemingly ubiquitous contract cheating provider" (Scurr, 2020, p. 37). Building students' language skills to cope with task demands is urgent, and needs to move beyond the deficit thinking mindset that has dominated higher education regarding students' perceived as Other.

Deficit thinking has been the prevalent way institutions have traditionally viewed these students – as remedial, at-risk, or deficient. Difficulties faced by these students were attributed to "lacking the academic, cultural and moral resources necessary to succeed in what is presumed to be a fair and open society" (Smit, 2012, p. 370). Students who come with different experiences, languages, and educational training have been unfairly considered inferior (Heng, 2018). This deficit thinking about students considered "other" underlies the moralistic stance in punitive approaches for dealing with AIVs. Institutions consider any infraction as an attempt to cheat, punishable by sanctions and other penalties according to the AI policies of the institution. Leask (2006) advocates for an inclusive approach where strategies to deter plagiarism should not single out those "who are most easily identified by virtue of their linguistic or ethnic background" (p. 191), but should address all students. Although the educative approach to AI has become widely adopted in recent years along with more student support, deficit thinking still prevails as evidenced by the assumption that telling the students about AI is sufficient to ensure that it is observed. With the sudden pivot to remote learning, even well-intentioned aspirations to be educative fell by the wayside in the scramble to move core content online.

Move from Punitive to Educative

Although moving from a punitive to an educative approach has been a positive trend, what constitutes educative has a wide-ranging interpretation including: informing students during orientation programs and through standalone online modules (Sefcik et al., 2020); having faculty-librarian collaborations through in-class seminars where librarians are invited to teach students research skills and citations (Amsberry, 2009); providing outside of class workshops (Leask, 2006). A common strategy that faculty use which students do not find useful is called

"*externalizing*" (Power, 2009, p. 655), that is, instructing students to read the plagiarism policy and ask the professor if there are questions.

Although it seems educative to have made students aware of the plagiarism policy, students tend to see the need to use a citation system as compliance rather than a means to enter an academic conversation, and thus contributing to their development as a scholar. Merely informing students about the university's AI policies is insufficient to prevent AI violations (Wette, 2010). Sefcik et al. (2020) argued for an educational approach that emphasizes skills development. Arkoudis and Kelly (2016) noted the need for systemic change that de-emphasizes avoiding and penalizing plagiarism. Rather, a system for developing the acquisition of scholarly writing skills is needed where "students are exposed to the principles of AI that encompass the development of scholarship: learning about the principles of academic writing, the development of the authorial voice and, with it, the place of attribution" (Gullifer & Tyson, 2010, p. 473).

Academic Language Challenges

Academic writing assignments can be intimidating for students without the level of academic English skills to succeed, and thus find it "inherently threatening, especially through the terrifying scale of assessment tasks" (Askham, 2008, p. 91). Engaging in source-based writing requires a high level of linguistic skills (Cumming et al., 2016). Much unwitting plagiarism is due to the developmental status of students' language proficiency. For instance, incorporating large chunks of source texts without acknowledgment may result from developmental language causes rather than deliberate dishonesty (Abasi & Graves, 2008; Harwood & Hadley, 2004; Keck, 2014); lack of advanced language skills for paraphrasing, summarizing and citation (Devlin & Gray, 2007; Marshall & Garry, 2006); patchwriting due to limited language and experience with intertextuality (Chandrasoma et al., 2004; Howard, 1995). When working on their assignments, students with limited Academic English skills struggle with researching texts, reading critically, synthesizing from different sources, summarizing, and paraphrasing at an advanced level due to their lack of linguistic competence. As Pecorari (2016) notes:

> In most academic disciplines, references to sources consist primarily or exclusively of paraphrases… This is a linguistically challenging task, but arguably more challenging still is the ability to quote, since that involves incorporating someone else's wording into one's own text in such a way that the interface is coherent and fluent (Pecorari, 2016, p. 543).

A further challenge for students is communicating about topics to demonstrate their grasp of concepts and relationships between phenomena (Woodward-Kron, 2008), and incorporating the use of appropriate technical vocabulary which makes up 30% of their disciplinary text (Gu, 2020).

Learning Academic English is like learning a new language for many ELLs. International students are "required to master – quickly and with little

preparation – advanced disciplinary literacies…in an Anglo-western disciplinary culture" (Wette & Furneaux, 2018, p. 196), although it takes 5–7 years to achieve the level of skills needed for Academic English (Cummins, 1979 as cited in Gardner, 2013). Thus, it is urgent to establish support that empowers students to transcend their initial barriers in order to gain access and success in higher education.

Students for whom English is an additional language (both domestic and international) have been found to be over-represented in contract cheating violations (Bretag et al., 2019; Yorke et al., 2020). Proactively supporting students is necessary to prevent them from being vulnerable victims of cheating services or being subjected to the pain and trauma (Isbell et al., 2018; Pitt et al., 2021) of being involved in disciplinary proceedings.

Nature of Support Needed

Support for students has generally focused on (a) dealing with AIVs, and (b) pre-emptive measures. Bertram Gallant and Stephens (2020) advocate a developmental approach instead of a judicial approach when students are found guilty of AI violations. They argue that instead of meting out punishment for wrong behaviour, that is action done *to* a student, it is more valuable to work *with* students so that they develop the necessary awareness and skills that prevent future violations. The restorative approach of dealing with AIV engages students in a learner-centred adjudication process to work with peers to realize, regret and resolve not to repeat violation (Orr & Orr, 2021). Others who favour proactive and preventative measures advocate for students to have "opportunities to practice their academic writing in order to develop competency without fear of being sanctioned for plagiarism" (Adam, 2015, p. 10), as well as to "be supported during the early days and weeks at university" (Leese, 2010, p. 246). Proactive support has the potential for saving students from disciplinary proceedings which can be extremely traumatic for students, leading to the need for a suicide watch in some cases (Robinson & Openo, 2021).

An often-overlooked area in attempting to address AI is considering how students perceive the regulations and policies thrown their way. Students may be 'doing' AI out of needing to comply and not get into trouble rather than an intrinsic need to communicate according to AI principles. When students do not intrinsically relate to the concept of intellectual property with which they need to comply, they perceive their powerlessness from having to embrace this concept foreign to them that "is imposed on them by authorities or other people in power outside of themselves" (Power, 2009, p. 654).

Despite the many calls for educative and developmental support, there is no research on this proactive support of students to develop their competency in a risk-free manner without being sanctioned for plagiarism. This study attends to this gap in the literature by exploring how proactive intervention to support students in their AI socialization was received by students along with their perception of impact.

Socialising Students to Academic Integrity as Part of Their Emerging Learner Identity

Respecting that our students from diverse backgrounds arrive with different under-standings of academic integrity, it is important to create conducive conditions for them to learn what academic integrity expectations are in a Canadian university in ways meaningful to them individually. As a member of the academic community, it is important that students practice the values of AI, especially when writing their essay assignments, which invariably require presenting one's work in the light of published work that influenced one's thinking and thus needs to be cited. The word "socialisation" as used in AI Socialisation, emphasises an agentic engagement of the learner, as different from what can be considered as merely banking the informa-tion (Freire et al., 2018). The banking approach is seen when the student is informed during orientation sessions about AI, or when the professor merely provides a link to the AI policy of the university and tells students to ask questions if they have any. Students are left to their own devices to figure out what the policies mean, if they do indeed look up the policy. The language of university policies may not be easy to comprehend, and the legalistic tone spelling out what are considered infractions, along with disciplinary consequences and penalties, demands obedience and com-pliance. To a wide spectrum of students who have limited English proficiency and diverse backgrounds arising from culture, language, education, and socioeconomic status, these policies are difficult to interpret. Instead, there needs to be a supportive introduction and familiarisation with the notion of AI in a way similar to language socialisation, which is "viewed as an outcome of synergistic communicative entan-glements of novices with sources of knowledge, human, or otherwise" (Ochs & Schieffelin, 2017, p. 1). Language socialisation "encompasses socialization *through* language and socialization *into* language" (Ochs & Schieffelin, 2017, p. 4).

Defining Academic Integrity Socialisation

AI Socialization is a process whereby students are invited to explore the AI expecta-tions of their institutions through comprehensive low-stakes learner-friendly mate-rials. This enables students to gain familiarity with AI expectations in a risk-free and supportive space, which may be virtual or physical. As students reflect on the AI requirements of their new learning context in relation to previous socio-cultural and educational experiences, they can interact with a supportive person who encourages active questioning and clarification. Students practice and internalize the AI new expectations, along with language development, without fear of high-stakes assess-ment. AI socialization is successful when students can engage in scholarly commu-nication using sources as they incrementally develop their junior scholar identity, without being paralyzed by the anxiety that AI will be enforced as a punitive measure.

Language development is a fundamental component of AI socialisation because without the necessary vocabulary and linguistic dexterity to engage with the texts as well as in communication of their thoughts through standard written English, ELLs in English medium instructions (EMI) institutions would continue to struggle with presenting their work with appropriate levels of intertextuality, resulting in their incorporating too much source text into their work.

The Teaching Context

Recognising that ELLs should be better supported at university, and improvement in language proficiency takes time and effort to develop, the Centre for Teaching and Learning in a large comprehensive university in a cosmopolitan city in Canada has been running a proactive non-credit reading and writing support for over a decade. The program begins in the second week of the semester and complements the assignment-focused support provided by the Writing Centre. This program is very popular with students, and open to all students subject to availability of space. Evolving from the one-on-one personalized support model of the Writing Centre, this Reading-and-Writing Excellence program was offered for 8 weeks starting from the second week of the semester, with the mission of helping students develop their academic writing skills in a risk-free and supportive environment with an assigned writing instructor, often referred to as the tutor, in order to emphasise the non-grading and supportive nature of the relationship with the student. Thus, in this paper the term *instructor* and *tutor* will be used interchangeably. On Day 1 of the program, students write a short self-introduction to their writing instructors. From Day 2 onwards, students are encouraged to read for 40 min and write journal entries for 20 min related to their readings, and to submit their writing through the learning management system to their assigned writing instructor. These journal entries are meant to engage students in summarizing and expressing their thoughts about their reading topic. However, there is no expectation to draft and revise these journal entries meticulously before submission. Unlike course assignments, which are graded, these 20-min writing texts are opportunities for students to gain practice in articulating their thoughts about their course readings in paragraph form. Students are encouraged to read and write daily, and they can look forward to personalised responses specific to their short daily journal entries from their assigned tutor. Tutor responses focus on engaging with students' ideas rather than giving grammar-focused feedback, as the purpose is to support students in gaining confidence and familiarity with academic writing. The program has a team of up to nine part-time writing instructors with graduate degrees; seven instructors have been with the program for several years. Given the purpose of the program is to proactively work with students in an encouraging and supportive manner to develop their competence and confidence with writing, the hiring interview for the instructor position included writing a response to a sample of student journal entry within 20 min to demonstrate

the instructor's ability to provide a meaningful written response that is aligned with the goals of the program.

During the emergency pivot to fully online support to serve students in globally distributed locations, three changes were made: (a) the 8-week program was shortened to 4 weeks in order to serve more students; (b) socialization into AI practices was introduced in Day 2; and (c) a stronger focus on vocabulary development through usage was implemented.

As participation in this co-curricular program is voluntary, students were free to stop participating at any time. The rationale for focusing on reading course materials rather than general texts is to facilitate acquisition of specialist vocabulary that is intrinsic to the learning of content knowledge of the discipline (Woodward-Kron, 2008). In this learner-driven, instructor-facilitated model of learning, instructors facilitate deeper learning of specialist vocabulary when they engage in seeking clarification of meaning or making connections between concepts as they respond to students' emergent usage of specialist vocabulary. As instructors have advanced graduate degrees, they are able to respond to students' efforts in writing about disciplinary topics.

To study how students responded to an AI socialisation approach in a non-credit co-curricular program that is open to all students across all departments during the pandemic, the research questions (RQ) are:

RQ 1: What proportion of students wrote almost every day?
RQ 2: How many words did students voluntarily write in the program?
RQ 3: What was the impact of this approach on students who wrote at least half the time in the program?

Method

Following the University of Toronto Research Ethics Board approval to do a retrospective analysis that makes secondary use of anonymized data originally used for program evaluation, a mixed method analysis was carried out on the anonymised datasets from the Winter 2021 cohort. Quantitative data from the engagement data were analysed for the volume of writing produced in the program. Qualitative data from student reflections were analysed using Thematic Analysis (Braun & Clarke, 2012) to code and identify themes through a combination of inductive and deductive analysis. Quantitative data from the engagement data were analysed for the volume of writing produced in the program.

Sample

The sample analysed in this study was extracted from the anonymised data set of a cohort of 182 students who actively participated in the co-curricular reading/writing support program in Winter 2021. In this cohort, students were from 34 disciplinary programs. There were 97-Year 1, 34-Year 2, 31-Year 3, 18-Year 4 and 2-Year 5+ students. Most students were in the 19–25 age range, while a small number were in the 26–40 age range. Three quarters of the sample were females. Sixty-six students self-declared as international students while 116 were domestic students. International students were mostly from East Asia (mainly China), although there were a few from Africa, Southeast Asia, Middle East, the Indian subcontinent, Europe, and the USA. Seventy-four students were native speakers of English while 108 were non-native speakers of English. Since this was a co-curricular program that was free, a proportion of students who signed up did not take up the opportunity to write: 22 students withdrew before the program began; 22 students who were matched to instructors did not write. As a result, although 226 students enrolled in the program, responses from only 182 students were analysed in this study.

Procedure

All asynchronous communication between instructors and students took place through the learning management system (LMS). A 30-min virtual meeting between each student and the instructor took place once every 2 weeks on the WCOnline (https://mywconline.com/) platform, which is the same platform used by the Writing Centre for all their virtual appointments. The choice of this platform was to maintain platform familiarity for students to seek further support with their course assignments later in the semester.

Students were assigned to one of nine instructor groups based on matching schedules between instructor and student. Students were encouraged to write at least 250 words in their daily 20-min writing after their 40-min reading course materials of their choice. Instructors provided personalized response and feedback two to three times per week.

On Day 1, students wrote their self-introduction to their instructor. For Day 2, students explored AI audio-visual links and text material written in a learner-friendly tone on a webpage curated by a librarian, followed by a reflective journal entry about new knowledge, and the connections between their participation in this program and AI. From Day 3 onwards, students were required to read any of their course readings and write after reading.

To incentivize students to read their course materials and gain familiarity with disciplinary language and course topics through writing about them, students were offered 2% bonus marks for one course of their choice based upon completion of the program. The course chosen had to be from a list of collaborating courses.

Completion was defined as having submitted a reflective journal entry of at least 250 words per day for at least 25 days out of the 28 days (4 weeks) of the program. If students wrote 13–24 journal entries, they were eligible for 1% bonus mark. Students were free to drop out at any time. Offering bonus marks to engage in pedagogically beneficial tasks was done in a study by Ostafichuk et al. (2019) where students earned up to 2% bonus mark for doing 8 optional tasks in an Engineering program.

Materials

Engagement data from Learning Management System. Students' engagement data downloaded from the Canvas learning management system were first anonymized and then analysed to determine frequency and volume of individual written output.

End of program self-reflection. The end-of-program reflection of students who wrote at least half the time they were in the program were analysed for impact of high frequency practice. i.e. writing at least 13 out of 28 consecutive days.

Results and Discussion

RQ 1: What Proportion of Students Wrote Almost Every Day?

Of the 182 students, 102 students (56%) wrote every day, almost every day, or at least half the time they were in the program. Eighty students wrote on 12 days or fewer. As participation in this program was voluntary, any writing submitted by less-active writers was considered a positive step towards university writing.

In terms of daily writing, 77 students wrote at least 25 journal entries while 25 students wrote 13–24 journal entries. In other words, 42% of the students in the winter cohort had written 25 out of 28 days and 14% had written half the time they were in the program. There were 39 native speakers and 63 non-native speakers of English in this group. Of these 102 students, 57.8% were Year 1, 16.7% were Year 2, 13.7% were Year 3, and 11.8% were Year 4 students. These high percentages suggest that the AI socialization process helped students realize the value of frequent writing in developing fluency in Academic English. The number of non-native speakers being almost double that of native speakers among those actively writing suggests that the non-native speakers considered this a valuable opportunity for language usage practice (as part of AI socialization).

In contrast to the common way of framing AI to avoid violations and penalties, encouraging students to develop their skills by rewarding them with bonus marks attracted students to engage in desirable behaviour.

RQ 2: How Many Words Did Students Write in 1 Month?

Since all written communication between student and instructor took place on the LMS, the word count for each journal entry by a student was objective numerical data that was downloaded from the LMS to provide a means of quantifying how much written output was sent by the student to the instructor over 1 month. Table 12.1 shows that 42% of the students in the cohort had written on average a total of 10,125 words per person during the month in the program while 14% of the students had written on average a total of 6422 words during the 1 month of the program.

Since students were encouraged to achieve the goal of writing 250 words per day, the minimum for a student who wrote on at least 25 days would have been $250 \times 25 = 6250$ words. For students who wrote 13–24 days in the program, it would be expected that they produce 3250–6000 words if they wrote the minimum each time. Table 12.1 shows students in both categories far exceeded the minimum number of words in their total word output, indicating that 250 words per journal entry was a manageable daily goal.

RQ 3: What Was the Impact of This Approach on Students Who Wrote at Least Half the Time in the Program?

The end-of-program reflections of students in these two categories provide insights on what students could achieve when they participated actively, that is, write at least half the time that they were in the program. As the AI Socialization process involved three intersecting focus areas, that is (a) educative emphasis; (b) language development; and (c) empowerment, samples of student comments coded to themes related to these broad areas are presented below.

Educative Emphasis   Themes in this category relate to students' perception about how the program had educated them on the expectations of academic writing at university, the why and how of citations, citation styles, the expectation to generate inferences and new ideas arising from the readings, the need to assert an authorial voice and distinguish own thoughts from those encountered in their readings.

Table 12.1 Average sum of words written by students in 1 month

Average sum of words written by students in 1 month	Wrote 25 out of 28 days of the program	Wrote 13–24 days out of 28 days of the program
No. of students	77	25
Percentage of total participating students in program	42%	14%
Average total no. of words written in 1 month by each student	10,125 words	6422 words

The following two excerpts illustrate an awareness of the need for original thinking in student writing, and the need to make inferences from the reading as well as to make a distinction from the thinking of others: *"[the program] helped in clearly distinguishing my views from the author's views, as well as compressing an article without using the same language but retaining the essence"* as well as:

> I tried to come up with an inference that originated from me, or I agreed with the point that the author of my reading was making. Attempting to make an inference that originates from my own helped me with AI [academic integrity].

The following comment suggests that the sequence of tasks played an important role in AI socialization. After the initial self-introduction journal entry, journal entry #2 was an exploration of the curated webpage on AI that included audio-visual materials. Starting from Journal entry #3, students wrote about their course topics: "*For Journal #2, I have learned about AI. So starting from my 3rd post onwards, I follow the code of behaviours for AI.";* "*I got to say that after checking the video and two other websites i found out that i didn't recognized some rules were also inside the AI.*"

Some students reflected on the strategies they used during the program to distinguish between their own thoughts and those of others. This indicates they had gained an understanding that making this distinction is necessary in order not to be considered to have plagiarized: "*I separated each of my journal entry to make sure, the concepts talked about in one paragraph was separate from my thoughts and thinking in the 2nd paragraph.*"

Reflecting about AI in Journal Entry #2 helped a student realize the importance of AI practice:

> …journal number two helped to maintain this discipline by actively making me write about AI. It sort of got ingrained into my head that AI is really important in my life whether or not it is an actual course or not. I was interested in seeing my work progress and not someone else's work.

Students acknowledge the value of practice for enabling them to summarize, paraphrase and cite with greater ease: "*My journals have made me more used to practicing citation and especially in-text citation when needed. I can easily put in text citations while I'm writing now without being unsure of whether I'm doing it correctly or not";* "*I think summarising practice has given me a lot of practice paraphrasing, which helps with AI. The biweekly meetings with my tutor had also helped me understand what I further understand AI*".

Language Development Themes in this category relate to training for academic writing. As students need to be able to write their assignments later in the semester, part of this AI socialization needs to focus on academic language development so that students develop the confidence to articulate their thoughts in their own words rather than be overly dependent on borrowed words.

Daily language usage practice involving reading into writing was acknowledged for developing the skill of paraphrasing: "*Daily writing and working with your own*

words has helped me step away from using direct quotes and shifted to paraphrasing which I believe is very important in maintaining AI".

Another student recognized that the development of academic writing skills is not just a greater capacity to use their own words, but also with developing new ideas:

> Summarising texts and coming up with implications are both very helpful for my essay, which includes paraphrasing and incubating new perspectives. By doing this, I gradually learn to use my own words in a better way instead of keep staring at the beautiful words that the text used.

Students appreciated learning the language for citing texts, introducing quotations, etc.: "*I can cite and introduce the idea or the sentence from the article I read in a better way. Making sure that readers can easily identify the idea from me or from the article I introduce.*" Through the practice, another student recognized a personal weakness related to over-reliance on quotations:

> For starters, I had a terrible habit of letting quotations speak for me. Despite citing my source, the work that is produced is not authentic. Therefore, after receiving feedback regarding this particular flaw of mine I took it upon myself to develop my writing skills specifically my rephrasing and rewording abilities. That way I would not be plagiarizing and be able to abide by the AI rules.

As Chanock (2004) pointed out, "academic discourse is a second language to every student in higher education" (p. 20) and thus part of the AI socialization needs to engage students to become fluent users of Academic English in communicating disciplinary ideas.

Empowerment Themes in this category relate to feeling more confident and capable. To empower students to participate in the academic community, tutors facilitated students' communication of their ideas through asynchronous written exchanges while the tutor played multiple roles of (a) cultural informant; (b) supportive intellectual interlocutor; and (c) cheerleader. The combined purpose of these roles is to facilitate and encourage meaningful communication of ideas and the development of confidence to express their own "voice". Being able to sustain communication with the tutor every day for a month would constitute a milestone in communicating in written English on academic topics for these students: "*I am more confident for my writing and it's easier for me to explain my idea in English";* **"***With a stronger capacity to develop my own ideas and thinking, I am less likely to limit myself to the ideas of other authors*". The sense of empowerment is reflected in the following comment:

> I think first is the exercise of summarizing the article I read. This helps my ability to summarize and paraphrase. Through the exercise, I have to turn the sentence I read into my own words. Because I am not really good at these skills before, <Tutorname> also gave me some useful methods to help me, which I think is really helpful to my AI. Second, the everyday reflection forces me to think about every reading. I think it enhances my thinking ability. It enables me to think better when facing a new problem, instead of looking at other people's opinions first.

An appreciation of the daily routine to read and write was linked to helping students develop better time management, which they considered helpful to prevent them from committing plagiarism: "*it allows you to partition ur time well so you don't rush and end up committing plagiarism which is some of the main reasons students plagiarize.*"

The students' reflections presented in RQ 3 suggest that the high volume and frequency of daily writing resulted in confidence in academic writing. This process of empowering students to engage with ideas in their readings is in stark contrast to the "academic learned helplessness" (p. 478) that resulted in decreased confidence in academic writing identified by Gullifer & Tyson (2010).

Pedagogical Insights

This study provides some pedagogical insights for taking a proactive supportive approach that is not only student-centred but also student-driven towards addressing AI issues.

Conducive Conditions for Socialization into AI Practices

Risk-Free Opportunities to Practice Provide students with opportunities for risk-free reflective exploration about AI at the start of the program. Instead of presenting AI policy implementation as a threat to be feared, this study shows that students can be ready to embrace AI practices when given appropriate support and practice opportunities that they find meaningful.

Daily Practice in Disciplinary Discourse When learners immerse themselves on a daily basis in disciplinary texts, they acquire an understanding of the nature of disciplinary discourse and engage with it by generating their own ideas in the context of their purposeful reading to communicate in writing. Daily practice in reading academic texts engages the learner in cognitive processing to understand their disciplinary texts. Since disciplinary vocabulary is so intertwined with the key concepts students are learning in their discipline, reading their course materials daily helps them learn their material more deeply, and thus it addresses one reason that students plagiarize – when they have a "weak grasp of the subject matter" (Devlin & Gray, 2007, p. 189).

Timely Personalized Feedback The volume of writing voluntarily produced is evidence that timely personalized feedback several times per week motivated the students to develop their reading and writing skills. With daily practice, many students incorporated feedback that improved their skills and language for upholding AI practice.

Supportive, Risk-Free Relationships The personalized, non-judgmental and encouraging guidance was pivotal in supporting students to become acquainted with the expectations in academic writing, in a manner that is "intentional, ground-up, and asset-based, rather than deficit-based" (Heng, 2021, p. 1).

Communication with a Caring and Compassionate Instructor For students unfamiliar with the academic culture and expectations of their university during remote learning as a result of the global pandemic, the one-on-one connection with a supportive non-grading instructor (or "tutor") was particularly reassuring. For example, when a student articulates in the self-introduction journal on Day 1 about his/her fears and anxieties about having no chance to communicate in English with anyone in his/her country and thus finding it challenging to cope with Academic English, the instructor's response is one that acknowledges the articulated need, and responds in an authentic way that communicates a genuine effort at supporting the student, as is practised in relational pedagogies (Gravett & Winstone, 2020).

Key Motivational Strategies

As the effort at AI socialization can be realized only through sufficient sustained practice, motivational strategies to support this goal included: (a) making the daily practice task manageable and relevant, with students able to self-regulate and see own progress; (b) developing confidence with each episode of practice through interaction with text and instructor; (c) making the two-way communication intrinsically motivating and meaningful for the student.

Multi-stakeholder Approach

The response of students in this co-curricular approach to AI socialization illustrates that a Centre for Teaching and Learning offering co-curricular support can be a new campus partner for faculty in supporting students to develop their emergent scholar identity in a multi-stakeholder approach that empowers students in inclusive ways without making their individual cultural, linguistic, socioeconomic, and educational experiences seem to be deficient.

Supporting Inclusivity

As large classes are the norm in higher education, especially in the first and second year at university, it is important for international students and others not familiar with academic culture and language of the university be supported with learning

and acquiring the skills for academic reading and writing so that they can be spared the potential trauma of being charged with AI violations. As middle-class Eurocentric values and expectations have long dominated how students are taught and assessed in higher education (Eaton & Burns, 2018), coupled with the "ubiquitous patholo-gization of low-SES [socioeconomic status] students and students of color" (Valencia, 2010, p. 147) in educational institutions, it is important to (a) empower students to develop their authorial voice to assert their positions on issues; (b) equip them to develop the breadth and depth of language skills needed for effective com-munication; and (c) embolden them in the development of their scholar identity so that they can assert their presence in the academic environment by knowing the rules of the game they need to play to be seen and heard. In other words, AI social-ization is the opposite of powerlessness.

Limitations and Future Research

Although the one-month time frame served to socialize students to the AI expecta-tions, a longitudinal study would be useful to measure changes in writing quality. Future research could apply interviews as a method to gain greater insights about students' experience with academic integrity socialization.

In addition, to support a more robust analysis of the impact and potential of this work on AI socialization, future research could involve an increased sample size that includes purposeful attention to sociodemographic collection and analysis in order to determine if this approach of academic integrity socialization has different impact for supporting students from various subpopulations e.g. marginalized com-munities, ethnic groups, socioeconomic statuses, accessibility challenges, linguistic backgrounds, and educational systems that are different from North American systems.

Conclusion

In this model of AI socialization, the three components of Educative Emphasis, Language Development, and Empowerment are intertwined. Students (56% of the cohort) have shown they are capable of exercising agency in the AI socialization process by voluntarily engaging in reading course texts and producing a high vol-ume of writing output (on average 6422–10,125 words per student within their 28 days in the program) related to their disciplinary topics, while practising the use of citations. As opposed to "externalizing" (Power, 2009, p. 655) AI policies, this deep educative approach engages students in a non-threatening exploration of AI expectations. This strategic positioning step helps set the motivation for sustaining daily practice, and for students to appreciate the agency they have in this supportive environment by focusing on language development through reading and writing to

get feedback on their communication of disciplinary ideas. Since students are reading and writing about course topics, they realize it is an opportunity to practice summarizing, paraphrasing, drawing inferences, distinguishing their thoughts from sources, incorporating in-text citation, and practicing ways of introducing source materials, as well as practising non-transgressive intertextuality (Chandrasoma et al., 2004). In addition, they are acquiring disciplinary terminology through context (Liu & Lei, 2020) and gain familiarity with usage of academic words and multiword formulaic expressions typically found in academic texts (Coxhead, 2020), thus internalizing AI practice for writing in the discipline in their upcoming course assignments.

Taking a deep educative approach that focuses on socialization into the academic culture (Chanock, 2004; Lea & Street, 1998) immerses students in thinking about their disciplinary content and questioning what they read while engaging in the characteristic language forms and structures for presenting arguments. This exposure-and-practice helps normalize academic language. Thus, without imposing an external requirement of citations and the threat of repercussions for breaches of AI policy, students practise developing their competence of academic writing "without fear of being sanctioned for plagiarism" (Adam, 2015, p. 10). It is likely that the high level of engagement and investment stems from students' sense of empowerment in being able to understand their own course texts better. Sustained writing effort was likely due to their deeper understanding of AI stemming from their Day 2 task that motivated their efforts to develop competence and confidence in writing. Furthermore, instead of feeling powerless in an unfamiliar academic culture, students felt empowered by having a supportive reader guiding the socialization process. Rather than as an act of compliance, students voluntarily and confidently integrate sources to enter an academic conversation.

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Chapter 13
Self-Report of Academic Misconduct Practices Among University Students in Portugal

Inês Morais Caldas, Maria Lurdes Pereira, Rui Azevedo, and Áurea Madureira-Carvalho

Abstract Academic misconduct refers to a group of unacceptable behaviours committed by students. Analysis of the evolution of these negative practices is essential to develop effective minimization strategies. This study aimed to assess Portuguese university students' behaviours related to academic misconduct, evaluating its prevalence and main types, and the reasons for engaging in it. An anonymous online survey was carried out during February and March 2021, the participants being students from several Universities in the North of Portugal. Results indicated that about half of the students have seen (n = 114, 49.4%) or committed (n = 133, 57.6%) academic misconduct. Cheating during tests/exams was the main type of misconduct and seen as a risk worth taking, as 55.4% of the students stated they would cheat if they did not expect to be caught. As for the reasons to engage in practising academic misconduct most students (76.6%) believe that is a natural outcome of the competitive society we live in. The results herein presented are quite alarming, as they point to a high level of academic misconduct, which can later compromise ethical behaviours in the workplace and/or the integrity of the research and publications.

Keywords Academic misconduct · Cheating · Integrity · Universities · Students

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Introduction

Academic misconduct (AM) refers to a group of unacceptable behaviours committed by students to secure an unfair advantage in their work. These behaviours may be defined as the conscious action of applying aids or prohibited information during a test or a written assignment (Sierra & Hyman, 2008). It may also involve illegal actions such as borrowing a work to present it as their own or using phrases or sections without citation (Christensen & McCabe, 2006). Furthermore, AM may also be described as any action that gives an unearned or undeserved advantage to a student over another (Eshet et al., 2014; Mullens, 2000).

Despite the existence of shared elements between the definitions cited, a comprehensively accepted definition does not exist, therefore, what is considered academic misconduct may vary. Analysis of the evolution of these negative behaviours is consequently difficult (Lang, 2013), especially considering that most studies are self-reports, and students may identify misconduct practices differently (Burrus et al., 2007). For instance, in a 2016 study, the respondents responded that cheating could be a serious offence if it's done without the author's consent; yet, doing so with their permission was not as serious. Kusnoor & Falik (2013) pointed out "not knowing what cheating is" as a possible cause of cheating.

