Jenny Carter · Clive Rosen *Editors*

Transnational Higher Education in Computing Courses

Experiences and Reflections

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Editors
Jenny Carter
Department of Computer Science
University of Huddersfield
Huddersfield, UK

Clive Rosen
Passerelle Systems
Newcastle-under-Lyme, Staffordshire, UK

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To Rosa, Sally and Paul

Foreword

Transnational Education (TNE) means different things to different people. The strict definition involves offering an awarding institution's degree and delivering it in another country. UK TNE therefore consists of UK institutions' degrees being delivered overseas. A more liberal definition includes the overseas students who come to the UK to study here and distance learning students who remain in their home counties, but study for UK awarded degrees over the Internet. Whichever means of study overseas students choose, they face challenges above and beyond those of domestic students. It is therefore to be welcomed that such a knowledgeable and experienced group of people have come together to offer their reflections on how students can be supported in their endeavours.

In 2015–2016, there were approximately 700,000 students studying UK degrees outside of the UK. A further 450,000 international students choose to study in the UK. Over four-fifths of UK universities are now involved in some form of TNE, though the majority of students are enrolled with just fifteen UK universities and approximately half of UK TNE involves just three institutions. More than 40% of students studying outside the UK are taught through traditional collaborative provision models, distance learning delivery accounts for approximately a fifth of TNE students, and overseas campuses another tenth.

Given the increased attractiveness of Canada and Australia as study destinations, and continued interest in studying in the US, recruiting students to study in the UK is becoming increasingly competitive. As a general trend, it is not a surprise therefore that UK overseas TNE delivery is growing quicker than international student recruitment to the UK. This growth is also being driven by UK Government policy on students coming to the UK. As an important consideration for UK universities looking to grow international student numbers, understanding how best to engage with the full range of TNE options, and what opportunities and challenges result from embarking on or expanding such provision, is critical to successful TNE engagement.

Within this context, this book is a timely and useful resource for those looking to develop high-quality UK TNE. It starts by answering some of the fundamental and often asked questions when offering TNE degrees. How should dual awards be

developed which meet both student learning needs and the regulatory requirements of two institutions in different countries? How do we develop effective education that responds to the needs of both cultures? In the latter case, cultural differences can be significant and are important to understand. As the largest market for international students, China in particular is a key partner country when looking to develop UK TNE and some answers are provided using the context of how maths and programming can be delivered at an overseas campus in China (Ningbo).

Accommodating both institutions within a TNE curriculum is not just a regulatory consideration, it can also provide a mechanism for international collaboration and this area is therefore explored. Learner needs are central to effective education and in a TNE context, two of the key challenges are the cultural and pedagogical shifts required to develop effective independent TNE learners. Guidance for international partner institutions is therefore provided, followed by a detailed discussion of how critical thinking skills can be promoted. TNE exists at postgraduate as well as undergraduate level and there can be challenges with providing Ph.D. supervision especially through distance learning; these challenges are therefore discussed. TNE has developed a lot in the UK in the last decade and there have been many opportunities to learn and adapt from these developments. Case studies can also be useful in illustrating some of the differing study experiences which make up a critical part of students' TNE journey. Both areas are discussed before the final few chapters focus on the future of UK TNE. In particular, how can we use innovation to support education fit for the future? How can we develop curricula which are appropriate for a global workforce? How can we use work-based learning to prepare global graduates? All these and more questions will be answered in this book which summarises the lessons learnt, questions we should ask and the ideas for the future of UK TNE. This is an important multi-faceted topic, which is only going to gain further prominence as globalisation continues to impact UK universities.

Huddersfield, UK Rupert Ward

Preface

Transnational Education (TNE) in computing in the UK is set to expand. The financial pressures on UK Higher Education Institutes (UK HEIs) will drive them to seek new markets for courses, and the worldwide popularity of computing and computer-related courses make computing a prime candidate for promotion. Whilst UK educational products are not the cheapest form of HE on the international market, the UK is hoping, as Arjab Singh Khuman's chapter (Chap. 15) identifies, to trade on its reputation for quality. Those universities awarded Gold status in the recent Teaching Quality Assessment are in a particularly strong position in this regard. This book, in essence, explores what "quality" means in relation to TNE, and the consequential moral and ethical implications of this strategy.