In any case, independently of the followed criteria, the numbers are worrying: McCabe et al. (2017) reported on AM in 2/3 or above of all students throughout the years (up to 2010); the International Center for Academic Integrity (2020) presented data from more than 70,000 undergraduate students (2002–2015) with a similar number (i.e. AM in over 2/3 of all students).

It is clear the issue of AM in universities is on the rise. In the United Kingdom, in 2017, a 42% increase over the last four years was reported (Tee & Curtis, 2018). Similar concerns were voiced by others, namely by Teixeira and Rocha (2008) who reported a high percentage of undergraduate Economics and Management students, in Portugal, with over 60% of the students admitting cheating sometimes, and 2.4% often or always. They have studied thoroughly the Portuguese reality regarding AM (Teixeira & Rocha, 2006, 2008, 2009, 2010). Although published 10–15 years ago, these publications still have significant value. So, the aim of this study is to contribute to the knowledge of Portuguese university students' behaviours related to academic misconduct, evaluating its prevalence and main types, and the reasons for engaging in it. Additionally, participants were also asked about consequences, all with the purpose of assessing university students' perception and attitude.

Materials and Methods

Data were obtained from an anonymous online survey carried out, using Google Forms, during February and March 2021, the participants were students from several Universities in the North of Portugal.

Questions were made regarding the following subjects:

Observing or performing AM (cheating and/or plagiarism);
Level of responsibility of the faculty members for preventing AM;
Reasons for AM;
Consequences of AM.

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS), version 27.0. Continuous variables were presented displaying mean, minimum, and maximal values, whereas categorical variables were presented showing absolute and percentage values. Possible associations were studied using the chi-square test. The significance level established was 5%.

Results

Two hundred and thirty-one students answered, mostly females (n = 190, 82.3%), aged between 18 and 58 years (mean = 22.2 years, standard deviation = 5.6 years) (Fig. 13.1).

Participants were undergraduate students from several courses, mainly sciences and health-related courses (Fig. 13.2).

Regarding prevalence, 80.1% of the students reported they believe everybody has committed academic malpractice at least once. As for their personal experiences, about half stated they have seen (n = 114, 49.4%) or committed (n = 133, 57.6%) academic misconduct, with no statistically significant differences between sexes (p = 0.17, p = 0.78, respectively).

Considering the perception of misconduct types, 40.2% believed cheating during tests/exams (whether held on campus or online) happens in most of them, and 55.4% stated they would cheat if they thought they were unlikely to be caught. Submitting an

Fig. 13.1 Participants' age distribution, in years (minimum age – 18 years; maximum age – 58 years)
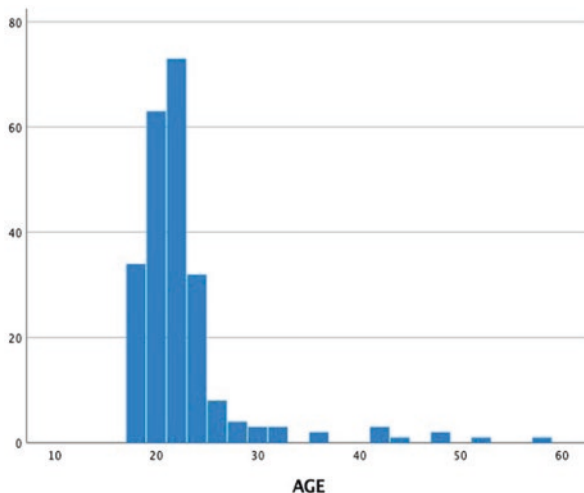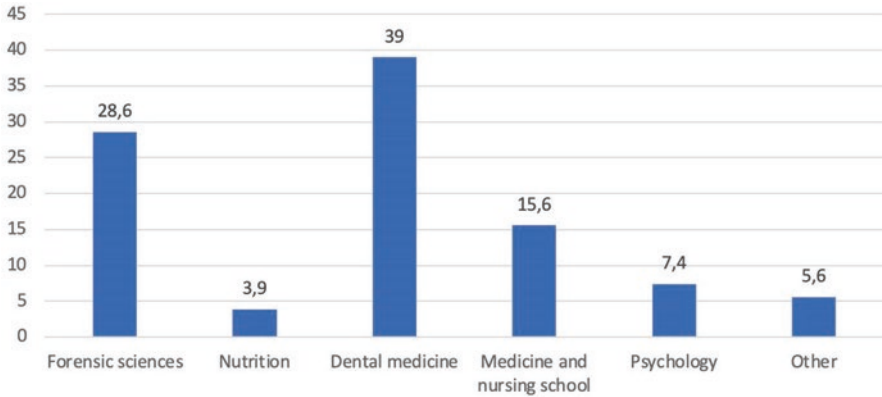
Fig. 13.2 Participants' distribution according to their course

essay made by another person is a much less prevalent and accepted action, with almost every student (99.1%) denying doing this. Additionally, the majority (56.3%) stated that if asked, they would not give somebody their essay to submit as if it was their own. This seems to imply that authorship issues are taken more seriously than cheating.

As for the reasons to engage in practising AM and its consequences, although most participants (76.6%) believe that is a natural outcome of the competitive society in which we live, students also stated that immediate and negative consequences should be enforced both on students, as well as on the teaching staff who allow it, if themselves were not the student caught cheating. In fact, 39.8% would disapprove if a professor did not try to prevent cheating during a test and the majority (57.2%) stated that professors accepting these behaviours should be sanctioned. Nevertheless, 39.0% of the participants stated that if in the future, as professors, they were faced with AM, they would not expel the student. So, misconduct is perceived as wrong, however not wrong enough to be denounced by classmates (85.7% would not denounce AM) or not to be practised, especially if there are no consequences. Feelings of loyalty towards fellow colleagues may explain the major reason for not denouncing fraudulent behaviour.

For the majority, AM consequences mostly apply to those who engage in these behaviours (n = 205, 88.7%), and, to a much lesser degree, to other students who in fact study (n = 18, 7.8%), and to society (n = 4, 1.7%).

Discussion

Gender and Academic Misconduct

Our sample was mainly composed of young females, studying sciences or health related undergraduate courses. In Portugal, there are more females studying in universities than males (53.6%), and this difference is even higher in dental medicine

related courses (77.0%) (PORDATA- Base de dados de Portugal contemporâneo, 2021). Therefore, our sample seems to reflect the Portuguese reality. Still, it can be argued that factors such as gender may influence AM. In fact, Hafeez et al. (2013) reported that female students admitted having cheated more compared to male students. Others have reported more cases of scientific misconduct committed by men than women, particularly by faculty members (Fang et al., 2013). Other authors argue men and women are comparable in engaging in scientific misconduct, but men are more likely to be detected (Kaatz et al., 2013). In fact, Fanelli et al., (2019) reported that females were found to be equally likely to engage in misconduct when compared to males, and claim that more than gender, academic culture, peer control, cash-based publication incentives and national misconduct policies might affect scientific integrity. Similarly, Kukolja Taradi et al. (2012) did not mention gender as a variable to consider for engaging in AM, stating that it is a risk factor for students'perceptions of peer cheating behaviour, peer approval of cheating, low perception of the seriousness of cheating and inappropriate severity level of exams and teaching materials. Other authors referred to other factors, stating that the odds of cheating among students were significantly higher for those who went to private school, were substance users and didn't attend lectures (Desalegn & Berhan, 2014).

Witnessing, Committing and Denouncing Academic Misconduct

Almost half of our participants reported witnessing AM (n = 114, 49.4%), which is backed up by other studies. For instance, Saana et al., (2016) reported in their study that approximately 40% of respondents had witnessed their classmates engaging in AM. Teixeira and Rocha (2008) said the frequency of observing others copying was 68.6% (sometimes) and 23.9% (often or always), being 92.5% the probability of observing cheating.

About half of our participants (n = 133, 57.6%) stated they have committed AM, with no statistically significant differences between the sexes (p = 0.17, p = 0.78, respectively). These numbers agree with those from Teixeira and Rocha (2008) who reported AM in a high percentage of undergraduate Economics and Management students, in Portugal, with over 60% of the students admitting cheating sometimes, and 2.4% often or always. In Croatian medical students, the prevalence of AM was also high with a large proportion (97%) admitting cheating or engaging in at least one form of misconduct (78%) .

So, nationality does not seem to be an issue, as it affects different countries similarly, nor does the course seem to affect AM prevalence, with different courses presenting similar numbers.

The most alarming data is that more than half of the students would cheat if they thought there was little chance of being caught (55.4%), agreeing with other authors, who stated that regarding factors influencing the probability of cheating in examinations, the existence of sanctions was paramount (Teixeira & Rocha, 2006).

As for denouncing AM, our participants recognise that AM is wrong, yet somehow, they do not feel they should be the one to act, with 85.7% claiming they would not denounce AM in any circumstances. Reported similar numbers (94%), as did: in their survey, only 2% would report another student for cheating.

Types of Academic Misconduct

The incidence of cheating seems to be justified by the fact most students do not consider cheating as a serious offence (Teixeira & Rocha, 2008), and may not recognize cheating as AM; in fact, often students do not understand what the expected standards of academic behaviour are and what constitutes a breach of academic integrity. Moreover, it has also been reported that students become desensitized to the AM as they advance throughout the programs of study and come to accept cheating as a normal behaviour (Rennie & Rudland, 2003).

This problem can be even worse and more frequent among international students, used to different rules and realities (Bertram Gallant et al., 2015; Brown et al., 2018). Adopting Codes of Conduct may be useful, as these tools clearly detail unacceptable behaviours (Foxx et al., 2019). Sadly, in our study, we were not able to identify international students and no comparison with our data can be made.

In our sample, we have observed a different tolerance to different AM with cheating being a regularly accepted behaviour. Conversely, submitting an essay written by another person was commonly agreed to be unacceptable behaviour. So, plagiarism and authorship issues seem to be taken more seriously than cheating and obtaining higher marks without merit. The consistent application of appropriate sanctions against those whose conduct is found to violate academic integrity standards may be an important step (Scanlan, 2006).

Besides the issues of plagiarism and authorship, it is of the utmost importance to consider awareness about other unethical authorship practices, such as those related to scientific publishing, fuelled many times by the mantra "publish or perish" (Rawat & Meena, 2014).

Students' consciousness is important at the undergraduate stage since it is in this moment that the future conduct within the research behaviour is shaped and defined, to help prevent unethical behaviours such as those already reported in scientific papers (Bennett & Taylor, 2003), namely:

– The dilution of authorship responsibility, also mentioned as "author inflation", which consists of giving by-line credit to someone who has only made minor contributions to the published paper (Seymore, 2006);
– Guest, gift or pressure authorship, which includes awarding undue credits to those who attain authorship by merely holding a senior research position (Harvey, 2018);
– Ghost authorship, which refers to not giving authorship credit when this was, in fact, due (Caldas & Madureira-Carvalho, 2021).

Additionally, other authorship irregularities include divided and duplicate publications (Bennett & Taylor, 2003). In the former, authors divide one definite and self-contained research into minor sections, each producing individual manuscripts (the so-called "salami science") (Bennett & Taylor, 2003). In the latter, authors produce several manuscripts from the same research, changing only small details (Bevan, 1991). As for authorship credit, there is not a unanimously accepted definition of authorship, but two main components with widespread acknowledgement are recognized: credit and responsibility (Gasparyan, 2013).

Reasons for Academic Misconduct

The need to teach students about authorship credits and irregularities is crucial to avoid these kinds of behaviour. In fact, recent research shows that most students may have limited knowledge about authorship guidelines and unethical behaviours involved in a scientific publication (Badreldin et al., 2021).

Moreover, the assessment methodology also needs to be re-assessed, as students may look at the evaluation process as a hurdle they must overcome, and look at it as "a waste of time" (Choi, 2019). It is essential to make the connection between the subjects and the future profession, for students to recognize the intrinsic value of having the required knowledge. This way students can understand if they in fact possess the knowledge needed to perform a given profession. Additionally, other changes can be implemented, such as acquiring software programs to generate new multiple-choice items and different versions of the same multiple-choice tests; avoiding take-home exams when evaluating student knowledge; using student assessment methods directly relevant to clinical practice (Graham et al., 2016), this last example being the one we believe to be more important.

Students seem to think honest behaviours in the evaluation process are not necessary to be a good professional. And, at least for integrity issues, this does seem to be the case. In nursing, for example, nurses are, in the US, constantly ranked among the highest where honesty and ethical standards are concerned. However, these qualities appear to be lacking in nursing students who often display dishonest behaviours, such as cheating on exams, plagiarizing writing assignments, lying, among others (Baxter & Boblin, 2007; Devine & Chin, 2018). This lack of integrity in nursing students is not seen in nursing professionals, suggesting, at least sometimes, students grow out of these behaviours, and choose a more responsible and upright approach, or perhaps do not think academic honesty is valuable, or as valuable as professional honesty. Yet, some claim that students who are dishonest in class are more likely to engage in fraud and theft on the job, violate workplace ethics and indulge in dishonest practices with patients, peers, and organizations later in their professional life (Harding et al., 2004).

Taking a closer look at the reasons why students cheat is now worthwhile. Most of our participants (76.6%) blamed it on the competitive society in which we live, stating it was a natural outcome. Other authors state other causes such as the pursuit

of good grades, high academic load, and pressure to please family and guardians (Saana et al., 2016). Some students say they just want to get good grades and be better than the other students, while some authors talk about cognitive dissonance, with "rationalization of cheating behaviours (Parks-Leduc et al., 2021).

Faculty members are expected to lead by example: if they operate with integrity, they will certainly foster students, who will adopt this, the teachers, as role models. In fact, in this research, students' state faculty staff should be sanctioned if they allow AM to occur. Thus, faculty members are expected to abide by codes of conduct and to behave ethically when engaging in their teaching activities and scientific pursuits. Our current competitive society holds the burden of this reality, and a structural conceptual change is needed i.e. teaching students that ethical behaviours are as important and valuable as the technical skills students acquire, as revealed by the increasing amount of research on this matter in the last twenty years (Ali et al., 2021).

How to Prevent Academic misconduct – Some Recommendations

Our first recommendation would be to teach students ethical behaviours that are as essential as the technical skills they acquire. Also, to reinforce, both in students and teaching staff, that AM is a serious offence. The creation of Codes of Conduct, the encouragement of faculty members to lead by example, and the approval of state-wide punitive legislation, including sanctions against companies selling services to produce academic work, are key factors.

Our second recommendation would be to teach students about the expected standards of academic behaviour and what constitutes a breach of academic integrity.

Our third recommendation would be to adapt the assessment methodology, which should focus mainly on the subjects more important to the future profession, for students to recognize the intrinsic value of having the knowledge required.

Finally, our last recommendation addresses the teaching staff, who should consider using software programs to generate new multiple-choice items and different versions of the same multiple-choice tests; moreover, evaluating students in the teaching space, and using assessment methods directly relevant to clinical practice seem to be good practices.

Conclusions

The results herein presented are quite alarming, as they point to a high level of academic misconduct, either testified or performed. Thus, the obtained data reflects the urgent need to develop and apply measures for overcoming academic misconduct or, at least, to reduce it significantly. To teach students ethical behaviours, and that those are as essential as the technical skills they acquire is crucial. Similarly, it

should be made clear that AM is a serious offence. The creation of Codes of Conduct, and the approval of state-wide punitive legislation are of the utmost importance. Moreover, the assessment methodology should be adapted and focus mainly on the subjects more important to the future profession.

Finally, the teaching staff should take AM seriously, and use different techniques, such as software programmes, to prevent it.

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Chapter 14
Student Values and Attitudes to Plagiarism in Montenegro

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Abstract The interest of the global professional and scientific communities in the phenomenon of plagiarism, possible reasons for its appearance as well as actions against it has been present for decades. However, despite significant efforts by Higher Education Institutions to combat academic misconduct, it seems that students still do not know enough about the notion of plagiarism or understand that resorting to plagiarism is contrary to the rules of academic behaviour and honesty. In this paper, we propose that the attitude to plagiarism is closely linked to the values that students hold and that these values vary among the societies and cultures that students come from. This paper provides results of an analysis of Montenegrin students' attitudes to plagiarism based on the value system through the spectrum of the most dominant personal values, as fundamental inner goals and needs that an individual aspires to. Some of these values are aimed at oneself, i.e. achieving the goals and needs that may, although not necessarily, have a direct influence on the persons around us. On the other hand, some of these values are permanently aimed at others, i.e. achieving the values that have a significant influence on others. The results presented here are a part of a more comprehensive survey on academic integrity and the values associated with it, conducted at the University of Montenegro at 19 faculties, including 774 students. The survey showed that the students of social sciences and humanities opt for the values aimed at the benefit of others and community in general, while the students of engineering and science rather choose the values aimed at oneself, i.e. their own prosperity. In addition, the students of social sciences and humanities have a more ethical and active attitude to plagiarism, they disapprove of it and are ready to react if they notice it, while the students of engineering and science have a more supporting and passive attitude to this phenomenon. Obviously, the field of study and the content of the courses students take have

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an impact on the values that students hold regarding their own predominant personal values and the attitude to academic honesty and plagiarism.

Keywords Values · Attitudes · Students · Plagiarism · Academic integrity

Introduction

The topic of plagiarism has been of interest to researchers dealing with academic integrity due to the fact that this phenomenon has been increasingly present in academic settings. However, the issue of plagiarism has been in focus in Montenegro only lately. The Law on Academic Integrity, which defines plagiarism, was adopted in Montenegro in March 2019 as a result of the increasing interest in the phenomenon of plagiarism, based on the practice observed in an academic environment. On the other hand, it seems that university students are not always adequately acquainted with the notion of plagiarism and do not understand plagiarism and its different forms within the context of academic behaviour and honesty. In addition, the understanding of academic integrity may be linked to specific cultural settings in which students live and study.

Thus, Michalska (2014, p. 2) supports the ideas expressed in different studies that cultural background and ethnicity can influence understanding of proper academic behaviour. In addition, Introna et al. (2003, p. 10) believe that "different cultures view the world in different ways, they have different value systems", which leads to variations in terms of teaching, learning, and communication. Michalska (2014, p. 2) claims there is an obvious link between students' ethnic origin and their opinions on academic integrity. In this context, this study will analyse the attitudes of Montenegrin students towards academic conduct and honesty, including the issue of plagiarism.

Scholars dealing with the issue of academic integrity draw on the theory of planned behaviour (TPB) when examining students' intention to plagiarize (e.g. Stone et al., 2009; Passow et al., 2006; Pekovic et al., 2020). For instance, working on the sample of Montenegrin students, Pekovic et al. (2020) found that favourable attitudes towards plagiarism, low perceived behavioural control and low moral obligation influence positively students' intentions to plagiarize, while subjective norms, academic literacy and computer literacy are not significant determinants of students' intention to plagiarize. Interesting studies by Alleyne and Phillips (2011) or Ahmadi (2013) show that students are open to cheating and that there is a high percentage of students who believe that plagiarism is socially and ethically acceptable. Hence, values have a motivational role because they form and direct individuals' everyday forms of behaviour in all the spheres of their life, including their attitudes to plagiarism in academic settings.

We base this research on two approaches: (1) Ajzen's theory on planned behaviour (Ajzen, 1991), which shows that moral obligation refers to a person's feeling of duty to accept or reject a certain behavioral pattern; and (2) Alleyne and Phillips'

([2011](#)) findings on the level of tolerance towards academic dishonesty. We will investigate the link between personal values of Montenegrin students and their active or passive attitude, as well as interpretation and action against plagiarism of other students. More precisely, the first steps in identifying the prerequisites of Montenegrin HEIs associated with academic integrity were performed by the Council of Europe's ETINED platform (Pekovic et al., [2021](#)). Furthermore, the authors list several actions that Montenegro implemented in order to strengthen academic integrity such as the adoption of the Law on Academic Integrity (adopted in March 2019), the appointment of the National Ethics Board and acquisition of plagiarism-detection software for all HEIs in the country. In parallel, the University of Montenegro (UoM), as the only and the largest public university in the country with around 20,000 students, also focuses extensively on academic integrity by strengthening institutional and educational capacities to combat academic misconduct.

For the purpose of this study, we collected information from the survey that included 774 UoM's students from all 19 faculties. The survey was a part of the Project "Strategic Academic Integrity: Interdisciplinary Research-Based Approach to Ethical Behaviour in Higher Education". The Project was implemented between March 31, 2019 and April 1, 2020, with the following partners: Université de Genève, École Politechnique and the Ministry of Education of Montenegro.

Theoretical Grounds

The definitions of plagiarism are numerous and well known to researchers. However, the definition provided by Shahabuddin ([2009](#), p. 353), which proposes that "plagiarism is a misconduct considered to be unethical and immoral regardless of who commits it" may be relevant for our research as it includes the unethical side of plagiarism. The unethical side of plagiarism is closely linked to the values related to plagiarism that we discuss in this paper.

The Montenegrin Law on Academic Integrity (Article 2) provides the following definition:

"Academic integrity is the academic behaviour that ensures protection of academic honesty, dignity of profession, quality of work and products of work, the spirit of equal cooperation with all the participants of the academic process, focus on truth as the basic value and respect of laws and regulations as grounds for the accountability of academic community members, i.e. every behaviour that is in accordance with the principles of academic integrity."

It may be concluded that this definition provides a series of values that underlie academic integrity: honesty, dignity, equality, cooperation, truthfulness, respect of laws and regulations. The second part of the definition mentions "every behaviour that is in accordance with the principles of academic integrity", whereby the principles, defined in Article 3, may be understood as additional values: honesty, objectivity, openness, freedom in the teaching and examination processes and

accountability to the academic community and society. As a result, the definition of academic integrity is value-oriented.

In this light, we can define plagiarism as a form of violation of academic integrity which is not in compliance with the basic values of the academic community and society in general. Thus, plagiarism implies disregard, but also lack of knowledge of the principles and rules that should be observed in the academic environment and society in general. This leads to lack of behaviour or action which is in accordance with the values of a specific society or community. Thus, it is possible to claim that the attitude to plagiarism may be socially or culturally defined and dependent on the values cherished by the society. The understanding of academic integrity is directly linked to the values as culturally accepted norms and principles that are supposed to be followed for the purpose of successful functioning of both micro and macro systems in a society, including academic community.

Plagiarism is not always *intentional*, it can happen *unintentionally* or *accidentally*, but it can also imply *self-plagiarism* (Maurer et al., 2006, p. 1051). Although unintentional plagiarizing may be a debatable notion, the Montenegrin practice points to such a possibility The students of the University of Montenegro quite often resort to plagiarism unintentionally as a result of the lack of knowledge about this phenomenon and skills of academic writing. A large number of researchers have discussed this issue.

Pecorari (2008: 4–6) refers to the intentional plagiarism as *prototypical plagiarism*, which she defines "as the use of words and/or ideas from another source, without appropriate attribution, and with the intention to deceive". She also discusses plagiarism "which is characterized by the lack of deceptive intent". This type of plagiarism, referred to as *patchwriting* by Howard, includes the approach by which students use words or phrases from a source text, but also delete them or add synonyms, alter grammatical structures, etc., without citing the source text (Howard, 1995, 1999). According to Pecorari (2008: 5), patchwriting is a result of the need of novice writers for support. We would say that, in the Montenegrin conditions, it may be the result of a lack of knowledge about academic writing as many undergraduate study programs still do not have courses in academic writing. Thus, the students often do not understand that even paraphrasing, without citing the source, is a form of plagiarizing. This idea is supported by Whitley et al. (1999: 263), who found that some students might resort to cheating simply because they do not understand the limits of acceptable behaviour.

It has been already mentioned that the attitude to plagiarism differs among cultures. Husted and Allen (2008: 294) asserted that "individualism and collectivism, more than other cultural dimensions, affect ethical decision making, which concerns the way people resolve conflicts in human interests and optimize mutual benefits" Thus, people in collectivist cultures follow group norms in order to maintain social harmony and are more likely to sacrifice for the achievement of personal task for the sake of the group. On the other hand, one's personal goals take priority over group goals in individualist cultures. Although the research of Husted and Allen (2008) is based on business ethics, it could be easily applied to the discussions on the values that people hold and their attitudes to plagiarism. Thus, referring to

student ethics, Brodowsky et al. (2019: 2) propose that countries or regions of the world can be grouped into cultures with high or low degrees of tolerance for cheating and unethical behaviour. According to them, such approaches are useful for comparing students across cultures.

Montenegrin society is obviously a collectivist society and it would be therefore interesting to look into some other collectivist societies and see whether there are similarities with these societies. Thus, Ahmadi's research on the presence of plagiarism in the Iranian academic environment showed that this phenomenon is present to a large extent among Iranian students (Ahmadi, 2013: 156). In terms of the attitudes to plagiarism, Ahmadi found that more than one fifth of Iranian students (21.2%) think that plagiarism is a normal behaviour, while 35% of them believe that students who plagiarize are normal students. However, the most interesting conclusion of this research is that as many as 62.1% of students consider plagiarism to be an easy task, while 44.7% state that those who plagiarize are mainly not caught and if that happens they are not strictly punished (62.1%, which points to the conclusion that the Iranian system has not seriously tackled this problem. This research has also shown that there is no significant difference in the attitudes to plagiarism between male and female students.

The research of Alleyne and Phillips (2011), which is an extended version of the theory of planned behaviour model, carried out among the students of management and accounting in Barbados and the Caribbean, provides somewhat different results. On the one hand, these authors, just like Ahmadi, state that students are generally open to cheating and that there is a high percentage of students in different disciplines who believe that plagiarism is socially acceptable and not ethically wrong, although they are afraid of being caught (Alleyne and Phillips, 2011: 327). However, unlike Ahmadi, they refer to the evidence leading to the conclusion that men resort to academic dishonesty more than women and that, in addition, men have more positive attitudes to this phenomenon than women. It seems that, looking from the gender perspective, some studies claim that men resort to plagiarism more than women, but additional research should be done to support such a conclusion. On the other hand, some authors (e.g. Graham et al. 1994, p. 19) found that women are more prone to admit that they used plagiarism than men.

Taking the theory of Ajzen (1991) on planned behaviour and starting from the assumption that moral obligations refer to a feeling of a person's duty to accept or reject to be involved in a certain pattern of behaviour, Alleyne and Phillips (2011, p. 333) conclude that most students involved in the research said that they had low level of tolerance regarding academic dishonesty, that most of their fellow students would not support such behaviour, as well as that they had moral obligation to avoid such practice.

Blau and Eshket-Alkali (2017, p. 629) consider that it is necessary to understand "the dissonance between ethical judgments and conducting unethical acts" and that such an approach may help in explaining the dishonest behaviour of students. They believe that educational institutions have limited capabilities to tackle this problem and that few studies deal with ethical dissonance.

In the analysis of plagiarism among American students of technically-oriented private universities, Harding et al. (2004, p. 315–316) asked students to take into consideration factors such as thoughts, feelings, social pressures or school policies that caused them to hesitate to cheat in the situations that they themselves identified. The most frequent responses were associated with shame, conscience, guilt and loss of personal respect (17.7% of valid responses). The authors describe this as a hesitation to cheat due to potential negative consequences. The second biggest group includes respondents, 37.9% of them, who mentioned negative consequences like fear or serious possibility to be caught, as well as fear of sanctions. On the other hand, 26.6% of respondents said that hesitation is based on positive consequences, i.e. desire to learn and desire to do own work.

Linking ethical behaviour to personal and morally relevant conduct and forms of behaviour, as well as relation of every individual with themselves and others implies that individual's value system is a precondition for identifying, regulating, directing, but also evaluating students' reactions and actions. However, as stressed by Flint et al. (2006), students do not recognize the relation between their values and plagiarism.

Obviously, different students approach academic dishonesty and plagiarism from different social and cultural backgrounds they come from. Personal values are basic internal goals but also a need that individuals aspire to and gradually develop based on their knowledge, skills and formed attitudes. Some of these values are therefore aimed at oneself, i.e. to fulfilling one's own personal goals and needs. The other values are aimed at others, undoubtedly defining behaviour of individuals towards others in accordance with these values, which means that they have a significant influence on others. Therefore, values have a motivational role because they form and direct everyday behaviour of individuals in all the spheres of their private or professional life. This also refers to the behaviour of students in the academic environment, primarily to the issue of plagiarism in academic settings.

In this paper, we will present the analysis of Montenegrin students' attitudes to plagiarism from the viewpoint of the most dominant ethical values they hold.

Methodology

The analysis presented here covers just several aspects of a more comprehensive survey, focusing on the values that students hold in relation to plagiarism.

The sample included 774 students of the University of Montenegro (UoM), years 1 to 3, at 19 faculties of UoM. The scope of the sample was defined so that the margin of error does not exceed 3%. The survey was based on a questionnaire tested in the pilot phase with 100 students. Analysing the pilot survey, we calculated reliability values (Cronbach's alpha) and those values pointed to a high level of reliability of the questionnaire that we used in the survey.

The first part of the questionnaire refers to identifying dominant values and their ranking by the students. The questionnaire included the following 10 values:

empathy, **responsibility**, **wealth**, **independence**, **honesty**, **respect**, **influence**, **community**, **fairness** and **trust (adapted from Mahaffey, 2010, p. 157)**.

The students were also given two options:

1. whether they saw these values as more personal, i.e. *aimed at oneself*, to the individual that cherishes these values, to the personal benefit; or
2. whether these values were more focused on the well-being of another person, i.e. *aimed at others*.

Explanations for each value were provided, so that students could understand and interpret the values in the same way. For example, *independence* was defined as *being able to do what I want*, *honesty* as *being truthful in my dealings with others*, and *fairness* as *working to promote justice for all*.

After defining the dominant values, we looked into them against the claims that establish students' attitudes to plagiarism:

1. Passive
2. Supporting or justifying
3. Active and ethical

Our research was aimed at investigating the link between dominant personal values regarding the field of study and gender perspective, as well as to look into the students' attitudes to plagiarism.

The results are presented for the following faculties of the University of Montenegro: the Faculty of Tourism and Hospitality, the Faculty of Economics, the Faculty of Mechanical Engineering, the Faculty of Medicine and the Faculty of Philosophy.

Results

In this part we will present and discuss selected findings from the survey we conducted.

Dominant Values from the Perspective of the Field of Study

When it comes to dominant values of the students of five different faculties, five of them were identified by the interviewed students as the most important for them. The Table 14.1 below contains the results:

It is interesting to mention that the largest number of respondents opted for the values aimed at themselves (students of all faculties), while a lower number of students chose values aimed at others.

The results show that students of tourism and hospitality opted for *wealth* as a dominant value (*Being financially secure*), while students of economics and

Table 14.1 Dominant values of students from different faculties of the University of Montenegro

Faculty Values	Faculty of Tourism and Hospitality	Faculty of Economics	Faculty of Mechanical Engineering	Faculty of Medicine	Faculty of Philosophy
Wealth	**p = 0.033**	p = .,4215	p = 0.2847	p = 0.5474	p = 0.7154
Independence	p = 0.8715	**p < 0.001**	**p < 0.001**	p = 0.7979	p = 0.2178
Empathy	p = 0.4712	p = 0.5552	p = 0.4789	**p = 0.041**	p = 0.9714
Community	p = 0.8741	p = 0.1247	p = 0.8715	p = 0.1124	**p = 0.018**
Faireness	p = 0.4241	p = 0.2487	p = 0.7786	p = 0.2247	**p = 0.003**

mechanical engineering chose *independence* (*I can do whatever I want*) in about the same percentage. On the other hand, only the students of the faculties of medicine and philosophy chose the values aimed at others (*empathy*, *community*, *fairness*). Specifically, the students of the Faculty of Medicine most frequently opted for *empathy* (*Helping others when in need*), while the students of the Faculty of Philosophy chose *community* (*Be active members of the society*) and *fairness* (*Acting in promoting justice for all*).