However, this is not a book on marketing. Nor is it a book on ethics and morals. It is in fact a book that reflects on practice and on how best to deliver constructive, harmonious and sustainable international partnerships in education. The contributors to this book have many scores of years of experience working with overseas partners. They have seen and been participants in fruitful collaborations and in some horror stories. They know what works and what does not. This volume pools that expertise and offers it to readers in the hope that the horrors can be avoided, or at least minimised in the future and the successes increased.

Overseas collaborations introduce a broad range of additional difficulties for educators that need to be addressed. These include logistical problems, language issues and cultural differences on top of the pedagogic problems all students can face. At the forefront of concern is the student experience. The aim of each of these chapters is to make this as rewarding as possible. However, as contributors' own experience can testify, many, often avoidable, problems can arise that interfere with this experience. These problems can be a consequence of the way the programme was initially set up, the level of support students receive during their study or issues with the programme units themselves. TNE is sometimes defined narrowly as an HEI exporting either their own programme or validating a programme running (or to be run) in a non-UK country. However, many of the problems students face are the same whether they are studying in their own country or travelling to the UK to study here. There are obviously some differences, and we wanted to include those

within this book. We have therefore taken the broadest definition of TNE to include students coming to the UK as well as studying overseas with collaborative partners.

This book is partitioned in under three part headings: “Principles”, “Supporting Students” and “Curriculum”.

The part on principles opens with the thorny issue of cultural differences between the societies from which the students come and the academic culture promoted within UK HEIs. Clive Rosen’s scene-setting chapter on cultural differences argues for cultural sensitivity, the avoidance of generalisations and providing appropriate support for both staff and students at the partner institution. This argument resonates in Neil Hart’s chapter on establishing and managing partnerships. Both chapters make the point that the provider UK HEI bears responsibility for the reputation of the collaboration, and that this requires ongoing investment. Dave Wilson (Chap. 3) mines data on the comparative performance of UK and overseas students by region and other factors to suggest that EU students actually tend to perform better than UK domiciled students, but that students from countries outside the EU perform less well. One of the key factors affecting student performance is familiarity with the English language. Such a finding may not be too surprising, but it does perhaps indicate that for certain groups of students insufficient support is available in this area. Prapa Rattadilok’s chapter on how Chinese students choose an international university. Her comparative analysis of Chinese education and UK education relates back to Clive’s opening chapter and forwards to Dongsheng and Eileen’s chapter.

This part is rounded off with a chapter by Armaghan Moemeni et al. looking at the practical difficulties for countries wanting to make the transition from traditional, national HE structures to one aligned to the Bologna Accord. There are a number of post-Soviet countries looking to make this transition at present, and Armaghan’s case study, written in collaboration with Lina Kankeviciene from Alytaus kolegija and Richard Gatward in Huddersfield, provides an insightful observation of the problems that can occur with such national projects.

Part II is concerned with how we can best support students whether they come to the UK to study, choose to stay in their home country studying with a franchise operator or, as in the opening chapter by Jenny Carter et al.’s study as postgraduates by distance learning. This chapter reports three case studies and is a collaboration between the distance learning students themselves and supporting staff. It throws the spotlight on the quality of the relationships between supporting staff and students suggesting that the more engaged both staff and students are, the more likely students are to complete distance learning courses. This is followed by Dongsheng Xu and Eileen Roddy’s chapter on the support needs of Chinese students given the cultural adjustments they face when they come to the UK. Again both language and staff/student relationships are highlighted amongst other issues. One of the adjustments that international students must make is the use of source material. As Thomas Lancaster’s chapter on academic misconduct identifies, cultural expectations of what is permissible need to be addressed. Each of these chapters places demands on academic staff. It cannot be assumed that staff, particularly new academics, know what is expected of them. The additional demands of teaching

overseas students coming to the UK or when working for a franchise organisation abroad, need to be recognised. Their approach to teaching and learning will probably have to change. Staff therefore need to be prepared. Carlton McDonald's chapter offers a framework for staff development suitable for this purpose.

This part closes with Fran Rimmer et al.'s chapter considering what happens to students on graduation. It reports on a study conducted with students about global employability (a theme picked up later in Dharmendra Shadija and Richard Hill's chapter) and the support that is needed to encourage them to prepare them for the global challenge. Computing is a global industry and graduates, wherever they are from, can expect to work anywhere in the world. It is therefore incumbent on us to consider how to prepare them for this experience. What they need and how they can be provided with the essential skills is a challenge, but one that should be faced.

The final part explores how the curriculum affects non-UK students. Dharmendra Shadija and Richard Hill's chapter demonstrates how thoughtful, reflective practice helps to develop programmes that both achieve learning outcomes and provide students with a positive learning experience. Steve Wade and Mohammed Salahat's chapter is similar, but with the focus on database design rather than systems design. Steve and Mohammed found that by careful, considered module design, they could utilise cultural differences as an asset for learning rather than an obstacle that must be overcome. What is striking about Michael O'Grady et. al.'s chapter is the contrast they have noted between the attitudes of EU students that come to the UK to study and that of many UK students; the former being much more committed to their studies than many of their peers. Whether this is due to the self-selecting nature of the cohorts, making a positive choice to leave home and study in a foreign language, or is affected by other factors is unknown, but the positive influence they have on other students is noteworthy.

David Cobham and Kevin Jacques return to the subject of alignment, this time at the module level rather than at the programme level. This is essential for dual degrees, but module equivalence is necessary for franchise programmes as well, particularly in those cases where the partner organisation is delivering its own curriculum.

The final chapter, but by no means the least important chapter, by Arjab Singh Khuman looks forward to greater involvement in TNEs in the future. This will undoubtedly be the case for many institutions so having an awareness of best practice will hopefully help to achieve satisfaction for providers, deliverers and students.

Chapter authors have made the implicit assumption that TNE is a good thing. This is not a universally held view. Many staff in the UK HEI sector would argue that TNE arrangements distract from the day job of delivering education to students in the UK and researching the current boundaries of human knowledge. Some others would argue that foisting UK intellectualism on foreign countries is just the latest form of post-colonial, imperialist hegemony that represents an assumed moral superiority of Western values. Yet a third group argue that we should not be supporting morally dubious countries with poor reputations for human rights by

offering to educate the already privileged children of their elites. These are valid concerns, but they are not the only way of approaching TNE.

One can take the position that democracy of thought is good in its own right, and that encouraging independent thinking is valuable whatever the politics of a particular country might be. It follows therefore that people should be offered the opportunity to learn the skills that enable independent thinking. These skills include critical analysis, evaluation, the self-confidence to express one's own views and challenge received wisdom. If one accepts this argument, enabling others to employ these skills becomes a powerful tool to hold those in power to account. Of course, there is a danger that this belief becomes a secular evangelism that shares the same flaws of previous evangelical movements. So it is incumbent on holders of this perspective to be open to criticism themselves and to be self-reflective regarding their practice.

Education can, and perhaps should be, a mechanism for questioning not only what, but how power is used. This may be legitimate within one's own culture, but, in a post-colonial age, one has to at least question the ethics of exporting such values to other countries. True education is, by its very nature, subversive. Yet it also offers the prospect of sustainable economic growth in a twenty-first century knowledge economy. This is the modern dilemma all ruling elites face; the challenge to their power base versus the imperatives of staying competitive in a global economy in which imagination, inventiveness and creativity are the currency.