When speaking about *the year of studies*, it can be concluded that dominant values are diverse depending on the year (1st – third year of studies). Thus, it is possible to observe at some faculties that specific values grow or drop from one year to another, so the values become more or less dominant. For example, *wealth* grows among the students of the Faculty of Economics. In the same way, *empathy* increases among the students of the Faculty of Medicine. *Honesty* drops among the students of the Faculty of Philosophy, while *respect* grows from the first to the third year (first year students).

Gender Perspective

Values measured against gender perspective (male/female) show a difference of views of male and female students. This is illustrated by Table 14.2.

The table shows that female students express as dominant the values aimed at others:

Faculty of Philosophy - *honesty* and the need to be honest in relations with others, as well as *respect* or power to respect yourself and others;
Faculty of Medicine - *empathy*.

All the three values combined are the most dominant among the students of the Faculty of Philosophy.

The most dominant values for male students are *wealth* and *independence*. They are most dominant among the students of the Faculty of Economics. On the other hand, the students of the Faculty of Tourism and Hospitality chose *independence* as their most dominant value. This means that male students opt for the values aimed at oneself, compared to female students who choose values aimed at others.

Table 14.2 Dominant values in relation to the gender of students from different faculties of the University of Montenegro

Faculty Values	Faculty of Philosophy		Faculty of Medicine		Faculty of Economics		Faculty of Tourism and Hospitality	
Gender	M	F	M	F	M	F	M	F
Honesty	p = 0,2997	**p = 0.012**	p = 0.4782	p = 0.3991	p = 0.7952	p = 0.8981	p = 0.2397	p = 0.4447
Empathy	p = 0.2748	p = 0.0781	p = 0.7924	**p < 0.001**	p = 0.1047	p = 0.2488	p = 0.1147	p = 0.4521
Fairness	p = 0.1454	**p < 0.001**	p = 0.2147	p = 0.0621	p = 0.7932	p = 0.2478	p = 0.4499	p = 0.1021
Wealth	p = 0.0624	p = 0.1521	p = 0.1287	p = 0.2354	p = 0.0591	p = 0.2147	**p < 0.001**	p = 0.8147
Independence	p = 0.2874	p = 0.3335	p = 0.0632	p = 0.2457	p = 0.0662	p = 0.2745	**p < 0.001**	p = 0.2546
Honesty empathy respect	p = 0.2874	**p = 0.024**	p = 0.5478	p = 0.4478	p = 0.2147	p = 0.2514	p = 0.4987	p = 0.7821
Wealth independence	p = '0.2866	p = 0.8412	p = 0.0932	p = 0.2147	**p < 0.001**	p = 0.5471	p = 0.1010	p = 0.2518

It is worth mentioning that the value *influence* (explained as *Be in the position to influence the world*) was not chosen by any of the students of the University of Montenegro, regardless of gender and bearing in mind the content they study at their respective faculties.

Attitudes to Plagiarism

After establishing dominant values among the students in the first part of the survey, the second part of the research continued based on the attitudes to plagiarism as well as acting in cases of plagiarism. The questionnaire defined a set of three attitudes:

1. *passive* - deprived of ethical behaviour and thinking;
2. supporting and justifying;
3. *active* and *ethical*, the one that incites to the action aimed at sanctioning plagiarism.

After selecting values, the students were asked to define the level of agreement with specific claims referring to their attitude to plagiarism. The answers provided were:

I fully agree
I agree
I am neutral
I do not agree
I completely disagree

Passive attitude to this form of academic dishonesty includes claims such as I am not interested in whether other students want to plagiarise, it's their business, not mine.

Supporting or justifying attitude includes claims such as Plagiarising is justified if professors give too many tasks during the semester; Punishment for plagiarism at the faculty should be lenient because we, young people, study in vain, etc.

Active or ethical attitude is defined by the following claims: Plagiarism is always wrong despite circumstances; Plagiarism is against my ethical values; If I found out that a student plagiarised I would try to make him confess, etc.

Here are the results (Table 14.3).

Table 14.3 Dominant attitudes of students from different faculties of the University of Montenegro

Faculty Attitudes	Faculty of Philosophy	Faculty of Economics	Faculty of Tourism and Hospitality	Faculty of Sciences
Active/ethical attitude	**$p < 0.001$**	$p = 0.5001$	$p = 0.5236$	$p = 0.6743$
Passive attitude	$p = 0.2819$	$p = 0.3442$	$p = 0.214$	**$p < 0.001$**
Supporting/ justifying attitude	$p = 0.1356$	**$p < 0.001$**	$p = 0.214$	$p = 0.7612$

The largest number of students from all the faculties, but especially the students of the Faculty of Science, opted for *supporting* or *passive* attitude. The dominant attitude among the students of the Faculty of Economics is *supporting*, so most of their answers is *I agree*. It is interesting that the students of the Faculty of Tourism and Hospitality have a balanced choice between *supporting* and *passive* attitude. On the other hand, only the students of the Faculty of Philosophy chose an active ethical attitude to the claims in favour or plagiarism, and most of their answers were *I agree*.

Discussion of the Results

Our research has shown that there is an obvious inclination of students from specific faculties to choose the values that are linked to the field of their study. Thus, for example, the students of the Faculty of Tourism and Hospitality, the Faculty of Economics and the Faculty of Mechanical Engineering dominantly chose the values aimed at oneself: *wealth* and *independence*. On the other hand, the students of the Faculty of Medicine and the Faculty of Philosophy chose the values aimed at others: *empathy*, *community* and *fairness*.

Regarding the students that chose the values aimed at oneself, a possible explanation of such results is the fact that these students attend the courses and study the contents that are dominantly oriented towards encouraging and strengthening personal values, in order to become independent individuals in their professions. Due to the fact that they usually do not study social sciences and humanities, at least not predominantly, it seems that the nature of the profession they are studying for largely implies good planning, predicting and coping with precise, physical or material contexts, especially when it comes to the students of the Faculty of Economics.

On the other hand, the students of the Faculty of Medicine and the Faculty of Philosophy are, by the very nature of their professions, oriented towards others, i.e. they are trained to work with and for other people. They study the courses that support understanding of civilizational and social changes and trends, which is why the dominant choice of the values aimed at others is a logical explanation. This also includes the fact that these students study understanding and practicing different relations, types of support and work with others.

Differences in the values regarding gender could be also explained in the same way. In addition to different values, research and interpretations, e.g. in the context of different cultural norms for both genders, it is considered that men and women learn differently and show different characteristics and forms of behaviour. The research of Alice Eagly and Maureen Crowleya from 1986 confirms that men are more prone to heroic and cavalier acts, compared to women who provide assistance in long-term relationships. In addition, the research of Anne McGuire (1994) with adolescents in seven different states shows that women were more involved in voluntary work (implying long-term care about others), compared to men. Other

studies provide similar behaviour based on the chosen values depending on gender. Therefore, it is expected that female students rather choose values aimed at others.

It is worrying that the largest number of students of all the faculties of the University of Montenegro, but especially the students of science, opted for a set of claims referring to *supporting* or *passive* attitudes to plagiarism. In addition, there is a high percentage of answers *I fully agree* among the students of economics.

Although the students of the Faculty of Philosophy chose an active and ethical attitude, their answers are mainly *I agree*. Possible explanation is that the issues of academic integrity and academic honesty, as well as the issue of plagiarism, are new issues in the academic community in Montenegro.

Additional proof for the passivity of some students of the University of Montenegro is the fact that they never choose the value *influence* (*Being able to influence the world*). We truly hope that a lack of self-confidence and readiness for a change in the Montenegrin society will not last long and that the situation will change. A possible explanation may be our general volatile political, social and economic situation. Such a situation probably has an impact on a stronger presence of unethical behaviour in the academic settings, including plagiarism. Also, there are fewer curricula that offer young people a means of strengthening their value framework and understanding and empowering their democratic competences (competences of democratic culture as defined by the Council of Europe), primarily in the regular curricula, i.e. regular educational context, but also in the context of informal education. Still, significant steps have been undertaken, including the adoption of the Law on Academic Integrity and the first results are becoming visible.

Our research has shown that the students of the University of Montenegro who chose the values aimed at others mainly opted for a passive or supporting attitude to plagiarism, so this is another confirmation that values largely influence patterns of behaviour. On the other hand, the values that have no influence on others and that are not aimed at direct benefits for others definitely support those passive and unethical behaviours, in this case passive and supporting attitude towards plagiarism.

Conclusions

In this paper we start from the viewpoint that the values students hold are closely linked to the phenomenon of plagiarism. Values are also directly associated with the notion of academic integrity, its principles and plagiarism as a form of its violation as defined in the Law on Academic Integrity of Montenegro.

Obviously, a student's field of study has an impact on the values that they cherish. Thus, values aimed at others are more present among the students of social sciences and humanities, but also among the students of some natural sciences that focus on an emphatic and caring attitude to others, such as medicine. On the other hand, the values aimed at oneself are rather present among students on engineering and natural sciences.

This leads to the conclusion that the students whose values are aimed at others show a critical attitude to plagiarism as a form of violation of academic integrity. They are ready to take a more active stance towards plagiarism and want to react to this phenomenon in the academic community. The students who hold the values aimed at oneself, however, take a more passive attitude to plagiarism and are not prone to openly rather choose claims that point to a passive or even supporting attitude to this phenomenon.

Bearing in mind that value systems are developed from the earliest age, the values we have discussed in this paper should be cultivated in the family, but also by school, starting from primary level. The classes should provide additional practical content that would cultivate these values. Still, cherishing values cannot be limited to school and family, because the whole society should lay the ground for the values such as empathy, responsibility, honesty, respect, fairness, trust and many others.

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Chapter 15
Transitional Module on Academic Integrity to Help K-12 Students in the UAE Prepare for Next Stage of Education

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Abstract Quality education is supposed to be inclusive and accessible to all students according to the United Nations' Sustainable Goal Four. However, when students transition to the next level of their education journey, they aren't always equipped with prior knowledge as expected by the next stage. This could be high school students joining tertiary education institutions, particularly when they travel abroad to pursue higher education. While most tertiary institutions recognise this gap and often work to provide remedial, introductory, or preparatory courses to help students cope up, rarely do they recognise the need to also support students with courses to teach them about academic integrity values and writing skills. International students in their first year have been known to engage in misconduct behaviour more than domestic and students at other levels and often it is because they are unaware of the expectations, policies and such because they come from academic cultures that vary vastly. Recognising this gap, in this chapter we record the process of designing, piloting, implementing and ultimately testing effectiveness of a transitional module in the United Arab Emirates to help K-12 students prepare for their next level in their learning journey so that others can follow suit in making education accessible and inclusive for all students, irrespective of where they come from or what their educational background may be.

Keywords K-12 · Academic integrity · Transition · Module · Training · Next-level

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Introduction

The past decades have seen a paradigm shift in higher education with greater student, staff, research mobility across borders. "The increasing globalisation and regionalisation of economies and societies, combined with the requirements of the knowledge economy and the end of the Cold War, created a context for a more strategic approach to internationalisation in higher education (de Wit, 2020, para. 1). Internationalisation of education basically implies that education, that is, knowledge and skills are taught in a manner that has global implications (Knight, 2004). This means higher education institutions focus more on imparting concepts, values, knowledge, and skills that are more universally accepted, than focusing on national development, with students going abroad for capacity building and acquiring desirable degrees that are more globally recognised for their perceived internal value and preparedness value. In 2018, UNESCO estimated more than 5 million students were travelling abroad to pursue higher education, beyond their own or host countries (UIS, 2018). This level of mobility and internationalisation has also meant that English became more and more the dominant language for teaching, learning and research, and focus also shifted to curriculum being internationalised with focus on aspects such as quality assurance, policies pertaining to learning outcomes of subjects and so on (de Wit, 2019).

Naturally, there are barriers and challenges that international students face when they go to study abroad. Besides language barriers and cultural differences that they have to overcome (Wu et al., 2015), there may be barriers to expectations from teachers (Beutel, 2010), curricular difficulties, differences in legal systems, policies, even classroom teaching and learning that could be "substantially different from that to which they are accustomed" (Oxner & Bandy, 2020, para 1).

Studies have posited how foreign students are four times more likely to cheat than domestic students in the UK and five times for every one student in the USA (Denisova-Schmidt, 2016). One of the biggest sources of concern has been the difference in academic culture, with students coming from a variety of educational backgrounds where many may be expected to memorise and repeat content without necessarily showing any critical thinking of reflection (Denisova-Schmidt, 2016).

United Nations Sustainable Goal (UNSDG) #4 says to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2021, para 1). However, when students relocate internationally for further studies and find themselves in situations where what they know to be the norm in classrooms change are now considered academic misconduct or integrity breach, they are being disadvantaged compared to their classmates (Rakhman & Khan, 2020).

This chapter explores prior knowledge as a crucial requirement for students moving through K-12 ultimately into higher education, particularly when they move to study abroad. The challenges faced by students when they join higher education institutions are identified and in recognising the gaps in knowledge, a transitional module is proposed that is designed to help students understand academic integrity values and how to avoid misconduct. The chapter further tracks the implementation

of such an initiative and records the feedback and success of implementing such a module.

Prior Knowledge, Content Knowledge and Background Knowledge and Why Are They Crucial to International Students Anywhere

Prior knowledge is expected when students move from school to higher education, and is critical in ensuring student learning, achievement, and success (Hailikari et al., 2007). Lack of prior knowledge can hamper and negatively influence students' ability to learn or apply higher order thinking (Nathanson et al.s, 2004). When there is a misalignment between school curricula and content covered and courses taught in higher education, students struggle and become confused (Long & Boatman, 2013). We focus on "content knowledge" of prior knowledge, particularly "background knowledge" and "subject matter knowledge" (Margana, 2012) for which universities are often seen to offer introductory, developmental, or remedial courses that are subject, degree, and/or specialisation specific. Introductory courses are offered prior to joining a program, while developmental or remedial ones are offered when students falter or demonstrate lack of understanding during their degree. These courses provide students with opportunities to re-learn concepts that have not been fully understood (Yolak et al., 2019). Studies have shown that introductory, developmental, and remedial courses did not necessarily prepare students in higher education on academic writing and integrity policy awareness, but too often focused on subject content and skills like MATH, Economics, and so on (Reed, 2017; Fenton & Gralla, 2020; Cavaliere et al. 2020).

Another type of knowledge introduced to freshmen students during their first year of studying in an undergraduate degree is the basic discipline related knowledge as taught in a university setting. During these courses undergraduates are expected to get familiarised with the specialised conventional language of their chosen disciplines and with the notions of lectures and tutorials. Generally, high school pupils are mainly micro-managed by teachers and even though they are expected to study extensively for their final year in high school, teachers prepare them through mock exams and the continuous formative and summative assessments. Naturally, in university settings these expectations for support are normally impractical and unmanageable as the number of students enrolled in any given subject in most universities around the world exceeds 50 and can be as high as several hundred (Hornsby & Osman, 2014; Hysaj & Hamam, 2020). Furthermore, semesters in universities are normally three to four months long and judging by the number of assessments, their length and depth as well as the large number of students, it becomes impossible for most teachers to micro-manage their students' progressions, despite the genuine desire to provide as much scaffolding as possible (Mulryan-Kyne, 2010; Hysaj & Hamam, 2020). Generally, teachers expect that

students' involvement in the learning process will progressively increase during their university years, with acquisition of fundamental concepts during the first year., If this learning does not occur then students and their institutions will eventually bear the brunt of possible dropouts due to unbearable levels of stress and frustration.

First Year Students and Academic Integrity Issues

According to studies by Denisova-Schmidt (2016), Hawe et al. (2019), Hysaj and Elkhouly (2020), Eaton (2021) and Hysaj and Suleymanova (2021), first year students find themselves committing academic misconduct such as plagiarism due to the lack of preparation for university studies, unawareness of the large number of assignments, and the expectations in many instances poor entrance levels applied in most western universities (Comas-Forgas & Sureda-Negre, 2010). These extrinsic reasons, coupled with individual or intrinsic deficits such as such as lack of self-efficacy, self-monitoring, self-regulation, and most importantly, students' inability to comprehend subject material in order to apply the knowledge, are some of the main reasons identified by a range of researchers, why first year students are found plagiarising or cheating (Khan & Balasubramanian, 2012; Tayan, 2017; Hawe et al.,
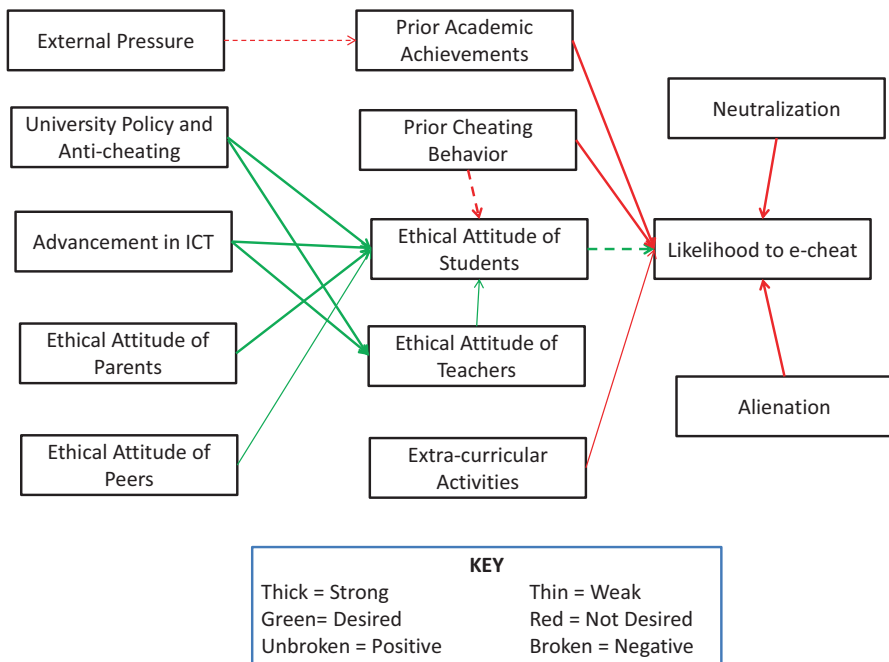
Fig. 15.1 Khan's Factor model (Khan, 2014)

2019; Khan, 2014; CMU Eberly Centre, 2021a). See Fig. 15.1 for one such factor model.

The inability to comprehend either discipline-related content or more general concepts required for higher learning creates a considerable void of knowledge, which can translate into undue stress and constant frustration for first year undergraduate students. Understandably, first year students expect university studies to be somehow more complex than studies they have undertaken in high school, and most are prepared for independent learning. Nevertheless, the number of academic, personal, and social issues that freshers have to deal with, can overshadow their excitement of being accepted for university or being enrolled in their chosen major (Tayan, 2017). Furthermore, parents' expectations often increase when their children go to university and peer pressure may rise. All these intrinsic and extrinsic factors can make a substantial contribution to an undergraduate student's decision to involve themselves in different forms of academic misconduct (Hysaj & Suleymanova 2021).

As discovered by Eaton (2021) undergraduate students may find themselves poorly equipped with the required academic, cognitive, and linguistic tools to complete lengthy assignments on time. Furthermore, they may feel unable to maintain the required GPA level on which their scholarship depends, putting them under further financial and/ or personal pressure (Kuiken & Vedder, 2020).

Introductory Courses on Academic Integrity – Or Lack Thereof in Higher Education

It is worth exploring what can be done from an institutional point of view to influence a student's decision to breach academic integrity. The rationale behind such a move takes into consideration the different K-12 education systems worldwide and the transition to westernised university studies (Braxley, 2005; Gurel Cennetkusu 2012).

There are many factors that contribute to the deficit experienced by students in their transition into HE. However, this study focused on filling in the considerable and substantial gap of skills and knowledge about academic writing and academic integrity, and their appropriate application. In most high schools worldwide students are not taught the main concepts behind academic writing skills and academic integrity. According to a study published by the Chronicle of Higher Education (2006), students in high schools may be required to undertake extensive reading. Despite this, many students are unaware of the conventions related to the structure, format, and specific language requirements of academic writing, as well as referencing practice and avoidance of plagiarism.

Institutions of higher education require careful consideration about what level of academic writing skills and other attributes their undergraduate students need to acquire to successfully complete their degree programme. Moreover, a search into open access programmess offered by some universities has yielded very few

introductory courses on academic integrity, and remedial courses for academic writing (Callahan & Chumney, 2009; Kuiken & Vedder, 2020). Venugopal and Khan (2020) posited how some students find it difficult to cope with expectations of academic writing and knowledge of academic integrity policies in higher education.

Similar observations were recorded for students in K-12 by Braxley (2005) and Gurel Cennetkusu (2012). In fact, a George Washington University study (2007) reported that school students were often not required to write with synthesis or criticism; similarly, The Chronicle of Higher Education published a study (2006) that found students did not necessarily practice academic writing in school (as quoted in CMU Eberly Centre, 2021b).

Existing Academic Writing Modules in Higher Education

Majority of English medium universities worldwide consider English language abilities of their students as a substantial component for a successful academic experience (Hysaj & Hamam, 2020; Teng, 2021). Particularly, some international students are generally required to attend academic study skills classes to improve their study and research abilities (Hysaj & Hamam, 2020; Hysaj & Suleymanova, 2021). Although academic integrity is and should be equally considered as crucial for students' academic progress, it is not generally valued as such (Khazrouni, 2019; Hysaj & Hamam, 2020; Hamam & Hysaj, 2021). A variety of English medium universities worldwide focus on supporting or even scaffolding academic writing skills of students without necessarily paying attention to the development of an appropriate academic integrity culture (Hysaj & Suleymanova, 2021; Teng, 2021; Truong & Tran, 2022). Hence, although adequate attention may be paid to the introduction of academic writing like essay, reports and projects, there is often no focus in the development of critical and analytical thinking to avoid plagiarism, importance of cohesion between the work of the students and external voices of researchers, or the understanding of strong correlation between the lack of awareness of what constitutes plagiarism and the process of gaining academic writing skills that are inclusive of an appropriate academic integrity behaviour (Hysaj & Suleymanova, 2021; Teng, 2021; Truong & Tran, 2022). Table 15.1 provides examples indicating the lack of focus on academic integrity and insufficient development of academic writing skills. The information in the table was taken from open-access websites of universities in various countries during 2021: Cornell University (USA), University of Melbourne (Australia), Elizabethtown College (USA), University of Birmingham (UK), and University of Toronto (Canada). As seen below the focus of institutions is to empower students with the basics of academic study skills without explicitly considering academic integrity awareness and development of a culture of academic integrity.

Table 15.1 Academic writing skills modules: comparison of learning objectives, content, and gap

Name of educational institutions	Academic Writing Learning Outcomes	Academic Writing Content	Lacking concepts related to academic integrity
Cornell university	To create awareness about the dissertation writing format and to apply it efficiently.	Academic Writing programs/ writing boot camps	There is no evidence of correlation of existing content delivered and awareness of concepts of academic integrity.
	To create awareness about the thesis writing format and to apply it efficiently.	Each writing boot camp includes group meetings, individual coaching and writing support, and at least four hours of writing each day.	Critical and analytical skills are not part of the learning outcomes (LOs) or the content delivered.
	To create awareness about the proposal writing format and to apply it efficiently.		
University of Melbourne	To explore ways of writing reflectively	Combining efficiently the use of reflective and academic style of writing	There is no evidence of correlation of existing content delivered and awareness of concepts of academic integrity.
	To efficiently write academically by creating and improving your academic style.	Analysing the task by using the direction words. Analysing a task in the right way to meet the task requirements and prevent you from going off-topic in exam responses	Critical and analytical skills are not part of the LOS or the content delivered.
	To develop clarity and focus in academic writing to create a smooth flow of thought.	Academic writing aims to be clear and precise, with a direct style that moves logically from one idea to the next.	
	To aim the development of originality	Explore the concept of originality at different levels of university study, and provides techniques to help you open your mind to new ideas.	
	To develop effective ways of connecting ideas in academic writing	Suggestions for connecting ideas at the sentence and paragraph level in academic writing. Academic writing in English has a distinctive style of formality and uses a particular language format.	

Table 15.1 (continued)

Name of educational institutions	Academic Writing Learning Outcomes	Academic Writing Content	Lacking concepts related to academic integrity
Elizabethtown college	To encourage students to develop effective academic study skills	Encouraging students to develop good study skills requires appropriate assessment of the areas where students need help.	There is no evidence of correlation of existing content delivered and awareness of concepts of academic integrity.
		Helping students develop the techniques for taking a test, or more importantly, how to overcome test anxiety.	Critical and analytical skills are not part of the LOs or the content delivered.
		Give to students' ideas on how to prepare for tests and share with the student the benefits of looking at a returned test.	
		Support students who have poor reading skills by providing them with handouts which could improve their reading skills.	
University of Birmingham	To support students learning by providing scaffolding for their academic study skills e.g. writing, time management, research and digital writing skills	The learning hub (academic Language and learning) offers online individual consultations to provide support on areas such as: Writing assignments, understanding assignment feedback, time management and study skills, thesis writing, research and digital writing skills.	There is no evidence of correlation of existing content delivered and awareness of concepts of academic integrity.
			Critical and analytical skills are not part of the LOs or the content delivered.
University of Toronto	To support student with the below items:	Understand the expectations for reading and writing assignments in post-secondary (university, college, institute) courses.	There is no evidence of correlation of existing content delivered and awareness of concepts of academic integrity.
	Planning and setting goals	Understand and apply general strategies to complete post-secondary-level reading assignments efficiently and effectively	Critical and analytical skills are not part of the LOs or the content delivered.
	Organization and time management	Recognize specific types of writing assignments frequently included in post-secondary courses	

Table 15.1 (continued)

Name of educational institutions	Academic Writing Learning Outcomes	Academic Writing Content	Lacking concepts related to academic integrity
	Assignment tracking and management	Understand and apply general strategies for managing post-secondary-level writing assignments	
	Effective and critical reading skills	Determine specific reading and writing strategies that work best for you individually	
	Note-taking strategies		
	Memorisation techniques		
	Using IT and software effectively to assist learning		
	Test-taking and exam strategies		

Research Objective

Recognising this possible gap in students moving from K-12 to tertiary education, our research objective was to design and implement a transitional module for K-12 students transitioning to tertiary education and record its effectiveness.

United Arab Emirates (UAE) and Its Education Sector

As academics residing in the UAE, we feel it is important to highlight the education sector in the country, the international nature of student population, schooling systems and student mobility both into and out of the country to western universities to further explain the gap we have found.

The United Arab Emirates (UAE) is a young nation, celebrating 50 years in 2021. It is made up of seven emirates (states) – Abu Dhabi, the capital, Dubai, Sharjah, Ajman, Umm al Quwain, Fujairah and Ras Al Khaimah. The emirates united in December of 1971 to become one nation, and by 1976 had the first higher education institution.

UAE's Global Competitiveness Index Ranking for primary and higher systems ranks it among the top 20 globally (Jeffery & Hancock, 2021). With an education system that goes from preschool to primary, secondary, high school and then bachelor degrees, masters and/or PhD, with a split of public and private schools and universities. Estimates show "70% of school students were in private schools in

2017–2018, while 66% of higher education students were in private universities" (Statista, 2021, para. 3).

The public schools are funded by the government, which matches the country's goals and visions such as Vision 2030, and Next50, while the private schools are as diverse as the country's expatriate population that makes up about 80% of the country's total population, showcasing nationalities from over 200 countries living and learning in the country (UAE, 2021a).

The government focuses on education as a primary sector for investments and developments to offer quality education with quality agencies such as the Abu Dhabi Department of Education and Knowledge (ADEK), Knowledge and Human Development Authority (KHDA) in Dubai, the Sharjah Education Council and the umbrella UAE Ministry of Education (MOE) (UAE, 2011). The education sector represents not only UAE curricula, but also Indian, Pakistani, Bangladeshi, German, British, American, Swiss, Iranian, and so on teaching a variety of subjects from the basic Maths, English, Science to physical education, Islamic Studies, ICT, Social Studies, Moral Ed, Business, Marketing and so on (UAE, 2021b). A study has found that 77% of expatriates living in the UAE and educating their children through K-12 in the UAE prefer to send them abroad to the UK, USA, Australia, Canada and other western countries for higher education (Alafrangi, 2005). Apart from expatriates, UAE national students going abroad increased by 31% between 2012 and 2016 alone (Shukla, 2020). As shown in Table 15.1, some tertiary education institutions do not necessarily teach academic integrity and writing, whereas, we have also seen evidence from literature that there exists a gap in international students joining western universities, facing allegations of misconduct, among others.

In order to address the research objective, we designed a transitional module for K-12 students in the UAE.

Designing Transitional Modules

Butcher et al. (2006, 2020) provide extensive nine-step guidelines on how to develop a module for learning and observations. In this section, we apply the steps to show how we developed our module.

The first thing that Butcher et al. suggest is to think about the students, total number of students and generally to develop an understanding of the education sector.

The education sector in the UAE was described above, as UAE is the field of study and where we are planning to implement and trial the module. Furthermore, taking into consideration the research gap identified, the module to be designed then must target students who are transitioning from one phase of education to the next, for instance, high school students close to graduating and moving to tertiary education.

STEP 1 – How Teaching Fits the Bigger Picture

It is important that we reflect on why and how what we wanted to teach would fit the bigger picture in terms of higher education and the student future and be value-added. The prior sections of this chapter have outlined the significance of this study, the gap and the need for such a module. At this stage, we also identify that the level of the module is as a "transitional" module to prepare students about to start their higher education studies for the "next stage" of their education career.

STEP 2 – What Students Are Supposed to Learn and Able to Do

It is crucial to be able to provide concise, clear, achievable, and measurable learning outcomes that give students an idea of where we are trying to get them to. Burge (2019) suggests using Bloom et al. (1956)'s taxonomy of objectives which uses a hierarchy to push from surface learning to deeper learning, which, despite criticisms, is a good model to use to draw up learning objectives (see Fig. 15.2).