HEIs have a responsibility for the well-being of their students. This is true whatever the mode in which the student is studying. It is incumbent upon HEIs therefore to offer the necessary level of support required for the student to achieve their potential, regardless of the student's sociopolitical environment. If the HEI is unable, or not prepared to meet this challenge, they should carefully consider whether the potential rewards match the potential cost in terms of reputational damage. We might argue that this has not always been the case in the past, but hope that it will be going forward.

This book, written as it has been by practitioners with many years of experience of TNE collaborations, takes the stance that transnational education is potentially both powerful and positive and can contribute to the common good, if it is undertaken in a professional manner with sufficient thought and without the intent to exploit. Not all collaborations fulfil these criteria. We hope that this volume will help ensure that more do so in the future.

Newcastle-under-Lyme, UK — Clive Rosen
Huddersfield, UK — Jenny Carter

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Part I
Principles

Chapter 1
Bridging the Cultural Divide: Applying Critical Thinking in TNE Partnerships

Clive Rosen

> Far be from us, Sire, the dangerous novelty of thinking. (Attributed to the Rector of the University of Cervera by Dijkstra (1989)).

Abstract It is often reported by lecturing staff working with overseas partners that non-European students seem to lack the capability in critical thinking (Huang 2008; Durkin 2011; Zhang 2017; Fox 1996) at final year degree and masters level required by UK QAA benchmarks (The Quality Assurance Agency 2016). Concerns are also expressed that overseas staff fail to sufficiently value the importance of critical thinking. This results in assignments that fail to provide students with the opportunity to demonstrate critical thinking or marking that gives disproportionate marks to knowledge retrieval rather than critical thinking. This chapter examines these assertions in the context of degree and masters' level courses in computing and computer-related courses. It suggests that there can be real problems. However, by analysing what we actually mean by critical thinking, and examining how relationships with partners are managed, benchmark programme learning outcomes can be satisfied. There are hidden costs involved in managing TNE partnerships that are often overlooked by provider institutions. If these are not accounted for, programmes can be compromised.

Keywords Critical thinking · Academic culture · TNE management · Academic quality

C. Rosen (✉)
Passerelle Systems, Newcastle under Lyme, England
e-mail: Clivecrosen@outlook.com

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1.1 Introduction

The title of this chapter posits two assumptions: firstly that there is a cultural divide between, usually "Western", provider institutions and "non-Western", deliverer institutions. Secondly, there is an implication that the term critical thinking is a well-defined, well-understood concept to which all provider institutions work. In the spirit of critical thinking, both of these assumptions need to be explored more closely before we can consider how such a cultural gap, if it exists, might be closed.

There is an extensive, but largely inconclusive literature on each of these assumptions. Nevertheless, on reflection, some of this literature can provide insights into understanding the issues that can arise in transnational relationships in higher education. Clearly, the way the problem is framed predisposes approaches to the solutions proffered, and this is a contentious area. It is not the intention of this paper to revisit this controversy in detail, but neither can it be ignored. It is necessary therefore to tiptoe through this minefield before adding to the controversy. Hopefully, this will shed light rather than sow confusion. The chapter has therefore been structured in the following way should you wish to skip some of the background and head straight to the substance.

Section 1.1 explores what is meant by critical thinking. It looks at the underlying skills that are required using Mason's model (2008) and Ennis' (1996) skills breakdown to explore the prerequisites of the concept of critical thinking. Section 1.2 analyses the arguments regarding a cultural divide; does it exist, if so how does it manifest itself? This section also takes a look at the socio-political context in which attitudes to critical thinking have evolved in the UK. This exemplifier illustrates how attitudes to TNE relationships can be distorted by unrecognised cultural influences. Section 1.3 discusses the particular context of computing and IT, whilst Sect. 1.4 concludes by discussing approaches to bridging the divide.

This chapter does not consider how to teach critical thinking skills per se as this is addressed by other chapters in this volume. It is intended to provide a backdrop against which the discussion regarding methods can be conducted.

1.2 What Is Critical Thinking?

It is often assumed that when we talk about critical thinking, we have a common understanding of the concept, but as Hammersley-Fletcher and Hanley (2016) discuss, academics proffer a variety of definitions when questioned on the subject. Mason (2008) identifies three ways of approaching critical thinking; skills, attitude and an aspiration to be critical. He draws on Ennis (1996) to identify the skills as being observing, inferring, generalising, reasoning, evaluating and "reasonable reflective thinking" (ibid. p. 3). An alternative set of critical thinking skills (attributed to Penn State University (English 2013)) is

> generating multiple (or creative) solutions to a problem, drawing inferences, synthesizing and integrating information, distinguishing between fact and opinion, or estimating potential outcomes, but it can also refer to the process of evaluating the quality of one's own thinking. (ibid)

Given these skills, it becomes evident that critical thinking is actually a multi-faceted skill set requiring intellectual nurturing in its own right rather than an innate ability available to all. However, a distinction needs to be made between what might be described as "academic" critical thinking and "natural" critical thinking. According to McMillan (2018), academic critical thinking derives from Greek philosophy and is an activity that implies a "disciplined and systematic process" (ibid P5) in contrast to the unstructured thought processes applied in a lay context. There is an implied superiority to the academic method that should be noted. Students not only need to be taught this method, but enculturated into their approach to thinking. It is a perceived lack of enculturation that is sometimes observed in international students when studying in a TNE environment.

Mason (op. cit.) identifies two alternative approaches to thinking about critical thought (as referred to above). However, these need not necessarily be considered an alternative, but can be seen as complementary. Mason draws on Ennis (op. cit.) Paul (1982), Siege (1990) and McPeak (1981) to suggest that an attitude of scepticism (the willingness to question) and motivation to question are significant components of critical thinking. Clearly, if one is uninclined to take a critical point of view and/or has little desire to challenge existing ways of thinking, alternative paradigms within a domain cannot be generated. However, it can be argued that a propensity for critical thought is essential to survival. If one accepts this, one might reasonably ask the question, what is so different about structuring the thought process that causes some to become disinclined to exercise an academic approach to critical thinking? This question is considered further below.

1.3 A Cultural Divide?

It is tempting, as this author has done previously (Rosen 2015) to observe a phenomenon and reach for relatively superficial conclusions. One such position, represented by De Bary (1998) and Tu (1996) finds that there are major differences between "Western" culture represented by Socratic philosophy and "Eastern" or Confucian thinking. Ryan and Louie (2008) confront these shibboleths arguing that they are based on simplistic understandings of Confucianism and overgeneralisations. They conclude that there are no fundamentals of Confucianism that preclude independent or critical thinking and that Confucius thought of himself as a deep thinker. In any case, it is a stretch to conclude that either Socratic principles or Confucianist thought forms the basis of the attitudes of many modern computing students to critical thinking. It is doubtful that either philosophy encourages or dissuades them from thinking critically. As such, continued debate might be of academic interest, but probably has limited practical application.

A more promising argument proposed by Zhang (2017) suggests Chinese students are hampered by the "Four Treasures" (Marxism, Maoism, "official" Chinese history and "official" Chinese moral guidance). This position is encompassed by the more general discussion regarding libertarianism and authoritarianism below and can be considered in that light.

In practice, therefore, the question of the existence or otherwise of any cultural divide is determined by the extent to which the societies from which students (and teaching staff) come encourage or repress independent thought. Zhang's reference to China can be considered an example of one such environment. Clearly, cultural liberalism is a spectrum, not a binary divide and one with many nuances. The taxonomy illustrated in Fig. 1.1 is intended to capture some of this subtly.

Figure 1.1 identifies four (illustrative) points on this spectrum, "Positive Encouragement", "Allowed", "Culturally Discouraged" and "Politically Discouraged". However, each point may be nuanced, so "Positive Encouragement" might be subdivided into "Actually Encouraged" and "Rhetorically Encouraged". The rhetorical position is one in which a culture may consider it politically advantageous to support critical thinking, but seek to undermine it or restrict it in reality to an elite or to pragmatic necessity. Restricting resources availability is another way in which critical thinking in practice can be limited. Resources may be focused on a particular area the society considers valuable. Where critical thinking is "Allowed", it may be overseen, managed or controlled by officialdom. Cultural discouragement may be exhibited by a group or society exerting pressure on an individual to conform, whereas political discouragement might impose judicial or punitive sanctions.