Fig. 15.2 Possible terminologies to use to develop learning objectives adapted from Bloom et al., 1956 as qtd. In Burge, 2019

Based on this understanding, the first author developed the following intended learning outcomes:

On completion of this module students should be able to:

L1. Define academic integrity and how it integrates with all aspects of teaching and learning
L2. Identify characteristics of academic integrity and how they influence student behavior inside and outside of classrooms
L3. Explain how academic integrity informs and drives ethical decision making in the workplace
L4. Describe how lack of integrity impacts on education, quality of degrees and professionalism
L5. Investigate and identify types of academic misconduct with examples
L6. Recognise whether a body of work is based on original ideas and thought versus whether a body of work has been taken from or inspired by someone else's intellectual property (IP)
L7. Navigate through primary and secondary sources and apply academic writing skills to different bodies of work in order to quote, paraphrase or summarize other work(s) with appropriate acknowledgement

The transitional module had three components and was supposed to explicitly teach academic integrity values and academic literacy skills. Below we describe how the three components were developed:

Component One – Explicit Lessons on Academic Integrity Topics

Although prior to the twentieth century, schools and universities focused on teaching character development explicitly, this practice changed and narrowed to focus more on writing, reading (Narvaez, 2006), promoting critical thinking and reasoning with more implicit approaches to such moral education (Rath et al., 1976). However, theories have emerged that support neither one or other, but an integrative ethical education approach that draws from various philosophies and approaches, such as Lickona (1991), Berkowitz (2002), Benninga (1991), who have all advocated for a bridge between focusing on teaching character development and writing and reading. Some of these include approaches based on rule ethics that basically focus on right to do given a situation or dilemma (Hare, 1963; Frankena, 1973) contending to use the Cognitive-Developmental Approach, to teaching values (Kohlberg, 1981), making it more reflective, using moral development from Piaget and so on. Another approach was character ethics that focused on the nature and attributes of life (McDowell, 1997; Anscombe, 1958) and tended towards depending on core values. Narvaez (2006) proposed the following framework when making considerations in teaching ethical values or value education as a bridge between the two approaches (see Fig. 15.3):

The model in Fig. 15.3, as explained by Narvaez (2006), is built on developing expertise through teaching of "process and skills of moral behaviour" (p. 716),
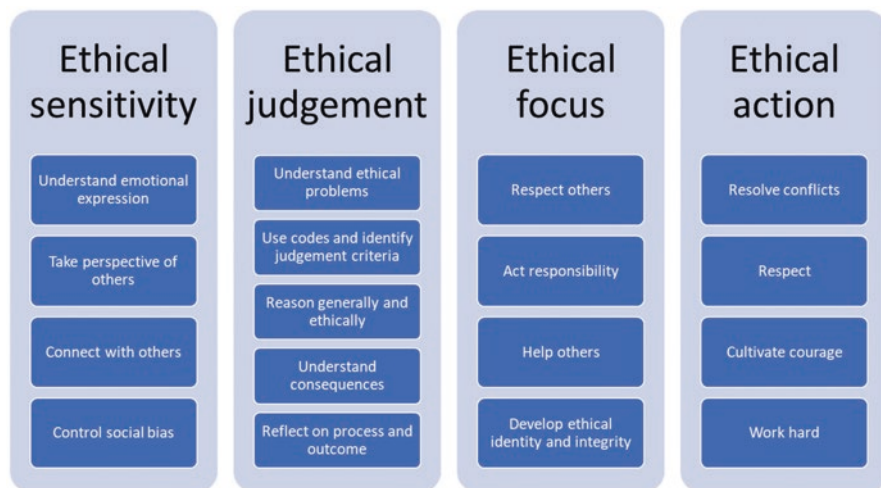
Fig. 15.3 Integrative Ethical Education adapted from Narvaez, 2006

"virtue and reasoning" (p. 718); making the learning transformative and interactive through "well structured environments" (p. 720), "instruction to move students from naivetee to competence in ethical know-how" (p. 721); and believing all are cooperative and self-actualizing through "building communities" (p. 722), fostering "self-regulation and community membership".

The Integrative Ethical Education framework informed our process of developing the first component of the module to include below topics:

• Introduction to Academic Integrity Values, Basic Workable Ethical Theories (Quinn, 2006)
• Importance and Impact of Values or lack thereof on Student Career Path with case studies, role plays, peer evaluations and discussions
• Student Responsibility and Preparedness using reflective assessments, mostly self-regulated

Component Two – Academic Writing and Literacy Topics

Students as learners learn through hands-on activities that challenge their critical and analytical thinking skills, as well as their metacognitive processes of collaboration, tolerance, integrity, and coordination (Devi, 2019; Hamam & Hysaj, 2021). The materials used for the workshop were based on the theories of cognitivism and socio-constructivism that are known to have a positive effect in the learning process of multicultural students particularly considering K-12 students in the UAE (Hapenciuc, 2019; Newman & Latifi, 2021). Coordination of individual abilities with those of group activities encourages the team spirit of learners and empowers

them with a collective knowledge that is equally based on academic integrity concepts and metacognitive concepts (Hysaj & Suleymanova, 2021; Hysaj & Elkhouly, 2020). Furthermore, the awareness of what constitutes academic integrity and why is it inappropriate to plagiarise is considered by researchers as the missing tile in the thought development of learners and the one that connects the learning of academic writing skills with the application of academic integrity in academic writing (Crook, 2019; du Rocher, 2020). Finally, and most importantly, the choice that informed the process of designing the individual and group tasks for the component was active and interactive engagement of learners in the learning process. Taking ownership for the errors and successes created an atmosphere of clarity of action and collaboration with the intention to learn about academic integrity and apply it adequately in all learning tasks. Thus, the topics for this component were as shown below:

- Introduction to Academic Writing
- Identifying sources
- Citation and Referencing
- Paraphrasing skills
- Demonstrations of text-matching software as educational tools

Component Three – Reflection and Ambassador Program

A role model is any person who is admired and liked by others, and whom others try to copy (Cambridge Dictionary, 2022). Role models are quite beneficial in inspiring others, particularly learners (Murphey & Murakami, 1998). Informed by Bandura's social learning theory (1977), role models are known to have significant influence on teaching and learning (Horsburgh & Ippolitom, 2018). This means that when role models are used, learners internalise the values and content and then reproduce the behaviour themselves because learning happens in a social context. Bandura proposed that this happened in four stages – attention, retention, reproduction and motivation (1977). This means, when using role models, we also need to consider the four stages. This informed our last component of the module – Reflection and Ambassador Program followed by a "badging" ceremony.

Furthermore, we found that using "near peers" as role models (NPRM) has gained considerable popularity in recent years. NPRMs are those who are basically in the same sphere as the inspired person, eg. students in the same classroom, same gender, cultural background and so on (Murphey & Arao, 2001). Studies have posited that NPRMs have significant impact because people are able to relate to them better which automatically leads to more influence and impact, particularly when considering their pedagogical value in a learner environment (Muir, 2018; Curry, 2018). More significantly, Bandura claimed that a person's ability to self-motivate could affect all parts of their life (1997) and Murphy and Arao extended that to posit how using NPRM helped bring about a positive effect (2001).

Given the above framework, we developed the last component to include a writing assessment that would be reflective, without any supervision or invigilation, and would then be graded by peers and teachers who will give feedback. Following this, we would then introduce the students to the ambassador program, introduce them to the student ambassadors before them who would share their experiences being ambassadors of integrity in their own schools. Finally, we have students join in a badging ceremony marking their transition to becoming NPRMs themselves:

- Demonstrative and reflective writing assessments
- Ambassador program and benefits
- Badging Ceremony

STEP 3 – Match Content to Outcome

Using Harden's (1986/1999) guideline as described by Butcher et al. (2006) on content selection process, we looked at the following to guide us:

1. mainstream content that is mapped to the learning outcomes for our module, this was definitions, types of misconduct, and so on
2. precursor content that refers to prior knowledge needed for some part of the module – we used this type to build on every day' content and skills taught as follow up activities or self-directed study
3. opportunistic content that refers to content that can be core or value added and helps provide opportunities – this was a particularly inspiring type because we used this guideline to create classroom games, for instance that helped students realise who he "victims" of misconduct were through exercises and illustrations
4. supportive content refers to anything that helps to explain other parts of the module and we used this guideline to develop case studies and stories.

We further mapped the learning outcomes to the contents and schedule as shown in Table 15.2:

Table 15.2 Mapping topics and content to learning objectives

Day	Topic	Learning Outcomes
Day 1	Introduction to academic integrity, importance and impact on Student career path, Student responsibility and preparedness for the next stage of career	1, 2, 3, 4
Day 2	Training on academic writing, with workshops on citation and referencing supported by demonstrations of software tools that aid in such work	5, 6, 7
Day 3	Competition, certificate distribution and cascading model for ambassadors	1–7

STEP 4 – Is Teaching and Learning Method Appropriate?

The next step was to design the method of teaching and learning. We wanted to use methods that would be student-centric, allow greater autonomy for students when engaging with the content and most importantly making them independent learners. Instructional design is complex, time consuming and tedious to say the least as it requires a careful consideration of all aspects of teaching and learning and furthermore, it relies on constant change and amendment. The consideration that we gave to instructional design for the K-12 students transitional module was based on:

- the intended learning outcomes,
- the platform on which learning took place which in our case was the online platform,
- two main learning theories: cognitivism and socio-constructivism that support individual learning and group learning of multicultural students

and considered them all when focusing on the development of academic writing skills, understanding, and applying academic integrity and upholding morals of hard work and honesty.

It is worth mentioning here that we needed to consider the limited time offered by the module, the level of exposure to academic writing and academic integrity of the learners and the concentration span of K-12 learners in the online platform. Although cognitivism and socio-constructivism require very hands-on activities (Amineh & Asl, 2015), we applied lectures and workshops to introduce the concepts, created the link between learners' previously accumulated knowledge and build on it to create life-long newly accumulated knowledge. According to Zimmerman (2002) and Hoban et al. (2005) learners require understanding of concepts prior to bonding with the material being taught. Therefore, lectures and workshops serve the purpose of creating the sense of understanding that paves the path to active engagement with the process of learning. Sankey (2020) in his well-known article, recognising pedagogical goals prior to technological ones, highlights the need to utilise the online platform while recognising the needs of learners. Hence, the tutorial and self-directed activities were chosen to direct our K-12 learners towards the process of self- awareness and self-confidence. When considering aspects of integrity and growth self-awareness, bonding with the matter and most importantly self-motivation and self-esteem are crucial in providing learners with an adequate platform to learn, associate and grow (Peters, 1966; Perry, 1999; Pearce, 2016; Reimann, 2018); therefore, learning tasks like role-plays were deemed as appropriate as they offer to learners the possibility of thought negotiation, reflection and presentation, which contribute to active engagement and life-long learning (Sankey 2020; Hysaj & Hamam, 2020).

STEP 5 – Do Assessments Match Outcomes?

We were clear on why we wanted to assess the students throughout this module, not just through an end-test, but as a continuous effort and how we would go about doing it. We looked closely at formative and summative assessments and the importance of assessing students. CMU Eberly Centre (2021c) has stressed the importance of using these types of assessments. Formative assessments are used "to monitor student learning to provide ongoing feedback" (CMU Eberly, 2021c, para. 1). Summative assessments are high stakes assessments "to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark" (CMU Eberly, 2021c, para. 2).

We designed the assessments by deciding whether they were supporting learning or for judging student's achievement and mapping to learning objectives (Butcher et al., 2006, 2020). We had:

- Jeopardy (summative, judgement, LO 1, 2),
- Written role swap activity (formative, supports learning, LO 3, 4, 6),
- Reflective discussion (formative, supports learning, LO 1–4),
- Kahoot quiz (summative, judgement, LO 1–4),
- Real world case study (formative, supports learning, LO 1, 3, 5),
- Debate (formative, supports learning, LO 2, 4, 5),
- Writing exercises (formative, supports learning, LO 6, 7),
- Final written essay exam (summative, judgement, LO 2, 4, 6, 7).

STEP 6 – Are Learning Materials and Resources for Diverse Learners?

Most of the materials were created by the first author for the module to mould the content to suit the target population. Our background study showed the target population was very diverse, so we needed to ensure the material we developed would be adaptable to all students with support from multimedia as follows:

- Using wide variety of visual aids such as videos, graphical data, images,
- Using textual data,
- Using podcasts,
- Using demonstrative methods such as physically accessing a book to try to cite it.

In addition, we created handouts and take-home notes and newsletters for students that not only summarised what was taught that day but also provided an overview of the next day's activities and included practice exercises.

STEP 7 – Are Learners Supported?

The modules were first designed, then details recorded and sent out as part of invitation to schools to invite students to join. Once students registered, they were tracked and welcome packs sent out with details of the module, what to expect, terms and conditions, and so on.

Each day the module began with a pledging ceremony.

The module was divided into sections, each section began with an overview of what was to come and ended with a review and summary. This was to ensure students were aware of not only the course, but also the rules and process of the host campus and the class itself.

This approach ensured we were able to provide the students with both integrated pastoral and academic care as suggested by Butcher et al. (2006, 2020).

STEP 8 – Is the Course Being Managed?

We developed a module to help students bridge the identified gap. It is important to assure quality of the module and to check if the students are well supported (Butcher et al., 2006, 2020). Once the module was developed it was submitted to the Associate Dean (Education) and Dean for verification, quality assurance and approval.

For further managed consideration of the course, a cloud server was used to save all course documents, with precision folders created that gave access to students to view the documents pertinent to their stage of learning during the module, with quality assurance folders keeping a record of students' submitted work and feedback provided by facilitators.

STEP 9 – Does the Course Work?

The next sections detail the implementation and evaluation process for the modules, with results and analysis.

Module Implementation

The first author conceptualized the learning module to raise students' awareness on integrity values, misconduct, and behaviour; and the second author developed the module on providing skills in academic writing.

We designed a nine-hour module with three distinctive components for school students to help prepare them for the next level. As part of the registration process,

a Terms and Conditions document was developed with aid from the legal team of the host campus. This document acted as an information sheet and consent form that incorporated the school and guardian(s) providing explicit consent to the use of the following information for educational, publication and promotional purposes from the module:

- Photograph, video shoots, screen grabs,
- Comments and opinions shared,
- Survey responses given,
- Assessments submitted.

The module was organised for two iterations, once in 2019 with colleagues from the host campus, University of Wollongong in Dubai (which acted as a pilot and trial) and second time in 2021 as a virtual camp with authors and student board members as part of the Centre for Academic Integrity in the UAE initiative to support the community. This chapter focuses on the second iteration from 2021 and its impact (UOWD, 2021).

The pilot was run in 2019 and helped test the validity of assessments such that the designed assessments were either helping to judge student learning or support the learning process. Butcher et al. (2006) suggest that reliability can be "objectivity, accuracy and repeatability" (p 98). To do this, we ensured instructors were trained and the marking rubric explained so everyone was able to mark the students at the same level and using the same standard. Similarly, repeating the module in 2021 helped to determine the accuracy and repeatability of the assessments.

Measuring Impact Through Assessments and Feedback

To measure whether the module was effective, we developed a short feedback form (happiness indicator) using a 5-point Likert Scale.

37 students out of 52 responded to the request for feedback. These students ranged from grades 6–12 and had parental consent to attend the module and provide feedback. 94.6% students felt confident about their knowledge regarding academic integrity after the camp. 67% of the participants enjoyed listening to real life experiences and circumstances faced by the facilitators. Students also *"enjoyed learning about academic integrity, paraphrasing and citation", "enjoyed the way everyone collaborated in saying the answers and how the teachers explained us easily with their own experiences", "enjoyed the breakout room sessions in which a group of students gathered and did various activities and debates", "enjoyed how we were able to learn about Academic Integrity when having fun".* This is illustrated in the word cloud in Fig. 15.4.

Students shared specific things they learned from the sessions that they didn't know before, such as "referencing", "paraphrasing", "values of academic integrity", "what to do and what not to do".
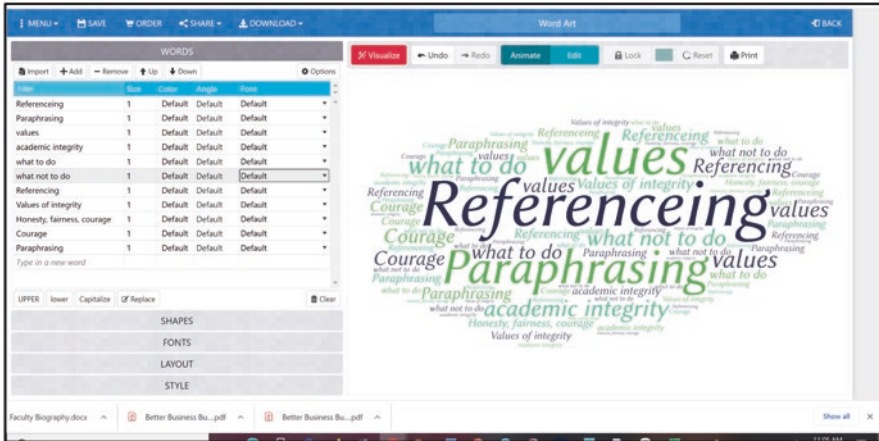
Fig. 15.4 Word cloud developed to summarise some of the feedback from attendees

Overall, about 62.2% rated this camp a five out of five with 32.4% rating four and remaining 5.4% rating a three out of five. 94.60% of the students felt confident about their knowledge of academic integrity after attending the camp, and 67% said they enjoyed listening to the real-life experiences.

Furthermore, the writing contest acted as a summative assessment of skills in academic writing, and continuous assessments throughout the three days in the form of individual and group work helped gauge students' level of learning. For instance, an online quiz on "practicing integrity" tested students' knowledge and understanding. 47 out of 52 students took the test (response rate of 90.38%). 6.38% of students did not complete the test, 58% scored 100%. The question with the least number of correct responses was "I asked to borrow my friend's homework as my parents had a party and I could not complete my work". In discussions, they said "asked to borrow" did not necessarily mean cheating or copying. This provided a further learning opportunity.

The feedback from attendees, summative and continuous assessments high-lighted both student perception of their competencies and how they learnt in terms of developing skills on academic integrity and writing.

Conclusion

There are barriers to students relocating and making the most of the opportunity of pursuing further studies wherever they decide to pursue it. These can range from cultural and language issues to classroom culture and varying degrees of exposure to content and expectations in terms of policies, legal and ethics understanding and so on. These barriers can result in differences in prior knowledge, concerning aca-demic integrity and academic writing skills. While prior knowledge is crucial to

jump start tertiary education and many institutions recognise the importance by offering introductory or remedial courses, we have seen that many universities even in the western world do not provide such courses on academic integrity and writing skills.

Recognising this gap, we proposed to develop a transitional module following guidelines by Butcher et al. (2006, 2020). This chapter tracks the process we used step by step in developing the module, its implementation and evaluation of effectiveness through feedback and assessments students participated in.

The findings highlight how this kind of transitional module can indeed be effective in helping students to better understand academic integrity values and begin to realise the importance of academic writing skills. The structure, badging ceremony, and ambassador's roles in raising awareness and inviting more students to join such a module in the future led to greater levels of engagement. We aim to follow up the progress of the students who attended, by annually tracking their experience with academic integrity and writing to observe and record whether the module had the desired effect of enhancing their "prior knowledge" as they progressed to higher studies and hope that more institutions and academics will adopt the module to help transition students through their academic journey as next level preparedness.

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Chapter 16
Compromising Academic Integrity in Internationalisation of Higher Education

Erja Moore

Abstract Academic integrity and internationalisation of higher education are themes widely covered in research. This paper focuses on integrity in academic writing in master's theses within internationalisation of Finnish higher education. The data consist of a sample of 28 English language Master's theses accepted in Finnish Universities of Applied Sciences in 2020. Accuracy of reference lists and in-text references were analysed, and theses were categorised into four categories accordingly. Deviations from integrity in academic writing were thematised.

Referencing was found to be accurate or contain minor inaccuracies in 13 theses (46%). In 15 theses (54%) inaccuracy of referencing was constant, references were misleading, or the thesis contained plagiarism. Among various themes of inconsistency, a new pattern of internationalisation of plagiarism was detected. The results are in line with previous results on accuracy of referencing and plagiarism in theses. The results are in sharp contrast with the education policy discourse of high quality of higher education in Finland. The study calls for increased quality orientation in Finnish higher education and evaluation of contents and outcomes of higher education programs that are offered to degree-seeking international students and as internationalisation at home.

Keywords Master's thesis · Internationalisation of higher education · Academic integrity · Academic writing · Plagiarism

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Introduction

Internationalisation of higher education has expanded greatly and it is one of the major forces shaping higher education today. Knight's (2008, p. IX) definition of internationalisation of higher education, "*process of integrating an international, intercultural, and global dimension into higher education's major functions and delivery modes*", is widely used in educational research. The international dimension of higher education has become more important and at the same time more complex. Internationalisation emphasises relations between and among nations (Knight, 2008), and thus every university student studying abroad is at the time a 'foreign student'. Internationalisation at home is another aspect; it involves internationalisation issues embedded in the curriculum.

Yemini and Sagie (2016) show in their systematic literature review on internationalisation of higher education how the number of research publications expanded rapidly after the turn of the century. The most common topic in the articles was internationalisation at home, and in a narrow sense internationalisation has meant the use of the English language in teaching. There is wide research evidence on the use of English as a second language (ESL or L2) in higher education and the challenges university students face. Hyland (2017, p. 24) states that *"the massive expansion of English as the academic lingua franca has meant that many students around the world are studying their subjects in a L2"*. Within internationalisation efforts in countries with other national languages, English medium instruction (EMI) has become dominant (e.g. Yao et al., 2021).

Internationalisation of higher education in Finland has broadened in the twenty-first century. Finland offers higher education to international degree-seeking students and follows the principles of internationalisation at home (Weimer et al., 2019). In 2019, ten percent of students in Finnish higher education were foreign language speaking students (Statistics Finland, 2020). Both Finnish and foreign students are encouraged to apply for higher education programs taught in English, but there are no statistics available of the number of students studying in English language programs.

This chapter focuses on integrity in academic writing in master's theses within internationalisation of Finnish higher education. The first aim of the study reported in this chapter is to investigate how accurate referencing is in master's theses and to what extent students follow the principles and practices of academic writing. The second aim is to clarify the deviations of academic integrity and writing in master's theses.

Academic Integrity and Academic Writing in Master's Theses

A frequently used definition of integrity is the one presented in Cambridge Dictionary (n.d.-a): *"the quality of being honest and having strong moral principles that you refuse to change"*. The content of academic integrity is defined and

explained in RCR-guidelines (Responsible Conduct of Research) provided by the Finnish National Board on Research Integrity TENK (2012). Academic writing as such is not mentioned, but students, teachers and researchers are supposed to take "*due account of the work and achievements of other researchers by respecting their work*" and "*citing their publications appropriately*" (TENK, 2012, p.30). The guidelines were originally written in Finnish, Swedish and English, but later translated also into Chinese, Russian and Spanish.

A master's thesis is an internationally known educational concept. Cambridge Dictionary (n.d.-b) definition for a thesis is: "*a long piece of writing on a particular subject, especially one that is done for a higher college or university degree.*" A Master's thesis can be defined as the student's final work before graduation, a writing that displays and proves the knowledge and qualification of the graduate. In the European Qualification Framework education outcomes are defined on eight levels, Master's being on level 7. The EQF (2017, p. 7) requires that in each country qualifications are assessed and validated by a competent body that "*determines that an individual has achieved learning outcomes to given standards*". When we look at master's theses we know "*what to expect from the holder of the qualification, in terms of knowledge, skills and competences*" (p. 8).

It is a given that before entering the university, the student has fluency with reading and writing and understanding language. In a master's thesis, the student is expected, at the end of the studies before graduation, to write a unique text about the chosen subject and follow the principles of academic writing. The thesis text "*demonstrates knowledge about the subject area, supports opinions and arguments with evidence, and is referenced accurately*" (University Library of Leeds, n.d.). Academic writing manuals are aimed to guide students to write their own texts and give detailed instructions on how to cite and quote sources. The manuals also guide the student on how to write a consistent bibliography or reference list.

Referencing is an essential part of academic writing, and the importance to accurately quote and cite sources is highlighted in research on thesis writing (e.g. Jomaa & Bidin, 2017; Perkins et al., 2018). Accurate and consistent references give credit to original authors and offer the reader a possibility to find the source and read more about the subject. Pecorari and Petric (2014) present the vast research evidence of problems L2 higher education students encounter in academic writing and refer to possible cultural differences among students in understanding and following the western standard of academic writing. Breeze (2012, p. 156), also, is concerned by the lack of "*a full understanding of the way that different types of people approach the challenging task of writing in an L2*", and finds evidence that before becoming a more confident user of English language in writing, L2 students engage in patchwriting, i.e. making changes and substitutions in copied text. Yao et al. (2021) studied students' perceptions of EMI and interviewed university students (n = 49) in three Vietnamese transnational universities. The students had problems understanding lessons in English especially if lecturers were non-native speakers themselves. Lack of understanding of the taught subject caused difficulties in speaking and writing in English and EMI in itself was seen to be a barrier for learning.

In Petric's (2012) study, the use of direct quotations was compared between high-rated and low-rated second language students' master's theses. The authors of the theses were from Central and Eastern Europe studying at an English-medium university in Central Europe. The findings showed that high-rated theses displayed more direct quotations than low-rated theses. However, there were differences in the type of quotations: high-rated theses primarily used shorter quotation fragments embedded in the student's own writing while low-rated theses used longer quotations with less modification. Doğan et al. (2018) studied citation transformation practices in 34 theses written in English, 17 by English as first language (L1) writers and 17 by English as second language (L2) writers, whose native language was Turkish. Text similarity detection software was used in analysis. Turkish L2 writers used direct quotation nearly three times more than English L1 writers. There were significant differences also in the practice of patchwriting, which was hardly ever noticed in L1 writers' theses (15 incidents), but in Turkish writers' theses a large number (n = 675) of patchwriting incidents were detected.

Citation practices among six Arab postgraduate students who wrote their research proposal in English as a foreign language (EFL) were studied by Jomaa and Bidin (2017). They interviewed the PhD students with a focus on the citations in the research proposals' literature review. The findings reveal that EFL Arab students lacked both awareness of using citations and advanced skills in academic writing. Challenges in citation included finding credible information from the sources, insufficient knowledge about using citations, and second language difficulties.

Digitisation of literacy and writing has had a significant impact on the way students in higher education find and use material in their studies. There is no need to visit the library on the campus to read printed academic journals or borrow books as the worldwide libraries have come to students' laptops, tablets and smartphones in the form of electronic library services (Moore, 2010). Mangen and van der Weel (2016) point out that screens are replacing paper in reading and writing, and digitisation is influencing literacy activities in all levels of education. Many higher education institutions offer the student a possibility to use an electronic reference management system that helps formatting in-text references and the bibliography. If used appropriately, there is consistency between the in-text references and bibliography in the thesis. Among other technical solutions to ease the student's academic writing are online learning environments guiding students step by step to write a thesis. Computer-assisted writing instructions can be combined with an online editor (Rapp & Kauf, 2018) assisting with references. Artificial intelligence (AI) solutions are available for thesis writing for example with the promise of finding the suitable sources for any text from millions of publications (Straume, 2021).

Deviations from Academic Writing

Sloppy referencing (inaccuracy and inconsistency of referencing), lack of source criticism and different patterns of plagiarism can be seen as deviations of academic writing. While there is a vast research base concerning students' and teachers'

conceptions of plagiarism, different patterns of plagiarism and self-reported or presumed reasons behind plagiarism in different countries and different fields of study, there is less evidence on how students master academic writing in theses or how much deviation from the principles of academic writing is being accepted in theses.

Some research evidence on accuracy of referencing in theses is available from different parts of the world. Harinarayana et al. (2011) analysed the citation accuracy of all references in five psychology doctoral theses accepted at the University of Mysore. The errors were classified to be major (errors in journal, book or author name or errors in publication year, volume or pages) and minor (punctuation and format errors). The results showed that 77 percent of references had citation errors, and major errors were found in 40 percent of cited references. Yap et al. (2018) calculated the errors in reference lists of 77 master's theses published in one university in Kazakhstan on five different study fields. They also found the error rate to be high, as 51–84% of the references had errors. The most common type of error was incomplete citation.

There have been efforts to estimate the prevalence of plagiarism in a few studies by analysing the rate of self-reported plagiarism (Curtis & Vardanega, 2016), rate of plagiarism incidents in the university (Perkins et al., 2018) and analysing actual thesis texts (Moore, 2014; Ison, 2018).

Curtis and Vardanega (2016) surveyed self-reported illicit paraphrasing among arts and business students (n = 120) in Western Sydney University. Illicit paraphrasing was admitted by 34 percent of the respondents. The majority of students (64,2%) reported some form of plagiarism during their studies. Perkins et al. (2018) refer to a number of studies suggesting a link between English language ability and plagiarism. They studied the connection between non-native English speaker (NNES) university students' (n = 244) language ability and incidents of plagiarism in British University Vietnam. Based on university records of plagiarism, 18 percent of students had plagiarised during their studies. English language ability of students was negatively related to plagiarism: those with poorer language skills committed more plagiarism offences. In Finland, in electronically published theses in 2012, plagiarism was found in 12 percent of theses (n = 91; Moore, 2014).

Ison's (2018) study aimed to gain a global view on plagiarism in theses. The data consisted of randomly chosen PhD and master's theses (n = 266) written in English and published electronically in universities in different parts of the world. Theses in the sample were from seven different areas globally. The theses were analysed by using Turnitin, with references and quoted material removed. The mean similarity index globally was 25,1 percent. It was lowest in Western Europe (20,6%) and USA (22,7%) and highest in India (32,5%). Ison concludes that there has been a lack of empirical evidence of the incidence and levels of plagiarism. His study shows that plagiarism in theses is still a significant concern across the globe.

Skaar (2015) and Wrigley (2019) have paid attention to the use of the internet while writing essays during studies. Skaar (2015) used the concept of *pseudo-writing* while he described how upper secondary level students in Norway wrote when they had an option to use the internet. Writing can be replaced by pseudo-writing in which copied material reduces students' work as copied text is

incorporated into their own writing. Wrigley (2019) has developed the concept of *de-plagiarism* based on the observed change in the quality of student writing and dependence on the Internet and electronic sources. Electronic plagiarism detection in higher education has affected and changed students' writing and led to a de-plagiarism writing strategy, which means that first students copy suitable texts from the internet, and then cleanse the text to avoid similarity in plagiarism detection.

Plagiarism detection software has been used for twenty years in higher education, and opinions of its usefulness are still divided. According to Weber-Wulff (2019, p. 435), it can be useful to some extent, but the most important medium is the teacher. Reading the student's text and studying "*the references for inconsistencies*" is the most efficient method to detect plagiarism. On the other hand, in higher education there is strong reliance on technology in finding and denying plagiarism (Moore, 2020). Plagiarism detection software has been developed and detecting obfuscated forms of plagiarism has advanced (Foltýnek et al., 2019). However, the spread of contract cheating, students buying ready-made essays and theses from any of the estimated over 2000 on-line companies offering English language texts, has caused ethical dilemmas for universities. It has been estimated that 5–10 percent of UK higher education students use these services at least once in their studies. (Lancaster, 2019; Cook et al., 2021).

Data and Method

The data of the present study consist of a random sample of 28 English language master's theses that have been accepted in Finnish Universities of Applied Sciences (UASs) in 2020, and published in the open access repository of theses, Theseus. The sample covers one percent of master's theses published in Theseus in 2020 (n = 2792), and it is estimated to cover 15 percent of master's theses written in English and published in Theseus in 2020. The sampling was conducted manually by picking one English language thesis from every webpage consisting of 100 master's theses in Theseus.

In the sample, there is one thesis that has two authors, and 27 are written by individual students. The theses are from 11 different UASs (1–4 from each). The length of the theses varies between 23–101 pages (excluding references and appendices), and the reference lists' lengths vary from 2–11 pages. The theses are from various study fields including business, technology, travel, ICT, education and social and health care. Roughly half of the theses were written by Finnish or Swedish speaking students. Two of the theses had been conducted in Britain and one in Germany, and these three theses had been published in the Finnish Theseus as a result of an international master's program between European universities. It is not known how many students used English as second language in writing these theses. It is estimated that three students were native English speakers, and others used English as a second language.

The browsing tool of the document was used in analysing the accuracy of referencing in each thesis. First, the consistency and accuracy of the reference lists was categorised as accurate or inaccurate. Second, from each thesis, five randomly chosen in-text citations were compared to the reference list information and five references were compared to in-text citations. Accuracy was seen as precision and exactness in names of authors, publication name, year of publication and page numbers, and in this way only the major errors (cf. Harinarayana et al., 2011; Yap et al., 2018) were examined. Minor errors like the use of commas, periods or variation in spacing were not analysed. If inconsistency or inaccuracy was detected between in-text citations and the list of references, the analysis continued. The existence of the inconsistent source was verified if possible, and these google searches eventually revealed misquoting and plagiarism in text comparisons. The theses were placed into four different categories according to accuracy and consistency of referencing (cf. Moore, 2014). Notes and text examples of the analysis and text comparisons were written in the "analysis log" (40 pages). In the third phase of the analysis, inductive thematic content analysis was used to thematise the different forms of inaccuracy and inconsistency in referencing. The results are presented as thematic patterns of inaccuracy and inconsistency.

Results

Accuracy of Reference Lists

The accuracy and consistency of the reference list in each thesis (n = 28) was first analysed. In an accurate and consistent reference list the student gives information about the source that has been referred to in text. According to academic writing instructions exact publication details should be given, which offers the reader a possibility to read more about the subject. The reference list in itself was accurate and consistent in seven theses and inaccurate or inconsistent in 21 theses. Inaccuracies and inconsistences of reference list information were classified and are presented in Table 16.1.

Inaccuracies and inconsistencies are mistakes that can occur out of carelessness, but they can also have been copied from previously published texts. Three examples of inaccuracies in reference lists are presented below. In addition, five examples of inaccuracy and inconsistency within one reference list are presented in Appendix 1.

Example 1
   Morgan, J. 2017. "Designing Employee Experience: How to Win the War for Talent by Giving Employees the Workspaces They Want, the Tools They Need, and a Culture They Can Celebrate". New York: John Wiley & Sons, Incorporated.

The subtitle presented in Example 1 is correct, but the main title is mistaken, and a book with the given title does not exist. The correct main title of this hardcover book is: "The Employee Experience Advantage". The incorrect title that the student

Table 16.1 Inaccuracies and inconsistencies of reference lists (n = 28)

Inaccuracy in reference list	Inconsistency of referencing style within one reference list
- publication information is missing partly or completely; - publication information is misleading but can be found; - the title is missing partly or completely; - the order of authors of the source has been changed in alphabetical order or in some other order than in the source; - first names are used as surnames.	- brackets/no brackets in publication year, - italics/no italics in title on publication, - quotation marks/no quotation marks in title, − more than one way of telling the volume, number and pages of a journal article; - the font and the colour of the text varies within one reference list; - the alphabetical order is not followed.
Inaccurate and inconsistent reference list - international copied mistake in source information - source cannot be found and verified - complete reference list copied	

presents in 2020 can be found in three previously published master's theses in Finland, and thus it can be presumed that this reference information has been copied with the mistake. Another example of inaccuracy is given in Example 2, which presents reference list information of a single in-text reference to Writer 2016.

Example 2

Writer, S. 2016. "The Active Job Seeker Dilemma Study", April 19, 2016. Accessed March 6, 2020. https://workplacetrends.com/the-active-job-seeker-dilemma-study/

The given web address in Example 2 does not exist. The same text title that the student has cited was, however, found on another site written by a guest blogger. It remains unknown, who the writer named Writer is, and what are the criteria for using and accepting this reference in a master's thesis.

In the international context of master's theses written in English in Finland, some mistakes in author or publication details were found to originate back in time and place. A mistake in the source information can be found in texts published in various parts of the world resulting in international mistakes. One international referencing mistake is presented in Example 3. The example is from a thesis in the data where there are seven in-text references to Saunders et al., but in the reference list the names of the authors have been put in alphabetical order. The mistake is clear for everyone teaching business or supervising theses in business, as the source is widely used in undergraduate studies (Research Methods for Business Students). The extra J at the end of the reference information is another minor inaccuracy. There is inconsistency between references in text to Saunders et al. and the following information given in the reference list.

Example 3

Lewis, P., Saunders, M. & Thornhill, A. 2009. Research Methods for Business Students. 5 th edition. Harlow: Pearson Education Limited.J

This inaccuracy, putting the authors names in alphabetical order despite the correct order in the publication, is widespread in theses. Searching the web with this wrong order of authors, "*Lewis, P., Saunders, M. & Thornhill, A. 2009*", yields 390 identical results. This is an example of copying incorrect source information and an example of international inaccuracy.

The last inaccuracy and inconsistency mentioned in Table 16.1, *complete reference list copied,* is an ultimate failure of a reference list. In the data there is one master's thesis in which there are two copied reference lists from previously published theses from two different countries: first there is one copied reference list (6 pages) and after that another (3 pages). The alphabetical order starts over twice. An extra absurdity in this reference list is that the student did not remove the original author's name from the end of the seven pages of the copied bibliography and thus the name of the original author is presented seven times in between the list of references.

Accuracy and Consistency of Referencing

The referencing of theses in data were categorised according to accuracy of referencing (Table 16.2). Referencing was accurate if it followed the generally accepted norms of academic writing. In the category of some inaccuracy the referencing was not completely finalised, but the incidence of inaccuracies noticed in referencing was less than ten. In this category, false references, misquoting and plagiarism were not noticed. In the category of constant inaccuracy/misleading references, ten or more major errors and inconsistency between in-text references and the reference list were found. The last category is plagiarism.

Referencing was found to be accurate in six theses (21%), and some inaccuracy was found in seven theses (25%). In 15 theses (54%) inaccuracy of referencing was constant, there was inconsistency, references were misleading and/or the thesis contained plagiarism. The line between constant inaccuracy and misleading referencing is inexact and the same applies to the line between misleading references and plagiarism. Four of the theses in data contained large sections of text of clearly visible plagiarism and in another four, in which the referencing was inconsistent, there was copied text that could later lead to evidence of plagiarism.

Table 16.2 Master's theses (n = 28) categorised according to accuracy and consistency of referencing

	Accurate	Some inaccuracy	Constant inaccuracy/ Misleading references	Plagiarism
Master's theses written in English in 2020 (n = 28)	21,4% (n = 6)	25,0% (n = 7)	39,3% (n = 11)	14,3% (n = 4)

Thematic Patterns of Inaccuracy and Inconsistency in Referencing

The thematic patterns describing the content analysis of referencing inaccuracies and inconsistencies in master's theses are diverse. Multiple inaccuracies in a thesis are not just detached and accidental mistakes, but they form a deviation from academic writing. Several severe inaccuracies can occur in just one sentence or in one paragraph, and different patterns of inaccuracy and inconsistency can appear in combinations in one thesis. The analysis of reference lists already revealed inaccuracies that show a lack of meticulousness in academic writing. In the following Table 16.3, patterns found both in reference lists and in-text references are listed.

Table 16.3 Patterns of inaccuracy and inconsistency in referencing (n = 28 master's theses)

Inaccuracy	Inconsistency
Use of secondary, tertiary, quaternary sources Referring to the wrong person as the first Author Referring to authors by their first names Wrong title Missing title Incomplete publication information	The source is mentioned in the reference list but there is no reference in text. There is a reference in text to a source that is missing from the reference list. There are different years of publication in the in-text reference and reference list.
Misquoting	Plagiarism
Confusing references Wrong source False information False quotation Wrong page numbers	Secondary source plagiarism Direct and modified copying Copying a cluster of references Quotations without quotation marks or page numbers Irrelevant text copied and presented in thesis Copied mistakes
Inaccuracies and plagiarism in international context	
Lack of English language source criticism Direct or modified copying of text from international websites such as: Essay mills, commercial websites, newspapers, blogs **Translating Finnish methodology text books (back) into English** Unnecessary use of secondary/tertiary sources Unprofessional translations **Internationalisation of plagiarism** Mistakes in references originate back in time and place	

Examples of Inaccuracy and Inconsistency

In multiple theses there are references to secondary or tertiary, and sometimes even quaternary sources. These references can have been made to non-academic websites of commercial businesses or newspapers or references may have been copied from previously published texts. References are also made openly to essay mill webpages that would not be considered evidence-based sources in academic writing. One example of such a source is in the following Example 4.

Example 4
UK Essays. 2018. Emotional intelligence: We all have different personalities URL: https://www.ukessays.com/essays/psychology/emotional-intelligence-we-all-havedifferent--personalities-psychology-essay.php Accessed: 28 August 2020

Following the reference list information, on this UK Essays webpage there is a disclaimer: *"This is an example of a student written essay"*. The student refers to this student essay three times in text in the end of paragraphs in connection with referrals to Goleman 1999, which in the reference list is mentioned to be a Finnish translation of Goleman's book. In the thesis text, the student essay from UK Essays and information from Goleman's book's Finnish translation are used side by side as references.

Example 5 presents a pattern named as *copying a cluster of references*. The student has copied three references at the end of a single sentence and placed all of them in the reference list without mentioning the actual source.

Example 5
Mixed methods are increasingly being championed in implementation case studies. (Proctor, Landsverk, Aarons, Chambers, Glisson, Mittman. 2009; (Palinkas, Holloway, Rice, Fuentes, Wu, Chamberlain. 2011; Landsverk, Brown, Chamberlain, Palinkas, Horwitz, 2012).

This sentence with three references can easily be found to be the first sentence in the article by Palinkas et al. (2015, p. 533), who state as follows: *"Recently there have been several calls for the use of mixed method designs in implementation research (Proctor et al., 2009; Landsverk et al., 2012; Palinkas et al. 2011; Aarons et al., 2012)."* The student has copied and modified this sentence, used three of the four sources mentioned in parentheses, copied the source information given in the bibliography to the reference list, but does not mention Palinkas et al. (2015) in the thesis. Thus, the student is referring to three copied sources in one sentence and does not give any indication of independently reading these three sources and forming one sentence based on them. Rather, this is an example of *secondary source plagiarism*.

Misquoting

In referencing, misquoting means a citation or a paraphrase in which the content is not accurate. Misquoting is present in the data in various forms. Even if writing instructions vary in whether the student should mention the paraphrased pages in in-text references or not, there is a unanimous convention in academic writing that the page numbers are reported in text in the case of direct quotations. This instruction is well known and followed in the data, but there are exceptions. The following Example 6 is one example of missing a page number in a direct quotation.

> Example 6
> *Patton identified that qualitative research finding can be collected using these three methods: "In-depth interview, open-ended interviews, direct observations and written documents" (Patton 2002).*

An understandable explanation for the quotation in Example 6 would be if the student had stated having read an electronic book without page numbers. However, this is not the case in the above example as the reference list mentions Patton's printed book. It remains unclear where in his book Patton writes about these three (although the student lists four) methods. The wording in the sentence before the direct quotation is unclear as findings cannot be collected, rather it seems that the student has changed the word 'data' to 'finding'. On the other hand, no other similar quotation can be found in Google searches. This particular example is interpreted to be a *false quotation*.

In one thesis in the data, there are two references to Mootee (2013). One of the two references is presented in Example 7. The author's name is misspelt as one 'e' is missing.

> Example 7
> *This research study has two main key variables: service design and design thinking. Initially, the primary study focus will be service ideation and service design in the general public sector. (Moote 2013, 13)*

The word 'variable' here is the wrong term, as the student had conducted qualitative interviews. Even if it is not the duty of the reader to guess what is meant by an unclear sentence, it is possible that the student meant to say that these two are the main concepts. However, the text on page 13 in Mootee's book has nothing in common with the text in Example 7. This is an example of *misquoting* and a mistaken in-text reference. In further analysis it was found that the other reference to Mootee was copied from another thesis.

Another example of misquoting and misunderstanding the source is presented in a student's only reference to Barr (2014) (Example 8).

> Example 8
> *The working age group (18 – 65 years) will drastically drop by the year 2029 by nearly 50%, causing a strain in the health care system funding (Barr, 2014).*
> Reference list information: Barr, P., 2014. The Boomer Challenge. Trade Journals, February, 67(2), pp. 13–16

First, the title and publication information of Barr's article is wrong. The article was published in Hospitals & Health Networks, and the quotation seems to be from page 23 in the first 2014 issue, where Barr writes: "*Meanwhile, the percentage of people ages 18 to 65 — and in a position to pay into Medicare — will drop to an estimated 57 percent by 2029 from 63 percent in 2011*". The student claims that (the proportion of) the named age group 18–65 years will drop by nearly 50% in the following ten years. This is a severe misinterpretation and *false claim* as Barr's estimation of the drop is 6 percent points.

Internationalisation of Plagiarism

Several plagiarised large text sections were found in four theses in the data. Severe mistakes in references and referencing suggest that some theses in category 3 also contain plagiarism as was the case in the previously presented Example 5 of *a cluster of references copied*. Another example of plagiarism in the international context was presented in the earlier chapter of accuracy of referencing lists, which ended with the description of *a completely copied reference list*.

In the data there is plagiarism in the form of secondary source plagiarism, direct copying, modified copying and missing quotation marks. In the following Example 9, the extract of a master's thesis shows yet another absurd phenomenon within internationalisation of higher education, *presenting unsuited text in thesis*. The student has copied one paragraph of the methodology book written by Wolcott.

Example 9

You may find writing about fieldwork so inviting that you are tempted to go on and on about it. No harm done if you overdo it a bit at first, especially if the writing helps you find your "way in" to the substance of your study. However, as I discuss in earlier chapter, I recommend that you not devote undue attention in the final version to discussing "methods." If you feel the urge for an extended discussion, either about method in general or about how you conducted your research or analyzed the data for a particular study, consider presenting that material in a separate account. There is no longer the need to defend qualitative research or to offer the detailed explication of its "methods" that we once felt obligated to supply. (Wolcott, 2009, 9–44)

The style and the content of the text in Example 9 tells the reader immediately that this is not a master's student writing about the thesis, but this is text from a writing manual aimed at students. The student mentions the source as Wolcott 2009, pages 9–44. This, however, is not a paraphrase of those 35 pages but a direct verbatim copy of Wolcott's text from pages 25–26. The student presented the copied text as normal text in the thesis, it was not intended or in italics. The *quotation marks are missing* and the page numbers are mistaken. The only modification the student made is changing Wolcott's expression "*as I discuss in Chapter 4*" to "*as I discuss in earlier chapter*". This is an example of irrelevant, *unsuited plagiarised text*.

An example of *internationalisation of plagiarism* is presented in Example 10. The extract of thesis text is compared with text found on the Course Hero (2021) website.

Example 10
Qualitative research involves the study, use and collection of different empirical case study materials, personal experiences, introspective, life story, interview, observations, interactional and visual text interpreting routines and pain or problem moments and meanings in individuals lives (Denzin & Lincoln, 1994; Patton, 2002).
Course Hero (2021)
However, qualitative research comprises the studies' use and gathering of various empirical materials – case study, personal experiences, introspective, life story, interview, observational, historical, interactional, and visual texts- that describes regular and difficult moments and meanings in individuals lives (Denzin & Lincoln, 1994; Patton, 2002).

The text in Example 10 has been copied from the Course Hero file sharing website from an example text. Many of the patterns listed in Table 16.3 are present: *secondary source, web-based plagiarism, modified copying, lack of English language source criticism*. The Google search with reference combination *"Denzin & Lincoln, 1994; Patton, 2002"* results in over one thousand exact matches. The use of classic methodology books in (copied) references is a manifestation of international plagiarism, where it is impossible to assess original texts in which the citation or paraphrasing was made by an author who actually read these two classic methodology books.

Translating Finnish Methodology Texts (Back) Into English

In Finland, the higher education degree programs taught in English welcome foreign students as well as Finnish students. There are situations in which neither the student nor the supervisor is a native speaker of English. The linguistic level of the theses in the data varies. Translating Finnish texts into English is unnecessary, for example, when writing about methodology, as Finnish methodology books often rely on methodology books written in English. Translating Finnish methodology text into English is at the same time demanding and unnecessary, but in the data, there are many examples of students' translations (Examples 11 and 12).

Example 11
The reliability of a research means the ability to measure the phenomenon as it was intended and to be repeatable. To carefully parse and demonstrate the phases and choose the indicators makes it easy to re-use the material. (Menetelmätietovaranto 2008).
Validity means the ability of the indicator to measure what is meant to be measured. The set- up, the sample and the timing are important to operationalize the research. (Menetelmätietovaranto 2008).

Example 11 presents the student's two references to Menetelmätietovaranto, which can be translated as Research Methodology Repository. The repository has been renewed since 2008, the name has been changed, and the citation instructions advise

the students to refer to authors of this repository. It is possible that the student copied Finnish text from an older thesis which had this citation, and translated it to English with the reference. The meaning of the last sentence in Example 11 is difficult to understand, and the reader has to guess what has been meant. The puzzle is further complicated as the student does not have this source in the reference list. The repository itself is considered to be a tertiary source, but if the student has copied this text with the reference from another thesis, this would make it an example of a *quaternary source*.

Referring unnecessarily to an old Finnish methodology book, as in Example 12, results in inaccurate and inconsistent referencing.

Example 12
Analytic induction is a method to collect data, develop analysis, and to organize the findings. (Hirsjärvi & Hurme, 2000).

The student does not cite the page number from which this information of analytic induction was retrieved. The sentence appears not to deal with the process of analytic induction, but the research process in general. The book cited as the source is commonly used in Finnish theses, it deals with thematic interview, and has had several reprints after 2000.

Examples 11 and 12 are manifestations of inconsistencies in theses that are results of internationalisation at home in higher education. Translating (old) general methodology text from Finnish to English has led to interpretation and translation mistakes.

Discussion

The results of this study demonstrate that there are severe deficiencies in the accuracy of referencing in naster's theses in the context of internationalisation of higher education. Master's theses (n = 28) in the sample had been accepted in Finnish Universities of Applied Sciences in 2020 before the student was awarded a master's degree. In more than half of the theses (54%), the writing instructions and ethical guidelines are not followed consistently, and issues of academic integrity have been compromised. Several types of deviations from academic integrity were observed: inaccurate reference lists, inaccurate and inconsistent referencing practices, misquoting and plagiarism, all in various patterns. A new pattern of plagiarism was identified and named as internationalisation of plagiarism. The analysis and examples extracted from the data show that in the context of internationalisation of Finnish higher education, poorly written theses including copied text are accepted, obvious mistakes in referencing have not been corrected and also largely plagiarised theses are accepted. The inadequacies found in some theses were severe and it can be stated that these students did not achieve the demanded learning outcomes on EQF level 7.

The results on the prevalence of inaccuracies in reference lists are very similar to those found in Yap et al. (2018) and Harinarayana et al. (2011). Incomplete publication information and mistakes in author names and titles are common. The results are also in line with research results on academic writing of students who write their thesis in English as a second language (Doğan et al., 2018; Jomaa & Bidin, 2017; Perkins et al., 2018). The presence of plagiarism in theses written in English around the world was studied by Ison (2018) who found the text similarity index (Turnitin) in theses to be 25,1 percent globally. In this study four theses (14%) were found to be largely plagiarised, and in four other theses (14%), inconsistent referencing included copied text extracts that can in further analysis lead to stronger evidence of plagiarism. These results are a justification to agree with Ison's (2018) conclusion that plagiarism in theses is still a significant concern in higher education.

This study does not support the political discourse of the quality of higher education in Finland. The public educational policy discourse has unanimously assured that the quality of higher education in Finland is high and even the best in the world (Ministry of Education and Culture, 2017; Kokko et al., 2020; Pyykkö et al., 2020), and this kind of quality discourse has not been questioned. The recent evaluations of higher education in business, technology, humanities and social sciences do not evaluate the learning outcomes or the competence level of graduates. In evaluations, plagiarism in theses appears to be going unnoticed, and academic integrity issues are not dealt with (Wallenius et al., 2020; Pyykkö et al., 2020). The barometer on research integrity ordered by the Finnish National Board on Research Integrity showed so few signs of academic integrity breaches that the chair of the board states in the foreword of the barometer: "*The results of the survey confirmed TENK's initial assumption that compliance with responsible conduct of research in Finland is rather high*" (Keiski, 2020, p. 4). However, the results of this study prove that plagiarism is still present and visible in theses even if the highest authority of Finnish research integrity TENK tends to belittle this problem (Moore, 2020, 2021).

Limitations of the Study

The analysis of this study concerned only the accuracy and consistency of referencing in master's theses in Finnish UASs. The sample covers only theses that were published electronically in 2020; the total number of master's theses accepted in 2020 is unknown. The grades and evaluations of master's theses are not available, and thus it is not known if the deviations from proper referencing have been dealt with in assessments. It is possible that among theses in general and also within the data of this article there are theses that have been written by a third party as contract cheating. In Finland, so far there has been no discussion about the topic.

Conclusion

The results of this study call for increased quality orientation in Finnish higher education and evaluation of contents and outcomes of higher education programs that are offered to degree-seeking international students and as internationalisation at home. The lack of quality orientation was noticed in the EU report on internationalisation of higher education. It was stated that Finnish higher education institutions "*are far too accustomed to working towards the achievement of quantitative goals*" (de Wit et al., 2015, p. 95). Pyykkö et al. (2020) do suggest in their evaluation report that there should be a more systematic approach in making learning outcomes more visible. The method of this study on accuracy of referencing could be used as one aspect in evaluating the learning outcomes. Academic writing, content of theses, and accuracy of referencing would be concrete evidence of the quality of learning outcomes.

There is a need for international external evaluation of Finnish higher education outcomes to assess that EQF standards (EQF, 2017) are achieved. The writing process students apply in thesis writing is an under-researched area nationally and globally (Breeze, 2012, p. 157). More research is needed into digitisation of writing and changing literacies (Mangen & van der Weel, 2016) in the context of thesis writing. For the purposes of internationalisation of higher education, it would be possible and recommendable to create an international standard for the acceptable level of academic writing, academic integrity and use of sources in master's theses.

Appendix 1   Examples of Inaccuracies in Reference List Analysis: Five Consecutive References in one Reference List (Thesis 16, Category 3)

David E. Bloom, A. B.-S. P. M. a. A. S., 2011. Population Aging: Facts, Challenges, and Responses.
Publication information is missing. Authors' names are presented in a confusing way, here the first name of the author is first, followed by many initials. Correct information of authors is: Bloom, D. E., Boersch-Supan, A., McGee, P. & Seike, A.
Elo, S. & Kyngäs, H., 2008. The qualitative content analysis process. 18 March, 1(62), pp. 107–115.
Publication information is incomplete. The name of the journal is missing.
Foot, D. K., 2011. The long goodbye: Age, demographics,. Canadian Studies in Population, 38(3–4), pp. 59–74.
Only one author named. The title is incomplete. Correct author and title information is: Foot, D. K. & Vennel, R. A. The long goodbye: Age, demographics, and flexibility in retirement.
Gray, J. R., Grove, S. K. & Burns, N., 2013. Practice of Nursing Research, s.l.: s.n

Publication information is missing. Subtitle is missing. Authors names are in wrong order, the correct information of authors is: Grove, S.K., Burns, N. & Gray, J.R. The meanings of s.l. and s.n after the names and title remain unknown in this context.
Kate McPhaul, P., 2009. Hospital Employee Health; Atlanta. Trade Journals, March
The title is missing. Publication information is incomplete. This source cannot be found. There is one reference in text to McPhaul.

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Part V
Student Involvement in Building a Culture of Academic Integrity: Supporting Students as Researchers

Introduction

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It has been like this for a long time and probably still will be... The academic world crosses one deep canyon, which creates a big gap between academics and students. Some people like this gap, others try to build bridges and get closer to one side or the other. But this construction is not easy to cross and bridges can be very unstable. Getting to the other side requires a great deal of courage.

What am I talking about here? I am trying to describe my own experience in the academic sphere. When I was a student, I started building one such bridge and tried to address the issue of academic integrity. To be able to orientate myself correctly in the academic environment and its pitfalls, I had to get to know both worlds and learn to walk carefully across my bridge from side to side. I needed to understand how academics work and how students react to them.

Over time I have learned that many students will take my bridge as a threat, but there will be some of them who will appreciate it and let me help them to get safely across this bridge. The same applies to academics. For many of them it was not difficult to go and have a look to the other side of the bridge, others still take it as a kind of danger or something they are not willing to go through.

Until we will be able to build solid bridges, roads or highways in the future, and there are still two academic worlds that often blame each other, fight each other and throw sticks at our feet, then we will not be able to further develop academic integrity. Efforts are here and bridges are being formed every day. This part of the book can also be proof, where the students themselves present their diligence and effort in individual articles.

One of the articles that shows great collaboration between world-renowned academic ethics expert Thomas Lancaster and student Benjamin Dent presents the results of a study where they monitored one of the sites that provided freelancer services and monitored contract cheating requests for two years. The results are truly astounding and give a realistic picture of what is happening in this area, as they are not affected by the willingness to answer self-reporting questionnaires, as is often the case in the field of contract cheating studies.

Another contribution in this part of the book is an article by Pegi Pavletić, who is a wonderful example of promoting academic integrity and is also a great role model for other students. In 2022, Pegi received the ENAI award for her contribution and leadership for all the activities she engages in and on which her article is based, which mentions the problems arising from the existence of two worlds - academics and students, such as: misunderstanding of academic values, unequal position on campus, low motivation and interest. The problems that are solved may not only be caused by the students themselves, but also by the system, management or poorly set up processes.

This section concludes with a chapter by Thomas Lancaster and Rahul Gupta. This chapter also focuses on the issue of contract cheating in an alternative way, which shows real data from the environment where this problem occurs. This time, it introduces the practitioners on the Reddit platform, which aims to bring communities together and offer a space for discussion. However, this platform is no longer just for entertainment, but also a place where you can get unauthorised help such as contract cheating, answering test questions, processing mathematical tasks or statistical analyses for bribes. This great article highlights the many problems identified by analysing large amounts of data, but also raises questions and presents additional research opportunities that can be a great inspiration for many researchers.

Working with students is an essential part of the fight against academic misconduct. The student voice can be a powerful source of motivation for students, but educators also need to understand their perspectives, especially regarding such an important topic as academic integrity. One way of doing that is to include students as researchers. These three final chapters, focused on student viewpoints, are perhaps the most important contributions to this book.

Chapter 17
Academic Ghost Writing and Commercial Contract Cheating Provision on a Freelancing Website

Thomas Lancaster and Benjamin Dent

Abstract Contract cheating requests are typically not visible to researchers looking to explore the problem, but when these are made through publicly accessible outsourcing platforms, a greater understanding of contract cheating and possible solutions for this problem can be developed. This chapter presents an analysis of 3843 outsourcing requests observed on a freelancing website between 7th August 2017 and 9 September 2019. The focus is on requests tagged as academic writing or essay writing. This fresh analysis builds on previous research conducted on freelancing sites. An overview of previous findings is provided at the start of the chapter.

The contract cheating requests seen on the Freelancer.com website are highly varied in nature, with some showing sophisticated workflows. The most frequent buyers say they are in India and the most frequently hired contractors in Kenya, but buyers and contractors are seen to operate from all around the world. Outsourced writing support and assignment production services can be purchased for many academic disciplines. On average, buyers pay $67.67 United States Dollars (USD) per project outsourced, but with price premiums exist for certain types of work. Of particular concern for the sector are a notable number of requests for work in the medical field, attempts at admissions fraud and the market for ghost-written academic research papers. The chapter concludes by advocating further analysis at discipline level, ideally supported by student academic integrity partners and champions.

Keywords Contract cheating · Freelancer.com · Ghost writing · Academic writing · Artificial intelligence

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Background

This chapter extends on work on contract cheating of a similar style to that which was undertaken for the very first paper that used the contract cheating terminology in 2006 (Clarke & Lancaster, 2006). The chapter is intended to provide a useful update for the sector as to how the field has developed. Since 2006, contract cheating appears to have become both more accessible and more acceptable to many students.

Contract cheating, in its commercial form, can be loosely considered to describe the process where a student exchanges money to attempt to get an essay, coursework and other form of academic answer produced for them. Contract cheating represents a threat to academic integrity, since when a student cheats in this way, they are ending up with marks and ultimately qualifications that they do not deserve.

One of the challenges of conducting research into contract cheating is that most information is simply not visible to the public. Students communicate with the contract cheating providers in private, often inside the systems used to power essay mills. It is very difficult to access such data without researchers themselves getting accepted as writers or perhaps finding security vulnerabilities to such sites. Such approaches themselves give grounds for ethical concerns.

This work presented in this chapter uses an alternative approach, where visible requests posted to a site that is used for contract cheating are captured, processed and analysed. In itself, this site is not strictly a contract cheating provider, but it provides the facilities for others to use it in this way. The chapter is based on a presentation given at the European Conference on Academic Integrity and Plagiarism 2021 (Lancaster & Dent, 2021) and is the result of a student-staff research partnership. The focus of the student partner was to primarily work on automating the collection and analysis of existing data, although this chapter is being presented for a general academic integrity audience rather than from a technical viewpoint. The study was conducted in compliance with the processes for ethical approval for educational research in place at Imperial College London.

This chapter deliberately does not attempt to summarise the ever-growing research field surrounding contract cheating, but readers interested in discovering more about this may wish to consult sources summarising the field and suggesting practical solutions (Walker & Townley, 2012; Lancaster & Clarke, 2016). Research in 2021 suggests that the sheer volume of contract cheating across the sector has been vastly underestimated, with 7.9% of Australian students using commercial contract cheating providers (Curtis et al., 2021).

The research presented in this chapter builds upon how analysis of visible requests on platforms used for contract cheating have been conducted. This particular study has a unique focus as it identifies academic writing tasks as opposed to assignments in general which do not always have a writing focus. The data set used for analysis is also substantially larger than those analysed for previous studies, something that also appears reflective of a growth in interest in contract cheating in recent years.

The focus of this chapter is as follows. First, a short overview of existing literature is presented that considers how the Freelancer.com platform has been used for contract cheating. This is accompanied by an overview of the type of data available on the platform for contract cheating researchers. Details of the construction of a data set of contract cheating requests in the academic writing field is provided. The chapter provides a high-level quantitative overview of the data collected, accompanied by keyword analysis of the project titles. Areas of growing concern that could represent a threat of academic and professional integrity are identified from the keyword data. The chapter is supported throughout with examples of actual academic tasks that have been listed for outsourcing purposes. The discussion concludes by asking the sector to consider what can be done when platforms do not directly provide contract cheating services, but where these can be misused in this manner by parties who are in the business of cheating.

Public Agency Sites and Freelancer.com

This chapter is based around a study of the use of Freelancer.com for the purposes of contract cheating. Freelancer.com is an example of a public agency website which links buyers of academic work with contractors who are providing writing services. A buyer of academic work is often a student and a hired contractor is often the same worker completing academic tasks providing the end-solution, but this is not always the case as the actual workflow in a contract cheating transaction can be more complex.

Freelancer.com is the natural successor to two previous sites explored in the contract cheating literature, RentACoder.com and VWorker.com. Neither of the previous sites is still trading, with Freelancer.com having replaced them following a merging and rebranding process.

The original 2006 study of RentACoder.com found that 12.3% of requests on the site were for contract cheating and 51.7% of users were doing so habitually, having posted between two and seven requests (Clarke & Lancaster, 2006). Although the results indicated that provision was available on the agency site for academic work for many academic disciplines, this early work identified contract cheating as being a particular challenge for the computing discipline. A subsequent study in 2007 solely considering the computing discipline found that most observed requests were for programming assignments, an area considered an essential and core foundational skill for the discipline (Lancaster & Clarke, 2007). Information released alongside the original two studies also identified India as the location where most RentACoder.com contractors of commercial contract cheating services said they were based.