Of course, it is impossible to characterise a whole society in this way. Culture is not homogenous, nor is it constant over time, but consistency is not a primary concern.

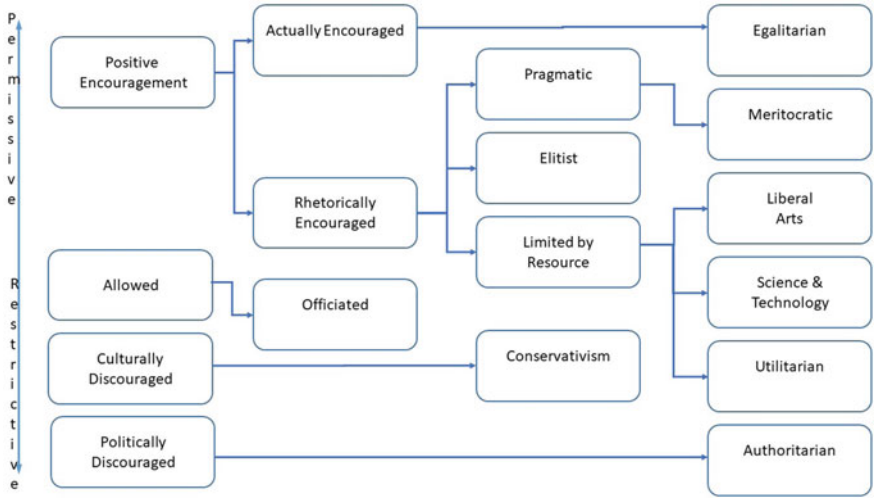

Fig. 1.1 Taxonomy of permissibility of critical thinking

It is the culture with which an individual student or member of staff identifies that is of significance. As Ryan and Louie phrase it,

> 'Cosmopolitically sensitive education' … entails a meta-cultural awareness and a willingness to meet the learning needs of all students (Ryan and Louie 2008, p. 76).

In other words, it is important that members of staff are sensitive to and empathic with the students with whom they are working, recognising their needs and adjusting their pedagogic approach accordingly, not categorising or stereotyping the culture from which these students may have come and generalising from that. Figure 1.1 offers guidance on the source of a student's or a staff member's reticence to engage in critical thinking, and therefore, how one might address this reticence. It should not be used to stereotype all students from a given culture.

The practical implications of this taxonomy refer back to the discussion above in so far as it identifies the implications for student learning. If a student has grown up in a highly authoritarian society where independent thought is punishable, it is unrealistic to expect that, by offering a few research skills, they will openly engage in freethinking. Their psycho-social constructs need to be addressed first. On the other hand, for a student who has grown up in very permissive culture, a disciplined study skills approach may be more appropriate. Students who have learnt that, in spite of a positive rhetoric promoting critical thinking they fail to be rewarded or are actually marked down for applying it, may well have a learnt behaviour of avoidance. It may not be sufficient to say critical thinking is a good thing, positive behaviours need to be positively encouraged and rewarded.

In a TNE environment, this analysis applies equally, if not more so, to the staff teaching the programme. It is a mistake to assume that, just because members of staff have studied in HEIs that promotes critical thinking, they will inevitably encourage the same approach when they return home. Such an expectation not only demonstrates a certain high mindedness, it fails to recognise the influence culture can have on a person. Cultural norms can have profound effects. For example, a culture that respects seniority may well invest teachers and lecturers with power and authority. Such status can be very seductive. The culture exerts a homeostatic inertia that can be very strong. Provider HEIs that fail to recognise this phenomenon and to provide development programmes to promote change, risk failing to satisfy benchmark standards. If this situation persists, it can readily become intractable. Criticising students will not solve the problem. A programme of cultural change will be needed within the partner institution. Some provider institutions have been known to walk away at this point rather than work with the partner to encourage change. One might be tempted to ask how strongly the provider was committed to the partner when this happens. Provider HEIs that see transnational partnerships in purely transactional terms may be surprised by the true cost of maintaining the relationship.