A 2016 study of Freelancer.com identified that 23.68% of its contractors advertised that they were based in India (Lancaster, 2019b). Across the site as a whole, 5016 contractors listed one of their skills as academic writing, with 940 of these based in India. The top 20 providers from India had completed on average 176.3

academic writing projects, suggesting that orders in this area were substantial. Most orders came from buyers located in the United States, United Kingdom and Australia, with most projects completed in the disciplines of Business, Computing and Finance. The research also indicated that academic writing tasks were affordable for students to outsource. It may be worth noting that other recent studies into contract cheating using platforms other than Freelancer.com have found a workforce primarily based in Kenya (Lancaster, 2019a; Lancaster, 2020; Walker 2019).

Some wider findings relating to Freelancer.com and contract cheating are also of interest. As of 2014, Monnik and Pan (2014) estimated that 65,000 requests for academic work had been posted on Freelancer.com. An investigation by Wallace and Newton (2014) also found sufficient provision on Freelancer.com for students to be able to order original work close to a deadline, thus rebuffing the argument that contract cheating can be prevented by setting short deadlines. Alongside this, file sharing sites have begun to operate in the wider contract cheating space, providing the capacity to provide students with the answers to exam questions within 30 minutes (Lancaster & Cotarlan, 2021). Exam answers are also available on Freelancer.com, as wider research has indicated, but this may require pre-planning on the part of the buyer to have a contractor ready and waiting to work at the time of an examination (Lancaster & Clarke, 2017).

Freelancer.com Operation

Freelancer.com operates as an agency connecting together buyers of services with contractors who have the means to provide those services. In return for providing this functionality, Freelancer.com charges a commission fee, usually as a percentage of the price paid to contractors. In addition, all parties can purchase upgrade options designed to increase the visibility of their requests and their offers to complete work. Freelancer.com also provides the facilities to settle disputes between parties, for example when a buyer claims that they did not receive the service they paid for, or they are dissatisfied with the results. When Freelancer.com is used for the purposes of contract cheating, this can also provide additional assurance for the buyer since any payments they make are held in escrow by Freelancer.com until the purchased academic work is provided to their satisfaction.

The term project is used in this chapter to describe the academic work that a buyer is requesting. This should not be confused with a capstone project or dissertation. The term project, in the sense used here, could equally well describe an essay or shorter written assignment, although capstone projects are certainly available for purchase.

Many projects are outsourced using an auction process. That is, a buyer posts a request for a project. The visibility of the request will depend on the information the buyer provides, including the title, the keywords chosen and the amount of information the buyer is willing to supply in public about the task. Some buyers post only a

high-level title, then require interested contractors to contact them directly through private messaging for further details.

Potential contractors from around the world then offer to complete the project, giving the bid price they will charge to complete the work and often providing written information or previous work samples to support the bid. The buyer can also look at feedback from previous customers to allow them to choose the contractor to hire that best matches their needs and budget. Projects can be posted using multiple currencies and buyers may choose to restrict which contractors can bid on their projects based on demographic criteria.

As well as auction style projects, buyers may choose to post private projects only for a single contractor. This is often the case when a buyer has established a relationship with a contractor through previous projects and wishes to continue to work with them.

The final price paid for a project and the feedback given for this is visible to the public in many cases, but buyers will sometimes elect to use the privacy features available on Freelancer.com to hide this information. For researchers, the published information provides a useful data source for investigating how the freelance market for contract cheating services continues to evolve and develop.

Data Set Formation

In the week starting 7th August 2017, Freelancer.com introduced two new tags for buyers to use when posting projects, namely the terms "academic writing" and "essay writing". The introduction of such terms removed any possibility that Freelancer.com did not know that contract cheating provision was taking place using their platform.

The information about projects taking place between 7th August 2017 and 9th September 2019 using the tags "academic writing", "essay writing" or both was collected from the web site. The collection process used a web crawler developed by the student partner, a technically complex task which required several weeks of development work and refinement. The collection process provided a data set of 4353 projects.

Manual inspection of the data set showed that not all of these projects represented contract cheating attempts. For example, some were for non-academic forms of writing such as blog post requests. This was likely because some buyers decided to use extra tags to increase the visibility of their projects. To improve the quality of the final data set analysed, 738 projects were classified by the authors as to whether they represented contract cheating requests for academic writing or not. Several machine learning techniques were trialled by the student partner using keywords extracted from the title and description fields, with the best performing model correctly classifying 85.6% of the projects. The trained model was applied to the full data set, which suggested that 3843 out of 4353 (88.3%) of the projects posted were contract cheating requests in areas of academic writing. The analysis in this data set

is based primarily on the 3843-item data set, with smaller data subsets used to explore pricing information in specific areas.

Limitations

Some limitations of the data set formation and any analysis based upon it are worth noting. The approach attempts to capture as complete a data set of academic writing requests as possible over the period being studied, but this is likely to underestimate the extent of contract cheating as there may be requests that were made that did not use the two designated tags.

The data set collected relied on a machine learning model trained on only a subset of data. The benefit of such an approach is this afforded the ability to evaluate much larger data sets than can realistically be processed by hand. The trade-off is that the results can only ever be considered as an approximation, with accuracy at around 85%. It should be possible for future technical research to generate more accurate results. Alternative models can be trained and more features can be extracted from the posts to aid in this process.

Finally, as previous studies have identified, not all contract cheating is for a written form of assignment. Requests for contract cheating in other forms, such as computer programming, are not the focus of this study.

Data Set Exploration

Figure 17.1 summarises the number of contract cheating requests posted for each week of the period being analysed (7th August 2017 to 9th September 2019), with a mean of 35.58 projects posted per week. The number of the week within the year,
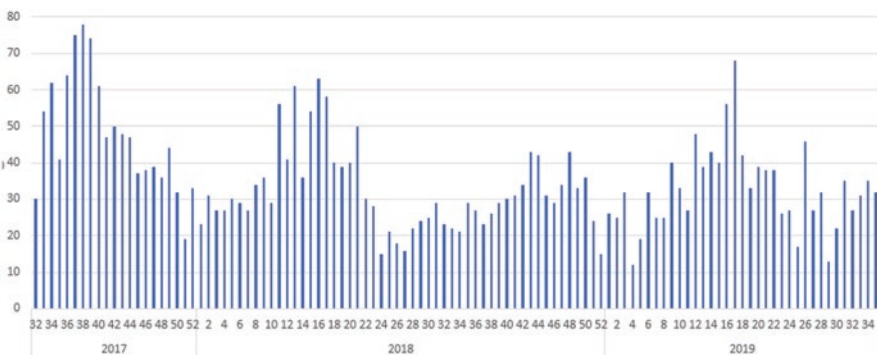
Fig. 17.1 Frequency of contract cheating requests observed on Freelancer.com

as identified on the Freelancer.com systems, is shown in Fig. 17.1. This indicates seasonal demand, largely mapping to the assessment periods in the northern hemisphere, with reduced demand in the summer and over the Christmas and New Year period.

On average, each project in the data set received 27.61 bids from contractors.

The projects offered are wide ranging. Table 17.1 shows some illustrative examples of this, along with some of the accompanying text to provide further context. Mistakes in spelling and wording are as written in the original posts. The number of bids received and the average bid price offered by contractors is shown. The price paid is also given where this is visible, along with currency conversions to USD based on historical rates.

Table 17.1 Examples of academic writing contract cheating requests observed on Freelancer.com

Title	Accompanying Text	Number of bids	Average bid (USD)	Price Paid (USD)
Write a small Autobiography	I need about 500 words written about my hopes and dreams. I am a 23 year old Entrepreneur in America, studying Human-Computer Interaction Design.	89	49.80	N/A
Business Research Assignment	I have a Uni assignment (Besuness Research paper) to be written about 2000–2500 words by Saturday. We have 11 topics to choose from and will provide the list of topic and assignment guideline at request. Most important of all is i have to submit the assignment online so plagiarism could be a big issue if not written properly.	9	130.30 (converted from 102.77 AUD - Australian Dollars)	111.00 (converted from 87.55 AUD)
Causes of Adult Deviation of Terrorist Thought 3	"400 words with 2 references -fort and size (12) -spacing (1,5) . Writing In British English	41	32.50	N/A
essay development	essay or less describing educational plans as they relate to my career objectives & why you feel a scholarship will help you achieve these goals.	21	21.75	N/A
Write a thesis report on infectious diseases and impact on public health	I need someone to write a non credit thesis report on infectious diseases and their impact on public health	32	38.76	15.00
Nursing case study	Case study for nurses. I need help to finish a case study using Harvard referencing and nursing model.	35	115.43 (converted from 91.74 AUD)	188.73 (converted from 150 AUD)

The examples in Table 17.1 illustrate several important points. First, requests that seem like they are highly personalised are not immune from contract cheating. Second, giving students choice to engage them with assignments may not be a solution to contract cheating. That choice can simply be passed on to a contractor. Third, not all requests relate to university level or credit bearing work. Fourth, students are themselves concerned about plagiarism. They do not want to outsource work and then find themselves at the centre of an academic misconduct investigation.

Table 17.2 shows the 20 most frequent countries from which buyers made project requests. 114 different countries were represented in the data set. Notable in positions two to four were requests from the English-speaking world, United States, United Kingdom and Australia. The top ranking of India is interesting. These may be requests by students from India, but these may also represent essay mills themselves looking to outsource orders that had come to them.

Table 17.3 shows the ten most frequent countries from which the winning contractors said they were based, where this information was visible on the project. In many cases, buyers did not elect to show this information. 64 different countries were represented here. For all other countries, eight or fewer winning requests were observed. In common with recent studies on other outsourcing platforms, the

Table 17.2 Most frequent buyers, by country

Country	Number of projects posted, by country	Percentage of projects posted, by country
India	549	14.29%
United States	511	13.30%
United Kingdom	491	12.78%
Australia	283	7.36%
Pakistan	271	7.05%
Saudi Arabia	178	4.63%
Malaysia	156	4.06%
Canada	142	3.70%
United Arab Emirates	111	2.89%
Singapore	75	1.95%
Bangladesh	73	1.90%
Kenya	64	1.67%
Germany	63	1.64%
Türkiye	61	1.59%
Oman	42	1.09%
Nigeria	42	1.09%
Jordan	38	0.99%
Egypt	37	0.96%
Hong Kong	32	0.83%
Kuwait	28	0.73%
Other	596	15.51%
Total	3843	100.0%

Table 17.3 Country of most frequently selected contractors

Country	Number of winning bids from country	Percentage of winning bids from country
Kenya	380	30.87%
Pakistan	258	20.96%
India	123	9.99%
United Kingdom	101	8.20%
United States	74	6.01%
Nigeria	44	3.57%
Bangladesh	42	3.41%
Australia	37	3.01%
Egypt	24	1.95%
Canada	16	1.30%
Venezuela	14	1.14%
Other	132	10.72%
Total	1231	100.0%

Table 17.4 Price paid for projects by currency

Currency	Number of projects priced in currency	Mean price paid in original currency	Mean price paid, converted to USD
United States Dollar (USD)	696	71.53	71.53
Australian Dollar (AUD)	156	63.05	48.54
British Pound (GBP)	135	64.14	89.17
Euro (EUR)	65	83.62	99.50
Canadian Dollar (CAD)	59	48.00	38.40
Singapore Dollar (SGD)	35	68.06	50.36
Other	26	N/A	41.72
All currencies	1223	N/A	67.67

majority of winning bidders were from Kenya. Within this data, winning bidders from India were still prominent, but at only about one third of the rate of winning bidders from Kenya..

1223 projects showed the final price paid, across 16 different currencies. For six of these currencies, 35 or more pieces of pricing information were available. For the remaining ten currencies, six or fewer projects priced in those currencies were observed, with four currencies having only one such project. Table 17.4 summarises the pricing information by currency, along with converted values to USD. Note that the USD pricing is a slight approximation as it uses the exchange rates from March 2021 in all cases.

Table 17.4 indicates a slight premium for projects priced in EUR and GBP, as well as an apparent discount for all currencies other than USD, EUR and GBP. This is also the case for the currencies with a small sample size that are not individually listed in Table 17.4. This approximation however does not attempt to differentiate the different types of academic writing task that may be requested, the complexity of the work or the associated word counts.

Discipline Keyword Analysis of Project Titles

To identify the disciplines represented in the data set, a keyword analysis of the project titles was conducted. To accomplish this, all the single words present in project titles were identified and function words and terms that did not directly relate to an academic discipline were removed.

Table 17.5 shows the 15 most frequently observed disciplines. The mean final cost for completed final projects containing the keyword in the title is also shown, although to allow meaningful conclusions to be drawn this is restricted to projects in the USD currency where a minimum of ten pieces of final pricing information are available.

Table 17.5 suggests that the subjects typically taught in a Business School are heavily outsourced in comparison to other subjects. However, this is presented as a high-level approximation, since it does not consider misspellings, information hidden within descriptions rather than titles or multi-word terms. The terms English and Science could be misleading here due to their use within other phrases. The

Table 17.5 Top 15 Most frequent single word disciplines in project titles

Discipline Keyword	Frequency	Average Final Cost (USD)
Business	124	104.76
Management	119	73.09
English	105	48.90
Marketing	67	113.70
Literature	51	70.08
Science	50	N/A
Design	48	179.00
Law	48	N/A
Engineering	48	N/A
Finance	47	N/A
Psychology	29	N/A
Health	28	N/A
History	26	N/A
Medical	24	N/A
Economics	22	N/A

discipline area of Computing is not clearly represented, but that could be due to the study focusing on academic writing tasks rather than the assessment types used in Computing.

The keyword "design" appears to carry a premium here. An analysis of the data set suggests this keyword is being used in many capacities, everything from requests to design surveys and case studies, to concept and graphical design assignments, to architectural and network design.

The term "literature" which carries the lowest final payment almost always appears in the longer term "literature review" and occasionally in the term "English literature". This term also received the highest mean number of bids (46.21 bids) out of all the terms analysed. This suggests that many contractors are willing to provide work in this area. With high supply comes lower pricing and so perhaps literature review type assignments need to be considered by educators with care if they wish to avoid the risk of contract cheating.

The visibility of the keyword term "medical" within the top 15 results also raises cause for concern. The data set contains two projects for which buyers paid $750 USD each to have research papers written for them for publication in research journals. The accompanying text also suggests that the writers may be continuing to provide the buyers with further research papers outside of the visible environment. This suggests that contract cheating-like behaviours go beyond students and can extend to professionals and academics themselves. Other observed requests in this category alongside typical student work included writing applications for medical school, writing a statement for medical residency, preparing lectures, writing medical literature reviews and even a request from an essay mill to hire a medical professional for further quality assurance of the assignments they were preparing for students.

Project Type Keyword Analysis of Titles

A further keyword analysis of project titles attempting to identify the types of project being requested is shown in Table 17.6. This analysis was produced using a similar process to that for the data presented previously in Table 17.5.

Table 17.6 should again only be considered as an approximation, but the data presented does indicate that students are requesting assistance with specific types of tasks that they should be supported to complete for themselves. Notable examples including conducting research, working with data and project work. Requests for proofreading and presentation production services also appeared slightly outside the top 15 terms.

The term "project" carries the highest average final cost, but even this may be hiding the volume of student project work in the data set. Both of the two highest prices projects in the data set appear to be capstone projects or dissertations, but neither uses the term "project" in their title. One buyer paid $3000 USD for what seems to be a typical project in the Business discipline, an analysis of bank

Table 17.6 Top 15 most frequent single word work types in project titles

Project Type Keyword	Frequency	Average Final Cost (USD)
Writing	570	71.53
Research	496	128.10
Essay	352	40.57
Project	269	149.13
Report	218	118.10
Paper	148	66.92
Article	128	58.32
Analysis	115	91.16
Review	83	99.30
Articles	63	44.55
Proposal	57	74.59
Content	55	N/A
Data	52	N/A
Editing	43	80.92
Development	42	N/A

efficiency. This also required the contractor to collect and analyse data on the buyer's behalf. A further buyer paid $2000 USD for a report on big data and privacy, although in this case they stated that the data was already collected and they were supplying an initial analysis for the contractor to work from. In many cases, the word project is used in the form of a research project. In some cases, it is also used to give details of a private project when a buyer has already made arrangements with a contractor or has a pre-existing relationship with them, for instance in the form of titles saying "project for" followed by the name of the contractor.

The term "essay" typically carries the lowest price point, perhaps representing that writing an essay is considered an easily accessible goal by many contractors. Within the data set, the essay requests are many and varied, including requests that are being outsourced by essay mills such as a company bundling up 25 orders into a single project, editing requests, as well as several attempts to outsource essays on ethics.

The title term "PhD" falls outside the top 15 most frequent requests, but there are 30 such projects in the data set, with an average of 27.23 bids each. The majority of these requests do not actually appear to be for doctoral work itself, but instead are requests by buyers looking to get a place on a PhD programme and to hire a contractor to complete application processes and providing PhD level proposal documents. There are also buyers who only reveal that they want PhD level work in the main text not the title. These include someone wanting the last 20,000 words of a DBA thesis writing for them, a request for an admissions essay for Oxford, several people wanting data analysis for their PhD completing on their behalf and at least two requests for people wishing to have a thesis converted into academic research papers.

Recommendations and Conclusions

This chapter has explored the vast quantity of requests for contract cheating and academic writing that are appearing on Freelancer.com. Building on previous research, the chapter has demonstrated that contractors are widely available for hire across a variety of disciplines and specialist areas. The requests made are wide ranging and include those made by professionals in fields such as medicine and even individuals working in academia. The drive towards fraudulently gained research publications also has to be considered as a priority area for the sector to address, accompanied by the need to ensure that doctoral candidates are fully vetted before being admitted for PhD level study. Separate to the requests observed on Freelancer.com, Kelly and Stevenson (2021) have noted a growth in commercial contract cheating websites specifically targeting doctoral candidates.

A question has to be asked regarding whether Freelancer.com should itself be doing more to prevent contract cheating taking place using its platform. All indications are that contract cheating drives substantial revenue for the company. Based on the currency prices paid shown in Table 17.4 and knowing the currency in which all 3843 requests were made, a conservative interpolation of the data suggests that $121,853 USD of academic writing business is processed by Freelancer.com every year. If all the projects had been priced in USD, that figure would be $132,354 USD per year. The real figure is likely to be higher, since this study has not identified all types of contract cheating requests. With an international drive towards making providing contract cheating to students illegal, it must be questioned if the laws will also apply to platforms like Freelancer.com, and, if so, how such laws will be enforced.

It should be remembered that Freelancer.com is only a single agency site that can be used for contract cheating. There are many others. Similarly contract cheating requests can be made through forums, using social media and directly to friends, to give just a few examples. Both students and instructors need to be aware that education surrounding contract cheating needs to extend far beyond a knowledge of traditional essay mills.

Finally, the analysis presented in this chapter has barely scratched the surface regarding accessible data available on contract cheating. Since a machine learning approach was used for data collection, the results can only ever be considered as an approximation. There are always opportunities for improvements and to investigate alternative ways to explore data. There is also much work to be done on ensuring findings are always current and continually updated, understanding more about the contractors and writers behind the contract cheating industry, as well as for analysis by specialists considering the data from their own discipline perspective with a depth that academics outside of that discipline cannot recreate. Students can also be involved with this process.

As mentioned in the introduction, this chapter came about as the result of a staff-student partnership. The ability of students to conduct academic integrity research

and to get involved in the drive to preserve academic integrity needs to be recognised and should be widely encouraged and supported by the sector.

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Chapter 18
The Role of Students in the Preservation of Academic Integrity

Pegi Pavletić and Martin Hammerbauer

Abstract Academic misconduct is usually addressed at European Higher Education Institutions (HEIs) through the work of various committees, expert bodies and services offered to students. In some cases, students get an opportunity to follow different courses aimed specifically to tackle certain aspects of academic integrity (i.e. courses on scientific research that aim to educate students on how to avoid plagiarism). However, academic integrity as an important part of higher education is still an underexplored topic among students at the European level.

European Students' Union (ESU), as a member of the European Network for Academic Integrity (ENAI), is actively involved in international advocacy on academic integrity from students' perspective. Students' rights within this topic, as defined by ESU, are guaranteed rights and obligations all students have during their time of studies at a particular HEI of their choice. They include the rights to students' support services, right to the quality of education, right to vote in students' elections and to be a candidate in the elections, right to organise into students' groups, right to the protection of their intellectual property etc., without any discrimination based on faith, origin, gender, culture, belief (European Students' Union, 2008).

We explore the impact that students' representatives can have through active participation in prevention of academic misconduct, not only as members of university bodies, but through the role of students' ombudspersons as well. Additionally, we present some of the most common breaches of academic values, as seen by students' representatives. Such breaches include plagiarism, contract cheating, collusion, cheating, dishonesty, data fabrication, conflict of interest, ghost authorship and students' intellectual property protection.

On the international level, students can help each other by mutual sharing of best practices. How can these students become a voice on the European level for the

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desired outcomes, and help their colleagues in establishing transparent educational systems? We aim to demonstrate the necessity of their involvement in cooperation with the HEIs' existing systems, experts and practitioners.

Keywords Students · Academic integrity · European Students' Union · Academic values · Student ombudsperson

Introduction

European Students' Union (ESU) is an umbrella organisation of 45 National Unions of Students (NUSs) from 40 European countries. ESU's members are student-run, autonomous, representative and operate according to democratic principles. Since 2018, ESU has extensively worked on determining the academic integrity values most endangered at higher education institutions (HEIs) across Europe, in an effort to promote examples of good practice and to contribute to student preservation and upkeep of the academic integrity values. Since 2020, ESU has been a member of the European Network for Academic Integrity (ENAI), and it is actively involved in international advocacy on academic integrity from the perspective of students.

During the Board Meeting & Seminar 77, held in December 2019 in Malta, members of ESU pointed out that students obtain little to no information about the academic integrity core values throughout the process of their education, leaving them exposed to different threats in their academic community. Those threats include the potential for students to accidentally breach the set of academic integrity values, without those students being aware of their rights.

In this paper, we are providing students' reflections on their involvement in the academic integrity processes at HEIs in Europe, as well as determining some of the key areas where students feel most threatened, relating to academic integrity in higher education.

Context and Methodology

Assessing Students' Perspectives on Academic Integrity Across Europe

The lack of academic integrity in higher education relating to all types of higher education providers and institutions can be defined as corruption (in this paper we use the term misconduct) (Curaj et al., 2018). This misconduct can affect, not only the education providers, but the students as well, contributing to its further propagation in a circular way. Some of the most common forms of misconduct involve plagiarism, collusion, fraud, favouritism and conflict of interest, as pointed out by

ESU's student representatives and the available literature sources (Curaj et al., 2018; Richards et al., 2017). However, different student groups disagree on which of these corruption types seem to be most prevalent. For example, undergraduate and graduate students agree that plagiarism, essay mills and fraudulent documents are the most prevalent types of academic misconduct they encounter (FraudS+: False Records, Altered Diploma and Diploma Mills Qualifications Collection, 2022).

Although it is generally accepted that involving students actively in academic integrity boards and initiatives is good practice, in reality, based on both students' perspectives and feedback from quality assurance practices, students are not involved enough/at all in academic integrity policy development or decision-making (Richards et al., 2017). Some of the concerns expressed about students' engagement often include their lack of understanding of academic integrity values, and lack of experience. There is a need for protecting students from potential threats, because their role within the academic integrity process could involve them in decision-making regarding the cases of other students or academic staff members, which could impact them personally or professionally. In line with the conclusions made by Curtis et al. (2013), 'we recommend the wider and routine use of online mastery modules for teaching academic integrity'. These teaching modules can greatly improve students' understanding of academic integrity. Although research shows that in some higher education institutions in which the culture of academic integrity is not well developed, by teaching students about academic misconduct, students could potentially learn about different new methods of cheating and try to implement them (Curaj et al., 2018). Despite these concerns, the danger of not educating students on this problem is far greater than the potential for promotion of academic misconduct, as we presume that the widespread education on academic values will install the moral and ethical values in the student population, leading to a reduction in misconduct over time.

Methodology

Protecting academic integrity is a collective task, involving all the higher education stakeholders, including the students, teaching staff, academic and non-academic staff, labour market representatives etc., as well as parents and friends. Students will feel more motivated to maintain academic integrity values if the example is set by the academic staff, just like the academic staff will feel motivated to share and teach these values to the students (Bretag, 2016).

Through our research, we tried to answer the following questions:

1. How knowledgeable are the students in individual NUSs regarding academic integrity and academic misconduct?
2. How engaged are students in the topic of academic integrity, according to individual NUSs?

3. What are the issues NUSs encounter in academic integrity policy implementation in their national context?
4. What issues in academic integrity policy implementations are present on the European level?

All the input provided in this paper is a result of two separate consultation sessions with our members (first within ESU, and the second one involving wider students' participation), as well as workshops and internal sessions during ESU's mandated events. The International Officers of 45 NUSs (for the full list of members, please refer to ESU's webpages) were asked to verbally report on the status of their NUS's work on the promotion of academic integrity and dealing with the academic misconduct, during ESU's Board Meeting 79 and 81, held late in 2020 and 2021, respectively. All the participants were between 19 and 35 years old and they were currently serving their mandate in the NUS they represent- this was the inclusion criteria for all the participants in the initial consultation. Out of the total number of NUSs involved, the responses were collected for a total of 21 member countries: Croatia, Estonia, Spain, Italy, Czechia, Slovenia, Bosnia and Herzegovina, Serbia, Bulgaria, Romania, Lithuania, Belgium, Hungary, Slovakia, Poland, Germany, Ireland, Georgia, Austria, Denmark, Norway. Students' experiences were noted down, and notes were used to form our research questions and further elaborate on them in consultation with the general student population (consultations on the issues were held with the students from Tallinn University in Estonia, student representatives from Croatia and Germany, and students from Nazarbayev University in Kazakhstan). The students from Nazarbayev University were consulted only in the second consultation, as Kazakhstan does not have representatives in ESU, but they are committed to the promotion of academic integrity (Nazarbayev University, 2021).

Our inclusion criteria for the wider consultation included participants being between 18 and 35 years of age, and they had to be currently enrolled at the HEI, without holding a student representative position in their national NUS. All students' perceptions were compared with findings in the existing literature.

Those issues that were mentioned multiple times by the NUSs as concerning, and were reaffirmed later on in the consultations with students and student representatives in their local/national context, were addressed in this chapter, if they matched certain criteria. The criteria included a certain issue/perspective being brought up independently by the participants (without external suggestions by the coordinators of the consultations), and supported by at least 3 other NUSs/ students belonging to a different HEI. Those topics for which specific examples of good practice were mentioned, were included as well, to illustrate students' perspectives in a more practical way. For all the topics matching the criteria of inclusion, we did desk-research to evaluate the students' positions and compared it to the practices available in the literature. For the provision of answers to the last research question we posed ourselves, we have conducted separate desk research and compared it to the practices and policy in ESU, to underline some of the perspectives provided by previous work of international student representatives.

Based on the information collected from the participants, a report was prepared and presented in this paper as students' perspectives on their engagement in academic integrity policy, bodies, and activities.

Results and Discussion

Issues Identified in the National and Regional Contexts Across Europe

Some of the main reasons why the topic of academic integrity is considered unattractive to students are discussed below.

Lack of Understanding the Academic Integrity Values

Students in ESU often report that they feel discouraged from participating in technical activities which require a level of understanding for performing as members of different bodies. This is not tied only to academic integrity, but to other tasks as well, such as participating in quality assurance processes or other expert bodies. In order for students to be comfortable applying for such positions, many mention the need for peer scaffolding (meaning more experienced students supporting less experienced students), having access to preparation materials and the support from HEI staff. Sometimes, the academic integrity policy can involve secrecy clauses, which can put additional stress on an inexperienced student, driving them away from participation and understanding academic integrity processes. The nature of these policies can vary- from proactive policies tackling academic misconduct, through pedagogic and reactive policies, to policies about detection, and students struggle to separate and understand these different approaches.

However, in comparison to quality assurance procedures, for which policy is well-developed, readily available and almost routinely implemented in HEIs, academic integrity is often promoted and maintained by a handful of professionals, often excluding students. On a European level, the trend of under-addressing academic integrity was clearly reported in 2013 by students from Austria, Cyprus, Czechia, Finland, Greece, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovenia and Spain, while for many countries this topic remained unaddressed (Glendinnig et al., 2013). In contrast, some countries like Estonia involve students more and have linked academic integrity to quality assurance, even though academic integrity does not seem to have a high priority in the national higher education system. Germany also involves students quite often on the topic of copyright, while Ireland and Sweden provide academic integrity training for students. The United Kingdom has developed and implemented text-matching software and the

topic of academic integrity is often addressed in higher education (Glendinning et al., 2013).

Having no experience with academic integrity values, definitions and breaches can also lead to misjudgement by students about the gravity of the misconduct and proposing an appropriate measure to address it, if a student participates in the assessment of the misconduct at all. There are some countries in which students have their own bodies of academic integrity, as in Croatia, where the role of the students' ombudspersons is defined by the Law on Students' Council and Other Students' Organisations (Zakon o Studentskom Zboru i Drugim Studentskim Organizacijama, 2007). In this case, Students' Councils have the right to appoint students' ombudspersons, usually more experienced students, to help the student community reflect on, understand or resolve academic integrity issues or misconduct. Other such examples come from the Setúbal Polytechnic Institute in Portugal and the Faculty of Social Sciences belonging to Charles University in Czechia, where students also choose one of their peers as their ombudsperson (Palma, 2020).

Fear of Consequences for the Student and Feeling Powerless in Influencing HEI Policy

Being a student actively involved in academic integrity bodies at their HEI can cause stress for the students involved, especially if they receive no prior training. As the report on the work of students' ombudspersons in Portugal mentions: "students and teachers experience unequal power relationships that constrain students' capacity to participate in institutional bodies. Unequal power relationships come not only from different types of knowledge that ones and others can mobilize in debates, but also from pedagogical assessment of students by teachers. This is particularly sensitive in case of making complaints. Students often express their fear that complaining could carry penalties with implications on their assessment" (Palma, 2020). Not to mention that stress can lead the students to develop anxiety symptoms or even depression and negatively impact their academic performance, as reported both by our participants and the available literature (Eisenberg et al., 2009). Additionally, students express their scepticism about the professional help provided by their HEIs, as well as their tutors, as they often do not want to be labelled by their colleagues for asking for help, or they do not trust the sincerity of the process (Russell & Topham, 2012). This is particularly concerning, as academic integrity policy should alleviate the pressure students feel during their educational process relating to institutional policy and transparency.

This type of dynamic at the institutions can prove harmful for the student, especially if no effective policy is put into place to protect the students participating in academic integrity boards. Under no circumstances should the students be afraid of expressing their opinion or stance on matters of academic integrity and/or misconduct, as this can further HEIs from the quality and transparency of their work.

In connection with the abovementioned issues that students perceive, the lack of implementation, interest and understanding of academic integrity among students

leaves them feeling powerless over influencing academic integrity processes and strategies in HEIs or at national level. If they cannot see the effects of their assessments and critical contributions, they are less likely to participate in those processes over time, leading to them losing interest in the topic generally.

In her research, Thomas (2002) explains why an effective institutional policy and environment are key to students' satisfaction and active participation in education, even contributing to higher completion rates. She notes that students who do not feel like they fit in or feel underappreciated by their HEI, are more likely to drop-out early, whilst the HEIs embracing students' diverse backgrounds had higher student satisfaction and this reduced the drop-out rates. Another source reaffirms the necessity of student representatives' engagement in educational governance and fostering inclusivity as a key factor in the development of HE, and explains the impact students' unions can have on policy development (Raaper, 2018). Therefore, to foster inclusivity and to assure students' satisfaction, "it is necessary to develop, explore and understand different institutional practices that can impact on the extent to which students feel that they are accepted" (Thomas, 2002). The institutional environment plays a crucial role in students' satisfaction and engagement, and parallel conclusions can be drawn in terms of student representation in HEI governance, where our participants reported they are more likely to share and voice their ideas or concerns if they feel supported by their teachers or other HEI employees.

Lack of Interest at the HEI

The lack of interest to involve students in academic integrity topics within HEIs includes the participation of students in academic integrity governance, assessment and promotion. As mentioned earlier, national structures rarely prioritise academic integrity, which is subsequently not prioritised at the HEI level either (Glendinning et al., 2013). Students also emphasise the need for continuous development of their understanding of academic integrity and misconduct during their studies, and having access to diverse content (engaging content, hands-on activities, multimedia content etc.) that would foster the development of their critical thinking on the topic as well (Bretag, 2016). Mentorship on this topic is a more practical way of supporting students' progress in understanding different values, promoting and practising them. Additionally, students prefer having an institutional policy to assure a certain level of academic integrity throughout their education (Lofstrom et al., 2014). Academic staff also have an opinion on who should teach students about academic integrity and in what way it should be done. It seems that these opinions differ also in comparison to the method of teaching, be it student-centred learning or teaching-centred learning. Some teachers also believe that integrity is an intrinsic value, impossible to be taught to the students (Lofstrom et al., 2014).

Research shows that the positive climate within an HEI, as well as an holistic approach to integrity, contribute greatly to students' understanding of the topic (Young et al., 2017). Technical and adaptive aspects play equal parts in assuring these values. Technical aspects include academic integrity policies and their

implementation, while adaptive aspects include the academic environment, cultural and individual values. The technical climate within HEIs contributes to a punitive approach to academic misconduct, while the adaptive climate contributes to a positive approach by leading students to engage and maintain a level of intrinsic integrity. The punitive approach is effective for combating misconduct, but the students we questioned regarding academic misconduct generally agree that this approach does not contribute to students' contemplation of academic integrity values and it does not promote critical thinking about them. These findings are in line with ESU's 2020 Policy Paper on Public Responsibility, Financing and Governance of Higher Education, which states that: 'Based on democratic principles, ESU strongly believes that there can be no academic integrity without students' participation. In practice, this means that students need to be involved in the creation of any institutional framework that deals with academic misconduct as well as in all relevant processes linked to monitoring academic integrity, setting up guidelines, investigating instances and co-deciding on the respective disciplinary measures, no matter if the suspect is a fellow student, teacher or member of academic staff' (European Students' Union, 2020). HEIs should work on engaging students more in governance and promoting these academic values, which would contribute to the creation of a collective network of academic integrity among all participants in higher education.

Issues Identified in the International Context Across Europe

From ESU's organisational perspective, we can identify obstacles in the promotion of academic integrity values on a European level, which include:

Lack of International Policy on Academic Integrity

The results of the IPPHEAE project confirm that, for many European countries, there is no national legislation on academic integrity readily available and implemented in higher education (Glendinning et al., 2013). In the report, it is even suggested that the researchers can feel marginalised or intimidated by their colleagues who consider research on plagiarism invasive. For many countries, the autonomy over these topics is unclear, leading to additional uncertainty in the approach to maintaining these values.

The lack of harmonisation of academic integrity values' definition and gravity, on a European level, can overall hinder the quality of higher education in general and it can potentially be linked to some of the issues experienced in recognition of prior learning. Some of the most common issues in full implementation of the Lisbon Recognition Convention (Convention on the Recognition of Qualifications Concerning Higher Education in the European Region, 1997), from students' perspective, include:

– Incomplete implementation of the Bologna tools across the European Higher Education Area (EHEA);
– Lack of trust between the EHEA countries;
– Lack of Governmental interest in the topic (Hovhannisyan et al., 2020).

It is hypothesised that the lack of trust between, not only EHEA countries as national entities, but individual HEIs across EHEA could partially stem from the lack of certainty in institutional academic integrity. A project called FraudS+ (False Records, Altered Diploma and Diploma Mills Qualifications Collection), coordinated by the Information Centre on Academic Mobility and Equivalence (CIMEA), a recognition centre in Italy, is already working on proving connections between academic integrity and recognition of competencies in higher education.

By creating a unified approach to promote academic values across Europe, with the potential and availability of further national development of measures and policy, ESU believes academic integrity could not only evolve but could propel the development of other key aspects of higher education under the Bologna process.

Assessing Academic Integrity Through Available Quality Assurance Systems

According to the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESGs) (European Association for Quality Assurance in Higher Education (ENQA), European Students' Union (ESU), European University Association (EUA), European Association of Institutions in Higher Education (EURASHE), 2015), academic integrity policy should be supported by effective quality assurance policies on a national and institutional level in internal quality assurance processes. Standard 3.6. relating to the assessment of the national quality assurance agencies mentions that the integrity of such institutions is supported by internal assessment policies on 'defining, assuring and enhancing' the quality and integrity. However, academic integrity policy and assessment is not an official criterion in quality assurance on any level in higher education under the Bologna process.

The transparency and integrity of quality assurance agencies and HEIs can be assured through the quality assurance agency's independence, its internal accountability mechanisms and the provision of information on prevention of academic misconduct at the institutional level in higher education, according to UNESCO's research in 2016 (Martin, 2016). One of the main traits of transparency is considered public sharing of information relating to institutional assessment, where some information can be found regarding corruption in higher education (particularly related to the Quality Assurance Agency for Higher Education (QAA)). Despite this example of good practice, the evidence of further integration of academic integrity in quality assurance assessments is scarce in Europe, particularly on the international level. This is supported by the fact that The European Quality Assurance Register for Higher Education (EQAR), has a database of quality assurance agencies complying with the ESGs, but does not provide an accessible way of data

mining in related fields of interest. Only the individual report-analysis is currently supported, so even the existing information is hard to evaluate in an international context.

Integrating Academic Integrity in the Curricula

Based on the assessment of ESU members, academic integrity in the context of teaching and learning as well as research, should be an integral part of every pro- gramme curriculum (European Students' Union, 2020). With the rise of the COVID-19 pandemic, students reported having a higher workload relating to the transfer of their studies to a digital format, and many have frequently felt frustrated, anxious and bored during their studies (Aristovnik et al., 2020; European Students' Union, University of Zadar, Institute for the Development of Education, 2020). The new reality of learning, apart from these difficulties for the students, presented addi- tional difficulty for the teaching staff in preservation of academic honesty.

Many HEIs and their teaching staff turned to the use of proctoring services, with mixed success. There are many reports in the literature addressing both the positive and negative sides of using proctoring software and other forms of proctoring, as many students are concerned with the use of their private data by their professors or HEIs (Kharbat & Abu Daabes, 2021; Coghlan et al., 2021). For many students, this new approach to monitoring learning and assessment garnered increased interest in academic integrity by students as they became increasingly concerned about the protection of their privacy, student rights and new assessment methods. Due to this increase in students' interest, the time is right to discuss the development and imple- mentation of policies in this area across EHEA, not only to harmonize the national approaches but to protect the academic integrity of accredited systems, as well as students' rights.

ESU's representatives believe that proctoring software should not be main- streamed in higher education and should only be used in specific situations, where the needs for its use outweigh the sacrifices, and only when students give their con- sent for the use of such software. Proctoring should not be implemented at those institutions that do not have an ethical and academic integrity policy or guidelines (European Students' Union, 2022).

Unilateral Perspective with a Focus on Student Misconduct

As mentioned before in our chapter, one of the main reasons why academic integrity is such an unpopular topic with students is the punitive approach towards students under the reactive policies of HEIs. The academic community needs to treat all the educational stakeholders the same, whether they be experts, academic staff, stu- dents or third parties. The system should involve all of these stakeholders in all matters pertaining to academic integrity and should advocate for it among those

stakeholders to create a like-minded community. This is one of the concerns students individually recognise, but it also applies in an international context.

Defining Students' Ombudspersons

In the second half of 2020, ESU consulted its members regarding the position of students' ombudspersons in their national perspectives, resulting in the receipt of mixed information. Many student unions did not know of such persons, while some countries (Ireland, Croatia, Austria, Norway, Czechia) seemed to have more understanding of this topic. Croatia (Zakon o Studentskom Zboru i Drugim Studentskim Organizacijama, 2007) and Norway (Act Relating to Universities and University Colleges, 2005) have an independent student acting as students' ombudsman by law, while in Ireland students work under the National Academic Integrity Network (NAIN), which is a part of the Quality and Qualifications Ireland, a national quality assurance agency. That way, students are proactively involved in linking academic integrity values with the quality of education. In Czechia, students cannot act as students' ombudspersons at all institutions, but a non-student ombudsperson is, in such cases, elected at the institutional level to help the students, as well as others, deal with academic misconduct (Faculty of Philosophy, Palacky University of Olomouc, 2021).

According to the study conducted by the European Network of Ombuds in Higher Education (ENOHE) in 2017, ombudspersons are defined differently, if defined at all, within national contexts. Who can act as an ombudsperson, as well as their scope of work and authority differs a lot, making it hard to achieve a unified approach to the role (Behrens, 2017). Despite this, ESU's members believe that the student ombudsperson should exist at every HEI, and be appointed by the student union at that institution, to participate in the processes of academic integrity assessment and promotion. They believe that this role, and the currently defined ombudspersons in the national contexts, can coexist and work together toward increasing the transparency at the level of higher education across EHEA.

Conclusion

Providing students' perspectives on academic integrity structures, issues and the role of students for this chapter has proven to be quite difficult, not only because of the lack of research on the topic, but also because of the lack of students' interest in this topic. In the past 12 months, the Executive Committee members of ESU have tried to collect and analyse the information provided by students regarding the role of students' ombudspersons, the establishment and the form of their national systems on academic integrity and students' rights protection, with varying success. This is partly due to the representatives changing in the NUSs and new students taking over the positions who have experience of studying confined mostly to the

pandemic period, making these topics seem more abstract to them than ever. Nevertheless, the input provided was compared to the available sources, and many unexpected connections were made, such as linking quality assurance and academic integrity, as well as recognition.

Students will always be passionate about their rights, and they need to have a say in all the parts of their education, as well as to be involved in the governance of HEIs, which still poses a problem in some countries (Hovhannisyan et al., 2020). We noticed that ESU's organisational perspectives on issues of involving students, as well as possible ways of engaging them differ between NUSs and the opinions of our student experts in academic integrity and the general student population. Students, members of the European Network for Academic Integrity (ENAI), The Council of Europe Platform on Ethics, Transparency and Integrity in Education (ETINED), World Intellectual Property Organization (WIPO) and the European Union Intellectual Property Office (EUIPO), as well as students acting as ombudspersons, could more easily grasp these topics and would engage more actively in the content. They have more concerns about the issue of not implementing academic integrity within the curricula and not designing a set of guidelines for the EHEA countries than the general student population.

Individual students would most often reflect on their insecurity when discussing the topic of academic integrity or ethical issues at their institution and would be more reserved if asked to comment on the procedures at their HEIs.

One thing ESU's representatives have in common with individual students is that all of them consider it highly important to engage students more in the positive promotion of academic integrity values and to learn about those values during their higher education studies. Linking academic integrity with research is of high importance to postgraduate students.

We have to mention that not many sources focus on the effects of mental health on student representatives' participation in governance and policy-making, so we see this as a field to additionally explore in the future, as those specific student groups have a direct impact on academic integrity in HEIs.

Finally, more research needs to be done in order to capture the opinion of students on academic integrity issues on a larger scale. There is a need for more determined development of national policy and legislation on academic integrity, as well as the creation of related implementation plans and procedures in HEIs. This must be done if HEIs wish to achieve transparency and integrity.

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Chapter 19
The Role of Reddit Communities in Enabling Contract Cheating

Thomas Lancaster and Rachel Gupta

Abstract The Reddit platform offers users access to more than two million discussion forums as of 2021, each known as subreddits. The subreddits include discussions aimed at university staff and at students. The role of question-and-answer subreddits in an academic integrity setting has not been explored within the research literature, but their availability potentially provides students with the ability to commit academic misconduct.

This chapter considers how Reddit is being used by students to access contract cheating providers who are offering students unauthorised help with homework questions. The wide range of questions being asked are considered. Many homework style questions on Reddit are seen to have a mathematical base to them. An analysis of 141,136 homework help requests shows peak requests to match typical student deadlines with a spike in requests matching the start of the Covid-19 pandemic.

The chapter concludes by noting that other question-and-answer sites exist and are being misused by students. The chapter recommends further exploration and the use of machine learning techniques to aid in large scale data processing in the academic integrity field. A warning is also provided to be passed on to students about the risks associated with contract cheating using question-and-answer sites, including the scams in operation and the chance of being detected.

Keywords Contract cheating · Reddit · Communities · Homework help · File sharing

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Background

Reddit is a popular online community that allows users to engage in primarily text-based discussions with one another. Often these discussions can be undertaken with a degree of anonymity for all participants.

Reddit discussions take place in topic themed boards, known as subreddits. Due to its manner of operation, Reddit has been described as a rule breaking community (Thomson, 2014), although the topics discussed can go beyond mere entertainment and include such useful areas as legal and financial advice.

Many ongoing discussions on academic integrity consider the need to build stronger communities between educators and students, as well as forging links across institutions. Reddit provides one such platform on which communities can be developed.

As this chapter will explore, there are many subreddits available aimed at both educators and students helping with community building. Such subreddits provide those participating in them with the opportunity to engage in discussion, to vent frustration and to seek advice. Unfortunately, subreddits can also be used to solicit unauthorised assistance with assessments or for the purposes of contract cheating, a term originally defined by Clarke and Lancaster (2006). The many possible negative uses of Reddit like these have not been explored in the academic integrity literature.

One of the biggest risks posed to academic standards by Reddit appears to be the ease with which students can post academic questions and request solutions, sometimes visibly and sometimes connecting to a darker underworld of contract cheating providers. The use appears akin to that of how students are using file sharing sites such as Chegg for what is billed as homework help (Rogerson & Basanta, 2016; Lancaster & Cotarlan, 2021). Unlike commercial sites, answers can be provided on Reddit without the need for students to pay an access fee, although this is dependent on the goodwill of the wider community. Reddit can also be seen as a platform for the provision of contract cheating services. This chapter will explore how Reddit is used for contract cheating purposes and how students and providers engage with one another.

This chapter first introduces the academic integrity context as relevant to a consideration of Reddit. It continues by sharing examples of the type of discussions taking place on Reddit which may be of interest to the academic integrity community. Such discussions provide indicators of the challenges students are facing, the type of assessment help students are requesting and the range of contract cheating provision that is available through Reddit. To indicate the scale of the opportunities for academic misconduct afforded by Reddit, a quantitative analysis of selected posts for homework help found in one representative subreddit is presented. Insights into wider research into contract cheating undertaken alongside the Reddit research are also provided to help equip the academic integrity community to take further action in the future.

This written chapter builds upon two previous presentations on this topic made at conferences (Lancaster & Gupta 2021a, b). The outputs are the result of a

student-staff academic integrity research partnership. The undergraduate student partner focused primarily on developing the software that enabled relevant data from Reddit to be collected and analysed.

The Academic Integrity Context

Academic misconduct is a long-standing challenge in education. Countless surveys have investigated student perceptions of cheating, asked students what they would do in different complex scenarios and required them to discuss known cheating behaviours of their "friends". Such survey style research dates back to at least 1904, where students who said they would not report cheating were judged as dishonourable (Barnes, 1904). The spectrum of student cheating has been found to encompass a range of dishonest behaviours (Newstead et al., 1996). As new technologies develop, so do the range of methods available for students wanting to cheat.

Studies into student cheating are wide-ranging. Surveys have shown that as many as 54.9% of students have undertaken cheating-like behaviours, most justified by them as being acceptable when needing to pass a course (Jordan, 2001). Surveys have found business students saying they are the ones who are most likely to cheat (Crown & Spiller, 1998). It has been shown through surveys that students who successfully cheat using one method are more likely to cheat using a further technique (Kremmer et al., 2007).

The use of surveys to investigate student behaviour has also become common in contract cheating research. A meta-analysis of such surveys indicated that 15.7% of all students internationally had engaged in contract cheating involving the payment of a fee between 2014 and 2018 (Newton, 2018). Surveys specific to Australia suggest a localised figure of 5.78% (Bretag et al., 2019). The likely extent of contract cheating lies somewhere between these two figures, due to some discrepancies in wording and potential interpretations by students of cheating behaviours.

The reasons why students commit contract cheating are of interest, but also complex. The aforementioned survey of Australian students found that students said they cheated most when they were dissatisfied by their course and when they found that opportunities to cheat existed (Bretag et al., 2019).

Survey approaches may not always be the best ways to research academic integrity issues, since they depend on the honesty of participants. An alternative approach analysing social media requests found that students resorted to contract cheating when they were unwilling or unable to persevere further with their assessments (Amigud & Lancaster, 2019). Often students were seen to complete the parts of an assignment they could do easily but chose to give up rather than complete the more challenging components.

Contract cheating itself is not a new problem, although the terminology relating to this area dates back only to 2006 (Clarke & Lancaster, 2006). A 1976 publication discussed an already complex essay mill industry, where students could telephone and receive bespoke assessment solutions. Alternatively, they could buy already

prepared answers with a guarantee that the same answer would never be sold twice to students from the same university (Stott, 1976). In the modern world of assessment, software is available to detect similar answers even when they have been submitted to different universities, so the business of contract cheating has evolved to allow answers to be individually produced to order for different requests.

Current strands of contract cheating research continue to investigate the development of the market, looking for example at the use of social media in the contract cheating process (Lancaster, 2019b), the writers working for contract cheating providers (Lancaster, 2019a), the quality of work produced (Sutherland-Smith & Dullaghan, 2019) and the risks to students of extortion and blackmail (Yorke, et al., 2020). Students on business courses have been shown to be the ones most likely to use contract cheating services, supporting the earlier mentioned survey research (Lancaster, 2020).

Other ongoing work on contract cheating has focused on solutions, with progress summarised by Lancaster and Clarke (Lancaster & Clarke, 2016). Machine learning (Carmichael & Weiss, 2019), forensic file investigation (Johnson & Davies, 2020) and stylometric techniques (Ison, 2020) may provide routes towards detection. Blocking access to contract cheating providers on university networks has also been attempted, although this has proven difficult when providers simply launch new sites (Seeland et al., 2020). Some success with detection has been seen by encouraging markers to actively look for contract cheating and to use supporting software where available (Dawson et al., 2020). Legal approaches have also been discussed as a method to reduce the provision of contract cheating services (Amigud & Dawson, 2020; Draper & Newton, 2017).

Contract cheating is not the only type of academic dishonesty of current interest. Studies have shown that copy and paste style plagiarism continues to be rampant (Kauffman & Young, 2015). When question-and-answer sites publish answers, these can be directly copied into student work. Other research has focused on the challenge posed by file-sharing sites (Rogerson, 2017; Lancaster & Cotarlan, 2021), where students can share notes and completed exercises to get answers to those of other students, or can sometimes directly request answers to exam questions. There also appears to be a link between sites used by students to hire tutors and the provision of contract cheating services. Such links also appear to be visible on Reddit.

This chapter is focused on the problem of question-and-answer style communities and how these can be used for contract cheating purposes, primarily Reddit. The chapter largely presents a reportage approach but this is further supported by quantitative data taken directly from the site. As with other studies mentioned (Amigud & Dawson, 2020; Amigud & Lancaster, 2019), this is an example of an alternative approach to investigating academic issues compared with survey research.

Academic Integrity Discussions on Reddit

An examination of academically focused subreddits has revealed that academic integrity issues are a regular source of discussion. The Reddit format for indicating subreddits is for these to start with "r/" followed by the subreddit name. Examples of subreddits containing such discussions include r/academia, r/AskProfessors, r/Professors and r/AskAcademia. There are also many subreddits aimed at specific discipline areas and at students at individual academic institutions.

Table 19.1 gives representative examples of 25 academic integrity related discussions posted across Reddit during a single week in October 2021. These examples were compiled by searching Reddit and are not related to the data set presented later in the chapter. As with data presented in the remainder of the chapter, the focus is on

Table 19.1 Examples of academic integrity related posts made on Reddit in October 2021

Post Title	Subreddit
Academic dishonesty advice and how should I move forward?	r/premed
Admitting to cheating - is it a bad idea?	r/college
An odd way to sorta cheat	r/professors
Apparently I don't care about my students because I won't let plagiarism slide	r/professors
Being accused of cheating	r/StudentNurse
Can UP detect if I viewed a file from coursehero?	r/peyups
Cheating on canvas	r/college
Data fabrication & contract cheating academic misconduct?	r/UniUK
First year student, got caught "cheating"	r/uwaterloo
Got caught cheating in a test: ADHD	r/ADHD
HELP! My boyfriend copied my lab reports. What should I do?	r/college
I cheated on an exam and broke my favorite professors trust	r/offmychest
I found my assignment on a "pay to do my work" website	r/professors
I hit the jackpot! *four* student submissions that were 100% plagiarized	r/professors
I just got caught cheating and may be expelled.	r/college
I messed up and helped a student during an exam. Any advice?	r/AskProfessors
Is my professor going too far on cheating policy?	r/AskProfessors
Is using websites like chegg for assignments/homework/labs cheating?	r/premed
People cheated on the test and I failed	r/college
Plagiarism checker	r/UMD
Student admitting to Cheating by using Chegg	r/professors
Student cheating off you during a test	r/AskProfessors
Used Chegg during a text, should I confess?	r/SBU
Why would people cheat in college?	r/NoStupidQuestions
You'd like me to regrade your plagiarized paper?	r/MaliciousCompliance

requests posted in English. The authors have not investigated the use of question-and-answer sites in other languages.

During the process of investigating academic integrity on Reddit, the authors read a large quantity of discussions and observed three areas of expressed concern they consider worth sharing with the wider community. These three areas of observed Reddit discussions are presented not as a formal qualitative study, but they do provide an indication of areas on which the community may wish to focus future attention.

The first common area of Reddit discussions involves students asking about processes, trying to find out what happens in academic misconduct investigations, debating whether certain scenarios are acceptable or not and asking how to appeal decisions. Although not evident from the post titles shown in Table 19.1, there are cases where students express concern about their mental health in light of academic misconduct investigations. Generally, such discussions show that students are attempting to learn more about academic integrity, but they also indicate shortcomings in the training and information made available to them earlier in their studies, since they should not have reached the point of an academic integrity investigation.

A second area of conversation involves academics themselves expressing concern about plagiarism, exam collusion and other forms of academic integrity breaches. Some posters express concerns that raised academic integrity matters are not taken seriously in their institution. Sometimes staff share examples of how easily they have identified attempts at student cheating or express the right that exists in many countries to them having academic autonomy.

A final area of Reddit academic integrity conversation observed is an indication that students feel that the support provided to them is lacking. Whether true or only a perception, this is perhaps one reason why students may feel like they have to use the so-called support services on Reddit which are not geared towards academic integrity and instead provide a gateway towards contract cheating.

Homework Help and Contract Cheating Subreddits

Many subreddits appear to exist to provide answers for students to homework questions or other assessments. These include contract cheating services. Examples of 12 public subreddits that operated in October 2021 and which could be associated with homework help or contract cheating provision are shown in Table 19.2. This list of sample subreddits is indicative, not complete. It was compiled by searching Reddit and does not include private subreddits, which require verification before users can read the contents of the subreddit. As Table 19.2 indicates, the largest operating subreddits in this space appear to date back to 2009, with 160,000 members.

Reddit's main user agreement does not explicitly discuss or prohibit posts related to homework or assessments. Individual subreddits are able to provide their own

Table 19.2 Examples of subreddits offering homework help and contract cheating services in October 2021

Subreddit	Number of members (as of October 2021)	Creation date
r/cheatatmathhomework	66,000	October 31, 2009
r/DoMyHomework	10,000	October 27, 2009
r/EssayForAll	4600	February 13, 2020
r/HireanAcademicWriter	1200	February 10, 2019
r/HomeworkHelp	160,000	September 6, 2009
r/Homework_MarketPlace	6800	September 14, 2020
r/hwforcash	10,700	October 15, 2019
r/OnlineClasses	1600	October 29, 2014
r/paidHomework	7100	February 13, 2016
r/paidHomeworkHelp	2500	January 2, 2016
r/TakeMyOnlineClass	1200	August 31, 2017
r/writers4hire	2800	January 29, 2019

rules about what type of posts are acceptable. Some questions-and-answers have explicit terms of service that ban money from being exchanged for answers although this would not stop providers negotiating with those requesting answers through private messaging services. Other subreddits only allow requests to be posted for which a fee may be charged and so do not disguise the fact that they are designed for contract cheating providers to operate on.

Reddit does provide an online form through which breaches of copyright can be reported under the Digital Millennium Copyright Act (DMCA). There is little evidence to show if instructors have been able to use take down requests to have posts of their own teaching materials or assessments removed. Reddit will remove subreddits that violate other terms of operation, such as affording fraud or being subject to repeated copyright infringement. Even during the production of this chapter, some homework help related subreddits disappeared and others emerged.

In many cases, contractors on Reddit refer to themselves as tutors. This appears to be an attempt to give themselves an air of legitimacy in that they are providing students with a support service, rather than making it clear that they are doing academic work for students.

If there is any doubt that Reddit is being used to link buyers with contract cheating providers, a simple look at some of the subreddits should remove this. Table 19.3 shows examples of ten representative posts made to the r/hwforcash subreddit on a single day in October 2021. These examples were found using a Reddit search. In many cases, the questions themselves are posted in the form of images rather than text, or only made available by sending a private message to the original author. The examples presented in Table 19.3 take this into account. The post title and a sample of the accompanying text is given. All errors are as these were represented in the original requests.

As the information shown in Table 19.3 demonstrates, the type of topics requested through question-and-answer Reddit sites largely match those requested through

Table 19.3 Examples of contract cheating requests on r/hwforcash in October 2021

Post Title	Subreddit
(BIO 101) writing a lab report assignment (easy)	Hi, just looking for someone who can do this assignment for me, it's basically a "how to" write a lab report with a video attached from the instructor. To be honest the instructions are kind of unclear so I just need someone to figure it out for me.
2 assignments for market research class and 2 assignments for advertising. Need done within 9 hours.	Need done within 9 hours.
Beginner web programming (HTML, CSS,Javascript and JQuery)	Looking for someone who is knowledgeable in HTML, CSS, Javascript and JQuery. This is a introduction to web programming class so nothing crazy. Looking for someone to take this 8 week class for me basically.
Can someone do this Microsoft word assignment for me?	So I have this Microsoft word assignment due tonight by 11:59 pm. It's super easy, it's just that I'm extremely busy td. I can pay you 40$.
Looking for cybersecurity help	Need help decrypting AES-128-CBC cipher using Base64. Show all work step-by-step! It is a two part assignment, I will pay 50% after first part completed, and the rest after second part is completed.
Looking for someone to do basic algebra 2 test for me	Look for someone to do a basic algebra 2 test for me that's tomorrow.
Microeconomics mid-term exam first year college introductory course $70	Will be between 25–30 questions. I will open up the test myself but will copy and paste all the questions to the test taker for me. 1 hour time limit. Test is on Friday October 22 at 9:45 am EST. would require at least 90% on test for all of $70.
Need help with MGF1107	Will someone be able to help me with an upcoming exam in a few weeks in MGF1107? I am attaching a sample of what the questions will look like. The exam uses honorlock so you can not log in remotely and do it from your computer. I will want to snap pics of the screen and you can give me the answer.
Research paper help needed	i need a 10 page research paper completed in 2 days. Anyone?
Statistics Assignment using R	DM me your discord name. This is a uni level stats course about variance and analysis of variance. Include the word "monkey" in your dm to filter out spammers, MUST HAVE VOUCHES!

other contract cheating providers. In many cases, the time pressures that students are under are evident in the posts. Pricing information is often provided. Table 19.3 includes an example of an attempt by a student to secure answers to an entire class. It also shows several requests for cheating on tests and exams. Students are seen to be worried about how they will outsmart online proctoring systems, presumably where they will be working on a locked down computer or under the gaze of a camera. In such cases, they are requiring answers to be sent to them outside of Reddit so that their attempt at exam cheating is not detected.

Requests Made on a Homework Help Subreddit

A further indication of the sheer scale through which academic answers are made available to students comes with an analysis of posts on the r/HomeworkHelp subreddit. This is the largest and longest established subreddit of its type. It seems likely that other question-and-answer subreddits will show similar usage patterns. This r/HomeworkHelp subreddit states in its rules of use that offering or soliciting payment for homework questions is not permitted. This means that the requests analysed are primarily for unpaid assistance, although it is not possible to say if requests may have later led to private agreements for commercial contract cheating provision.

A data set of 141,136 Reddit posts was programmatically collected from r/HomeworkHelp and analysed. These posts covered the period first January 2016 to 13th August 2020. Collecting, storing and processing data at this scale is a non-trivial technical problem and involved several weeks of programming, with many roadblocks along the way. Data was collected in accordance with the Reddit terms of service. Software tools were also developed to aid in automatically visualising aspects of the data collected, with example outputs shown in Figs. 19.1 and 19.2.

Figure 19.1 indicates the number of posts made on the subreddit per week over the period being considered. The distribution of posts appears to largely match the typical Western teaching year, with spikes around assessment and exams periods and drops at the end of the academic year and during the Christmas vacation. Of interest is the increase in the number of requests after March 2020, which matches the period when many universities moved to online teaching as a result of Covid-19. Notably, there were no substantial differences seen between the number of requests on weekdays and weekends over the period first January 2016 to 13th August 2020.
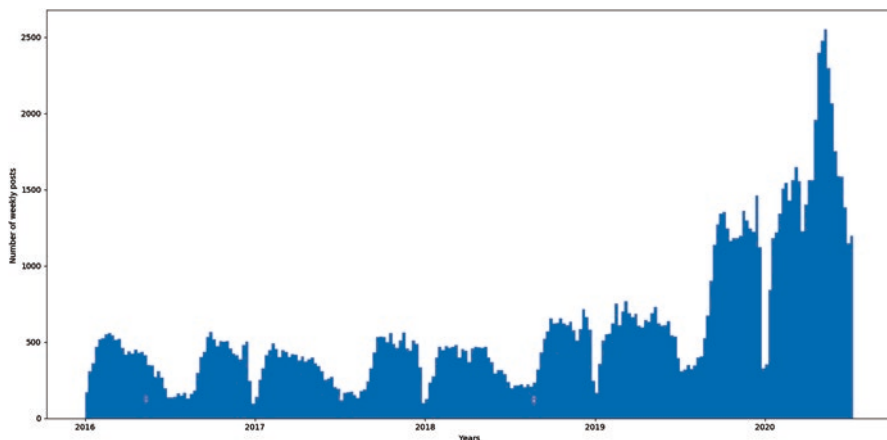
Fig. 19.1 Posts per week on r/homeworkhelp between first January 2016 and 13th August 2020
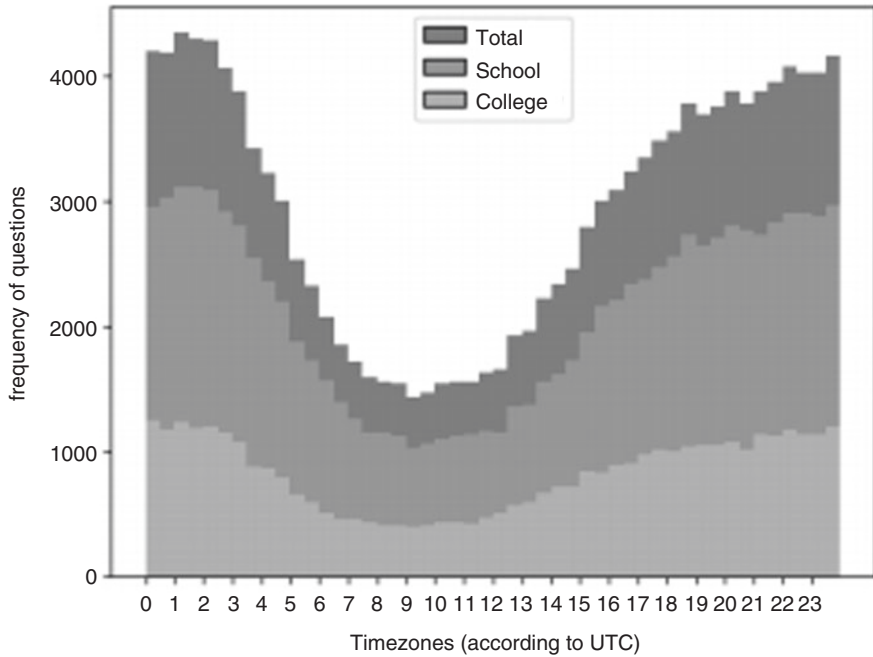
Fig. 19.2 Posts per week on r/homeworkhelp between 1st January 2016 and 13th August 2020

An analysis of the post tags in the data collected from the subreddit shows that 39,619 out of 141,136 posts (28.07%) were from high school students, with the other 101,517 out of 141,136 posts (71.93%) being from college or university students. Figure 19.2 shows the time posts were made split over 48 intervals of 30 minutes each. The time is presented in Coordinated Universal Time (UTC).

If Fig. 19.2 is considered as mainly reflective of North American time, it appears that a peak in requests in the afternoon and evening, followed by lull in requests overnight. College and university students appear to be more active on the subreddit during the daytime than school students, which may be explained by the difference between a fixed school schedule and a more varied and flexible university schedule.

A high-level analysis of the subject matter of posts, aided by a machine learning approach is overviewed here as it is likely to be of interest to the academic integrity community. Inspection of the data set suggested a heavy bias towards STEMM (Science, Technology, Engineering, Mathematics and Medicine) requests in the data set. Such posts covered 62% of the posts, with the remaining 38% being for the humanities and other disciplines. Within the STEMM section, the most popular categories in descending order were Maths, Physics and Chemistry, with mathematical questions being dominant at around 60% of these. However, it should be noted that the maths requests were not necessarily all from maths students as such questions can be asked in many academic disciplines.

Trends Identified

The wider exploration of Reddit conducted when researching this chapter identified question-and-answer subreddits used for both free and paid homework help. Several trends were identified which are worth discussing further.

Students Using Reddit for Academic Misconduct Are Placing Themselves at Risk

As part of academic integrity discussions held with students, it may be worth indicating that using Reddit is not without risk to them. Most posts made on Reddit are public. Some subreddits require users to be logged in and to ask for access, but this is normally a formality and access can be gained by researchers and contract cheating detectives.

During this research, the student partner was able to take on the role of contract cheating detective and provide evidence to other universities that their students were outsourcing work. This led to students being identified and penalised. It may also be possible for such detection to be aided through automated processes, for instance in a manner described by Clarke and Lancaster (2007) which proposed collecting assignment briefs from institutions so that they could be matched with online posts and instructors informed. It is quite rare that student Internet use is ever completely anonymous.

A further risk to students comes in the form of scams. One identified scam has seen providers create multiple accounts across several subreddits and use these to build up a series of reviews. This makes it look to students as if the tutor is reputable and will provide the student with high standard work. Discussions in the forums reveal that this is often not the case. The student may end up paying for work that is substandard or never arrives, at which point they will have little comeback.

Students attempting to buy work are also often encouraged to provide personally revealing information. Wider research into contract cheating has identified the possibility of students being blackmailed and extorted (Yorke et al., 2020). Such scams have also been observed on Reddit.

It appears that scam attempts can operate in several directions. Reddit tutors themselves have also discussed being scammed by students, sometimes by being paid less than the agreed rate. There are instances when students have sent the same question to multiple tutors then decided to only pay one of them.

Regardless of the morality of this situation, students need to be warned that the service they think they are arranging to work with is not actually a tutoring service regardless of how this is billed. Instead, they are committing contract cheating.

Students Themselves Are Looking for Ways to Get Free Access to File Sharing Sites

An interesting development has seen the development of subreddits such as r/CheggAnswers providing free or reduced-price access to file sharing sites through a backdoor approach. This suggests that although students want access to file sharing sites, not all of them feel able or willing to pay the subscription prices being charged.

Instead, such subreddits enable file sharing site access through a form of shared account for a lower fee, or sometimes for free if certain criteria are met. One common approach allows students to ask on the subreddit for the solution to an existing question stored on the file sharing site. The answer is then scraped from the file sharing site and posted on the subreddit or sent to them through private messaging.

It could be considered that students themselves are scamming file sharing sites by engaging in such activities. Some people would argue that this is no more dishonest than the service the file sharing site itself is offering.

Both Buyers and Providers Are Becoming Worried About Their Privacy

Observations from Reddit are also suggestive of the ways in which the wider contract cheating industry is developing. This also seems to correspond to legal changes taking place that may affect the viability of visible and easily traceable contract cheating services.

Alongside the main Reddit discussions, both buyers and providers are advertising alternative places within which discussions can be held and transactions completed. The options for private discussions here are varied. Some providers have set up private forums, but most advertise that they can be found on Discord, essentially a platform where people can join anonymously and where requests and agreements can be kept completely outside the view of observers, researchers and contract cheating detectives. Discussions on Reddit suggest that Discord is preferred to messengers like WhatsApp as Discord makes it possible for both parties to avoid sharing which country they are in.

A similar movement to enhance privacy has seen both buyers and providers using cryptocurrency to exchange payments rather than relying on traditional transactions which can be traced or reversed. Otherwise, an analysis of UK law has indicated that students have a legal right to change their mind and not complete a transaction with a contract cheating provider (Draper et al., 2021). The use of cryptocurrency does add a further level of risk to students who have little comeback, if they do not receive an order they paid for.

Future Opportunities

There are many opportunities for future research available through question-and-answers sites such as the subreddits discussed. These should enable researchers to develop a better understanding of how the contract cheating industry operates and the interventions that can be put into place to help preserve academic integrity.

Investigating Alternative Data Sources

The information presented in this chapter has focused on Reddit due to the large volume of English language requests for answers observed there. This chapter has barely scraped the surface of the information available on Reddit. There are separate platforms which only focus on academic questions, such as Chegg. There are also more wide-ranging platforms available, with both academic and non-academic questions, such as Quora and the StackExchange network (StackExchange includes such sites as StackOverflow and MathsOverflow). Questions can also be posted on social media. Many opportunities for future research are available.

Technical Opportunities

Collecting academic question-and-answer data at scale from Reddit is technically challenging. The student partner spent many weeks refining the process and attempting to use machine learning techniques to differentiate between cheating attempts and legitimate questions. The approach showed that it may be possible to analyse this data at scale, but this requires further work from people skilled at working with machine learning techniques.

Moving Beyond Anecdotes

This chapter has been informed by the authors reading large quantities of discussion posts, but there has been no attempt to quantify how often different types of behaviour occur. Further research could look more formally at this type of data to consider the reasons students cheat and the risks they are exposed to by doing so.

Non-English Academic Misconduct

The information presented in this chapter naturally focuses on discussions and requests made in English. There is little evidence to indicate if Reddit is used in a similar way in other languages, if alternative sites exist that are used instead, or if question-and-answer site use for the purposes of academic misconduct is a problem only within the English language. It would be useful if researchers with the appropriate skills and understanding could explore this problem.

Conclusions

This chapter has provided the first indication in the academic integrity literature of the scale of academic misconduct and contract cheating that is being facilitated through Reddit. It is a reminder to the community that contract cheating extends far beyond essay mills. Mathematical questions appear to dominate the main subreddits used for homework help and contract cheating. In common with findings by Amigud and Lancaster (2020) investigating contract cheating on Twitter, this suggests that students across multiple disciplines feel unable to solve maths problems and that this is an area for which universities should provide further support.

The use of homework help and file sharing platforms appears to have become widespread as a result of the pandemic, with a nearly 200% growth in the requests made through a file sharing site reported (Lancaster & Cotarlan, 2021). Reddit does not appear to provide any specific guidance for educators concerned about academic integrity violations, although it may be possible for them to request the removal of copyright materials using standard DMCA procedures.

Identifying when questions are posted on file sharing sites and communities such as Reddit continues to be an issue. Since requests on Reddit are often posted in imager format, questions can be shared quickly during an exam as photos or screen capture images. One suggestion is that universities should look at methods of adding unique watermarks to student exam papers to make these traceable if they are placed online.

Ultimately, contract cheating providers will aim to justify their line of work and to protect their source of income. Investigating the profiles of providers revealed people from a wide range of backgrounds providing services, including university lecturers.

Alongside direct requests for contract cheating, the subreddits also host discussions about contract cheating where providers aim to justify their line of work as being ethical. A common view expressed by providers that contract cheating represented a morally sound decision for students and that people objecting to this were just insensitive to outside pressures.

Wider justification given by providers was that they thought the educational system disadvantaged students, that educational fees were exorbitant, that students needed to protect their investment and that students were not equipped to navigate

university academic misconduct processes. The latter point does appear to be largely backed up by many of the questions posed by students on other subreddits, as identified in Table 19.1.

Continued support for students does need to be put into place by the academic integrity community. This would mean that students should not feel the need to seek out tutoring or contract cheating services and would remove some of the objections as to why providers say that they offer such services. Further in-depth analysis of Reddit discussions would be useful to identify fresh information about exactly what support university students feel they are lacking, both in their subject provision and in their wider understanding of academic integrity. This would perhaps provide a positive goal that universities could work towards.

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Part VI
Ghosts of Transgressions Past: Handling Allegations of Past Misdeeds and their Implications for the Present and Future

Introduction

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Like all scholarly disciplines, the field of Academic Integrity has its share of controversies. Among the most hotly contended is the recurring question of how to handle past transgressions. Positions range from those who say we should focus exclusively on addressing (and hopefully, preventing) present and future breaches, to those who believe no "statute of limitations" exists, and that bringing past instances of cheating and plagiarism to light is an intrinsic good. As is the case in any real controversy, the question cannot be answered simply because there are valid considerations from multiple perspectives.

Among the complications of adjudicating past academic misdeeds is the difficulty in assessing the context. One critical component of that context is the extent to which the person accused of trangressing was taught how to do the assignment in question correctly. In short, if the student or researcher was not given sufficient (or sometimes any) instruction on documenting or citing correctly, on the extent to which outside collaboration was or was not allowed, or to what extent using work submitted elsewhere was allowed, many would find it difficult to find them fully responsible for their misconduct, as the institution did not fulfil its obligation to instruct. While others would disagree, saying that students should know the rules of research, citation, collaboration etc., others, myself included, believe that in order to hold students to account, we must first be explicit about the standards and expectations that apply in academia (Fishman, 2009).

On the other hand, it can be (and is) argued that there are some expectations that transcend context, such as the assumption that work submitted as one's own is, in fact, done by the person(s) submitting it, and that allowing past wrongs to remain unaddressed gives a "green light" to future misbehavior. This argument is particularly compelling in the case of high-profile, successful individuals who become elevated in public discourse to the position of role model. How can we hope to persuade current students that cheating and plagiarism are wrong, this argument goes, when they see that using those tactics results in success, fame, and power?

Both arguments have merit. It is indeed problematic to "prosecute" academic integrity cases from years, even decades ago without being able to ensure that the subject of the investigation had proper instruction and it is also problematic not to address them not only on the basis of what is just and fair but also because failure to do so may cause future harm because of the message it may inadvertently send: that cheating and getting away with it can lead to success. There is, however, a third perspective, and because Academic Integrity is an applied discipline rather than an abstract one, this is the one that I believe applies most to the chapter that follows.

Failing to address past academic misconduct is a particular hazard in the case of leadership who might fail to take necessary action in the future because they know they have their own academic vulnerabilities from the past. While it is certainly true that some leaders demonstrably engage in activities which they publicly decry, it is also true that many people are hesitant to openly criticize behaviour they themselves engage in--both for ethical and practical reasons. It can be politically dangerous as well as ethically fraught to be caught having done something for which one punishes others, which means that having leaders who have engaged in academic misconduct engenders the very real risk that they will be loath to engage in campaigns to promote academic integrity for fear of being "outed" as a hypocrite. Leaders who fear being exposed for their own misconduct might reasonably be expected to minimise the harm caused by integrity offenses because they themselves are effectively kompromat.

It is for this reason that work like that of Dr. Weber Wulf makes a valuable contribution to our field. While most of us do not advocate "cheat-shaming" as a primary means of combating academic misconduct, few would dispute that simply accepting cheating as a legitimate means by which to attain power, prestige, and influence risks greater harm than exposing it, and those who do this work provide a necessary, if ethically complicated, contribution to advancing the cause of integrity in academia.

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Chapter 20
Talking to a Wall: The Response of German Universities to Documentations of Plagiarism in Doctoral Theses

Debora Weber-Wulff

Abstract The VroniPlag Wiki academic group has been documenting plagiarism in doctoral theses since 2011. When a documentation is published, the university is informed and sent an extensive report. Expectations are that the university will act quickly and decisively and communicate their final result to the scientific community. This paper describes the documentation process of VroniPlag Wiki, the academic misconduct processes at German universities, and the slow and disappointing reactions of many universities. Suggestions for improvement of the processes are also presented.

Keywords Plagiarism · Revoked dissertations · Legal cases · Germany

Introduction

In Germany, all doctoral dissertations must be published and many habilitations (the second doctorate often necessary for a university professorship) are also available in print. They are one of the first publications a young scientist produces, although many now publish a number of papers and present a collection of them for a cumulative dissertation.

At the end of March 2011, shortly after extensive plagiarism in the law doctorate of the then German Minister of Defense, Karl-Theodor zu Guttenberg, was documented as being highly plagiarized (GuttenPlag Wiki, 2011), a new wiki called VroniPlag Wiki was started (Plagin Hood, 2016). It was formed to document plagiarism in the dissertation of Veronika Saß, the daughter of a German politician. It soon

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became clear that there were many more doctoral dissertations that were plagiarized.

As of September 2021, 212 documentations have been published on the web site. In each case, the university in question was informed and an investigation requested. Since the work of VroniPlag Wiki was not conducted as a scientific investigation but developed over the space of ten years, much of what is reported here is rather anecdotal in nature, although due to the sheer number of cases reported, some conclusions can still be drawn.

The German public tends to understand the work of VroniPlag Wiki as being focused solely on politicians. This is probably due to the fact that the German press generally only reports on cases involving prominent persons, in particular politicians. However, only 19 cases involve people from this group. Much more troubling are the more than 55 theses written by people who are or were active researchers or academics.

185 of the cases affect 64 German universities and 26 are from 16 other European countries. The response of the universities has been extremely varied, as the author has previously reported (Dannemann & Weber-Wulff, 2015; Dannemann et al. 2018; Weber-Wulff 2012, 2014). There have been some rays of light in the darkness, but unfortunately not too many. In this paper, the current state of the response of the universities to the plagiarism documentations will be discussed.

Documentation Process

VroniPlag Wiki is not a software system. It is a group of academics from a wide variety of fields who document plagiarism found in doctoral dissertations and habilitations. The group is solely made up of volunteers. Some tenured professors are known by their orthonyms but most prefer to be pseudonymous. The reason for the pseudonymity has been made abundantly clear in the few cases in which a person's orthonym became known: the repercussions have been severe. Some universities and high-ranking academics have a penchant for punishing or discrediting whistleblowers instead of persons who commit academic misconduct.

The theses to be investigated are not necessarily chosen with the author in mind. Instead the researchers may serediptiously stumble over plagiarism in the process of working their day jobs. In other cases, persons who know that a plagiarism has been accepted might contact the group, either by anonymous drop or by contacting one of the known researchers from the group. Additionally, a few systematic investigations have been conducted in an attempt to find potential plagiarisms. The sheer amount of potential cases is alarming, the group has documented only a few of the many cases found, as the effort needed for the documentation is quite substantial.

The group does not rely on copies of the thesis that have been sent in anonymously, as in two cases these were not identical to the thesis actually accepted. The thesis is obtained from a library, by inter-library loan if necessary, and digitally scanned. Reading the thesis will often help discover good phrases to use in search

machines. Google is used for finding digital sources, Google Books for finding potentially printed sources that can also be obtained through a library. Close examination of the literature list can also be useful, as people who copy from multiple sources will often copy references in different styles. Stylistic differences in reference list entries can point to other potential sources.

When plagiarism is identified, it is documented on the wiki, taking care not to publish the name yet. The documentation is done in a two-column style. On the left side, the text from a maximum of one page of the thesis is documented, including meta data such as page and line numbers. On the right, the matching text from only one source is documented, also including its meta data, and the type of plagiarism is identified. The categories used are copy & paste plagiarism, disguised plagiarism, translation plagiarism, and so-called pawn sacrifices (Lahusen 2006, p. 411). The latter is the case when the source is mentioned somewhere near the fragment documented, but the closeness of the copy or the extent of the copying is not made clear to the reader.

Each documented fragment must be reviewed by at least one other researcher, because errors do happen. For example, the person documenting could have missed a continuation of the plagiarism after skipping a line, or miscounted the line numbers. Or there are artifacts introduced during digitization that need to be corrected, or typographic forms such as italics, boldface, or underlining that were inadvertently omitted.

When "enough" has been documented, for various definitions of enough, the author is named and a report is generated from the wiki. This extensive report, often larger than the thesis itself, is sent off by email to the university. The president or rector of the university is addressed, as well as the dean of the faculty and the chair of the appropriate committee, if discoverable on the web site of the university. In the early years of the project, since the report was available online, only the URL was sent. However, addressees at some of the universities seemed unable to follow these links, so reports were generated and sent along with the emails. In more than one case, a version was printed and sent to the university by registered mail, as the email attachment was not seen.

This process description shows that determining plagiarism in a doctoral dissertation is not something easily done by software. An enormous amount of time and effort needs to be invested.

Talking to a Wall

Communicating with universities is a difficult task. People who hold office change more or less regularly, the administrations are often sorely understaffed, digitalization in Germany is still in its infancy, and university web sites tend to be problematic (Munroe, 2010). The topic of academic misconduct is not one that generally fires administrations into any action except taking a defensive standpoint. After a discussion of the processes a university follows, some of the problems along the way will be investigated in detail.

Academic Misconduct Processes at German Universities

In Germany, there is a legal requirement for all universities to name an ombud for good scientific practice. It can be exceedingly difficult to find this person from the university web page, and even more difficult to discover the process that is to be followed at that university. Many universities have adapted their processes from the guidelines for good scientific practice that a federal organization, which funds much of the research in Germany, has published (Deutsche Forschungsgemeinschaft, 2019). But since each university has their own variations of procedure, this poses quite a barrier to external persons wishing to inform a university about potential academic misconduct. Some universities differentiate between processes for reporting from people employed at the universities versus external people, others refuse to accept anonymous complaints.

There is generally a committee that first decides if the case is serious or not. If it is, there is often an investigative committee appointed. They will invite the author of the work to comment on the accusation. The informer is also supposed to be heard, although that has only been the case twice. Committees sometimes have external experts give their opinions about the case, although plagiarism is not something that needs expertise from someone in a particular field. Some researchers insist that text overlap is to be expected in their fields, although it is not clear why references cannot be used to clearly delineate where it begins and where it ends. The investigative committee will make a recommendation to the appropriate body, which may be the doctoral dissertation committee or the faculty board. This body itself will take a decision on the matter, and then either the dean or the president/rector will rescind the doctorate.

The expectations that I have as an informer of the university are:

- A confirmation of receipt of the accusation should be sent within two weeks.
- The university should be able to deal with the situation within 6–12 months, especially since they are given a detailed report of the text parallels.
- The informer should be informed if the investigation takes more than 6 months.
- The final decision, either to rescind the doctorate or not, should be communicated to the informer, detailing the reasons for the decision.
- If the doctorate is rescinded, the academic community needs to be informed. This means that library catalogues must be corrected. A legal expertise prepared by Rolf Schwartmann (2018a, 2018b) for the *Ombudsman für die Wissenschaft* makes it clear that in Germany the universities are obliged to clearly mark plagiarisms as such.

These expectations do seem, however, to cause problems, as detailed in the following sections.

Confirmation of Receipt

In the early days of VroniPlag Wiki, the information sent to the universities was often ignored, if not responded to in a hostile manner. I have had emails replying to me at my university address, complaining that I have "anonymously" submitted the complaint.

Since the informer is sending an email, a short email confirming the receipt should not be that difficult to send. The dean of the law school at the University of Bremen is the current record holder, having responded just 30 minutes after the email was sent. A university is usually contacted two weeks later if no such receipt is forthcoming. Calls to universities can sometimes work wonders, but some do not even respond to repeated emails. The University of Würzburg needed a full 6 months to send a confirmation of receipt, albeit together with its decision. Five years later, although this case has been decided, the academic community has not yet been informed of the fact.

Duration of the Case

Universities are slow-moving organizations. Since their main job is teaching and research, administrative chores are often given little attention. So it would seem reasonable for the investigation and decision in such a case to take at least one semester, for more difficult cases perhaps two. It should be possible for a university to reach a decision and communicate it to the informer and the general public within 12 months.

It isn't.

The list of cases that have not been decided and/or not communicated is long: 70 cases. The average length of these cases, counting to September 2021, is around **72 months**! This is because two institutions, the Berlin Charité and the Medical School of the University of Münster, were sent many cases in 2014, 33 and 23 respectively. Both institutions are very closed-mouth about their investigations, only communicating the number of cases decided, but not the individual results. Since all are plagiarisms, these are counted as open cases until either a specific answer is given, or the library catalogue is appropriately marked. But even removing these two institutions results in an average of 53 months without communication of results.

In the case of rescinded doctorates, it is difficult to determine the exact length of the process, as either the date is not communicated at all, or library catalogues are marked with different dates, or the date of the end of the court case is given, not the date the university decided. The same is true for the cases that have not rescinded the doctorate, as these dates are not always given. Thus, it is impossible to exactly measure how long such cases take. The only thing that is clear is that these processes take much longer than six months.

Communication with the Informer

As one of the university informers for the VroniPlag Wiki project, I want to be kept informed of the progress of the cases. I don't need to be given a weekly report, but once a semester would be sufficient for being able to determine that progress is being made. As someone external to the process, I cannot tell the difference between a case that is being ignored, one that has been forgotten, and one that is making slow progress. A bit more transparency in this respect would save much correspondence.

However, since the universities seldom do this, reminders need to be sent. Before sending a reminder, the library entries are checked to see if perhaps the case has been decided, but the informer not contacted. The university web pages need to again be consulted to see if there have been changes in the officials responsible. Some do respond quickly, saying that they will look into the issue. But too often they forget, and no answer is forthcoming.

Marking the Library Catalogues

More important than communicating with the informers is the communication with the academic community. A doctoral dissertation is not a term paper written for a university course, but a published contribution to the body of academic knowledge. If a thesis contains plagiarism, it is vital for this information to be made public.

Germany has very good data privacy laws, so it is understandable that there is a reluctance to publish something percieved as negative about a person. However, what is often not seen is that information about a plagiarism is not about the *person*, but about the *thesis*. Thus, the library catalogue entry for a person is not to be marked as a plagiarist, but the entry for the thesis itself must be marked so that potential readers are informed. Examples of markings found in libraries for some of the VroniPlag Wiki cases (WiseWoman, 2021b) and for other plagiarism cases (WiseWoman, 2021a) can be found online.

Not only should the catalogues be marked, but also the books themselves, both digital and printed copies, need to have information affixed. This is a daunting task, as copies of doctoral dissertations are distributed to numerous other university libraries in Germany and may also be available abroad. Some universities have managed to mark their own copies of the theses, but in general they have no way of informing other libraries that the books need to be marked. This poses a grave danger to future academics obtaining a thesis and depending on it, without knowing that it is plagiarized or otherwise not to be trusted.

Some universities that publish their dissertations digitally remove them from the Internet. This depublication is also problematic, as there could be academic work published that referred to this thesis. That is why it is better to clearly mark the catalogue and the digital publication, but not to remove it, so that it is possible to examine the text at a later date.

An additional, minor point on informing the community has to do with German identity cards. A doctoral degree can be included on ID cards. The journalist Armin Himmelrath demonstrated in 2012 that the authorities don't closely check the presented documents. They actually entered a doctoral degree for him that he purchased on the internet (Himmelrath, 2012). He had it taken off again after his article was published. There had been a parliamentary attempt in 2011 by the Green Party to amend the law in order to have the "Dr." taken off the ID cards, but it was unsuccessful (Sager et al., 2011). There is currently no procedure in place for the universities to inform the official institutions in charge of issuing ID cards that a particular degree is no longer valid.

Why Are the Universities So Reticent?

The question arises as to why the universities are so reticent when it comes to plagiarism at the level of doctoral dissertations or above? They are one of the major players when it comes to producing scientific knowledge. One could expect them to be actively and aggressively defending that which is true, while being swift and sure in dealing with academic misconduct.

I believe that part of the problem is that German universities in particular are shy of being sued. Since the public universities are administrative bodies, they have many complicated (and even conflicting!) procedures that are laid down in numerous documents. Additionally, Germany has very good data privacy and personal rights laws. Many people are unaware of what exactly the procedures are or are specified in the laws, so they err on the side of caution and say nothing. Even though there are freedom of information acts, I have not been able to convince some universities to give me the results of their investigations. This is problematic from a scientific point of view, because it would be quite interesting to compare what the VroniPlag Wiki group documented as plagiarism with what the university agreed was plagiarism.

And of course, many people who have had their doctorates rescinded by a university do sue, and some even continue to the upper and supreme courts. Almost two dozen VroniPlag Wiki cases have already been decided in the courts, many more are still pending. In three cases the universities have lost due to procedural errors. In one case in particular, the evaluators of the thesis had noticed the plagiarism and insisted on the thesis being adapted before publishing. This information did not make its way to the administration, which gave permission for the thesis to be published without corrections. Additionally, since the German courts are so overloaded with cases, it can take 3–5 years for a case to be decided in just the lower courts. During this time, the plaintiff can continue to use the doctoral degree. But in general, the universities do win.

Another point that could explain the reticence is that from the point of view of a university administrator, a plagiarism case is only a singularity. With the exception of two universities as noted above, there may just be one case, or up to a handful,

that they are informed about. They may think that it makes the university look bad to have a plagiarism case and thus be more willing to bury the case, or at least not say anything that might be construed as detrimental. They won't talk to the informer, they don't talk to the press, and they are afraid to mark the plagiarisms in the library for fear of that, too, getting them sued.

Some universities have devised a simple method of excusing themselves from having to rescind a doctorate: they issue a "reprimand" (*Rüge*) to the author for violating good scientific practices. A reprimand is rarely in the list of potential sanctions, although the Charité has actually added it to its own list, because it offers an easy way out. The doctoral degree remains intact, so the author of the plagiarism doesn't have to change their nameplate on their door, but the university appears to have taken action. And since the reprimand doesn't really hurt, the decision can be taken much more quickly, saving everyone time. Of course, in such a case, the academic community suffers, as reprimands don't generally make their way to the library catalogues or the books themselves. One university requested that the author put a note in the printed copies of the thesis. Even though a deadline was given for this, the publications were still available after that deadline with no notice attached.

Summary Discussion

This paper has discussed the reactions of German universities to documentation about plagiarism in doctorates and habilitations. There are more than 20 documentations that affect degrees granted by universities outside of Germany. The process of informing the universities and requesting information is not formalized, so there is no means of measuring the responses of the individual universities and comparing them with each other.

But what does evolve is this: Even though universities have a published process for dealing with academic misconduct, many do not follow it. Whistleblowers are irritants in the everyday life of a university, which is understaffed and underfunded and burdened with so much bureaucracy. The universities are unable to cope with the problem of dealing with plagiarism (or fabrication or falsification) after a degree has been granted. They are reluctant to take away a degree once awarded to someone who may now be a colleague or otherwise successful in what they do.

They are in some respect afraid of the plagiarists: afraid of the lawyers they hire, afraid of having to deal with a court case, afraid of it being known that they were fooled by a student to such an extreme extent. But their inability to deal with this problem means that there are many problematic doctoral dissertations published. Even the ones that have been determined to be plagiarized are in general not properly marked so that future readers know that they are looking at a plagiarism.

And these cases do not cover all of the plagiarized dissertations. There are hundreds more that have not yet been documented, but the investment of time needed to document the plagiarism is enormous and being done by volunteers.

German universities must get serious, not just in preventing plagiarism from happening, but in swift and sure sanctions for discovered, serious cases.

Note: The author uses the pseudonym *WiseWoman* online.

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Concluding Remarks

The general aim of this volume is to broaden the horizons of academic integrity by discussing novel research on broadening theories and practices in this field, the role of technologies, and the importance of student involvement in building a culture of academic integrity. The idea of broadening the horizons reflects the development of the academic integrity field from focusing on the detection of cheating, via pedagogical approaches to prevent misconduct, towards a wider discussion on academic integrity as a way to secure the quality of education and research and as one of the keys to achieving sustainable development goals.

Broadening theories and practices of academic integrity is a multi-layered approach that can be used to build a culture of academic integrity. The first section of this volume provides several examples of such an approach ranging from outreach efforts towards a variety of non-educational organisations, the exploration and comparison of ethical guidelines, policies, and actions in different institutions, as well as improvement of student responses in research on sensitive topics.

The world around us is changing at a fast pace and not always in ways that can be foreseen. In recent times we have faced crisis after crisis: dealing with climate change, the impact of conflict and war, threats to health. The COVID-19 pandemic caused global disruption. In higher education, the small number of teachers that already had courses completely online considered themselves lucky. For the rest, emergency remote teaching became the new norm. The transition was challenging for both teachers and students and, in some cases, academic integrity deteriorated. However, shortly after the beginning of the pandemic, the academic community proved that it is adaptable to the challenge and capable of responding to the challenges with a range of creative solutions: communities of practice were developed in order to support students and teachers, policy documents were adapted, novel pedagogical approaches and technological solutions were tested. In the section Integrity in on-line education, a range of scenarios and strategies are explored that were adopted in different parts of the world during the COVID-19 pandemic.

Technological developments anticipate new challenges in the fields of education and research, but new technological advances can also be used for investigating types of academic misconduct that are difficult to find, including translation plagiarism and contract cheating, the use of proctoring systems, as well as innovative use of data mining to detect cheating on on-line quizzes.

These fast-paced changes pose a requirement to the whole academic community to protect academic integrity and stress the importance of a student-centred approach. In the final two sections of the volume, we focus on research about students, but also inviting students to be involved in research as researchers. Showing the importance of collaboration and partnership with students in building a culture of academic integrity and the importance for educators to understand students' perspectives is one of the main contributions of this volume.

In the globalised world, challenges we face are often similar. Sharing our local experiences, best practices and creative solutions, reflecting over what works and what needs to be improved, redefining and adapting theories, working together in networks such as European Network for Academic Integrity, is a way to inspire each other, provide a central point of reference and unification of standards, and to ensure that education and research are conducted with integrity.

We are proud of the contribution to the field of academic integrity that this volume presents and want to thank all the authors and co-authors for choosing to publish their research in this book. This edited volume is an output from the 7th European Conference for Academic Integrity and Plagiarism organized online by Uppsala University, Sweden and Mendel University in Brno, Czechia on behalf of the European Network for Academic Integrity (ENAI).

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