In a partnership, it is important to be cognisant of one's own culture as well as that of the partner. For example, in higher education in the UK, great emphasis is placed on critical thinking as expressed in the benchmark statements, but it is tempting to idealise this commitment. At present, there is a great deal of concern that the value of critical thinking is being undermined (Nussbaum 2010; McMillan 2018).

This concern however fails to appreciate the historical, utilitarian and paternalistic attitudes Anglophone authorities have long held towards critical thinking. One can argue that the history of Anglophone education has been to educate the population only to a sufficient degree as to serve the economy. As economies have become more complex, the working population has required more sophisticated skills and additional years of schooling have been required. Thus when the society was primarily agrarian and feudal, the majority populace were not required to read or write. When machinery became more common, more advanced skills were required, so these had to be taught. Cash economies require basic literacy and mathematical ability. Only an elite of society were afforded and could afford education involving critical thought. The ability to think critically could be, and often was, used to maintain the stratification of society. Social crises have been sparked when larger groups within the population have usurped educational tools to question the status quo. These people usually described as "radicals" and "troublemakers" were generally suppressed by the authorities, often with violence. In the UK, possibly due to the earlier onset of the industrial revolution, the British economy required higher level skills earlier than many other countries, so introduced universal primary education in 1832. The number of years of (now compulsory) education has gradually increased since. There are many who have argued that the purpose of state education has been to control their populations by limiting their ambitions and expectations whilst, at the same time, dangling the prospect of advancement through education, e.g. Illich (1971).

Higher education, the domain of unrestricted access to free thought, remained restricted to only 8.4% of the population until the 1970s in the UK (Bolton 2012). Thus any threat from divergent or subversive thinking could be managed. However, with the arrival of the automation of "white collar" work using computers and the need for a workforce capable of exploiting the new technologies, higher education was expanded. Despite this expansion, the traditions of freethinking, critical evaluation and creativity continued to be valued within UK universities, perhaps because, as McMillan suggests, capitalism had learnt how to exploit these skills (McMillan 2018). An alternative explanation might be that critical thinking had become sufficiently entrenched within the culture of UK HE during the period when access to HE was restricted that it had become a defining standard of a university. However, it would be a mistake to believe that political authority in the UK has fully endorsed the concept of universal critical thought; hence the widespread discontent within the university sector complaining about how critical thinking is being undermined. Consequently, the current perceived threat to the quality of critical thought is no more than a continuance of societal management of critical thinking rather than a new phenomenon.

It is also difficult when one is embedded in a culture to recognise that a given culture has not always existed, particularly when one is content with that culture. This can lead to a hegemonic attitude that can undermine collaborative arrangements with partners with different experiences and backgrounds. Remaining aware of the challenges within one's own environment can help support the efforts partners make in overcoming theirs.

In this context, the "cultural gap" between (in this case) UK HEIs' determination of critical thinking and that of their partners can be a projection of a sense of the vulnerability of the position of critical thinking within UK society rather than confidence in its strength. HEIs must demonstrate their commitment to the concept of critical thinking in TNE relationships to protect it from the threats at home. One might also argue that the "gap" is not quite as large as some might like to think.

1.4 Critical Thinking in Computing and IT

All critical thinking occurs within a context. This context not only circumscribes the parameters of the debate, but it also defines what critical thinking is in the given domain (McMillan 2018). If that context is computing, what is accepted as critical thinking will be different than say in chemistry. If the context is cybersecurity, it will be different from project management. This diversity makes concrete definitions difficult, and for a discipline such as computing and IT which spans such a wide range of sub-disciplines, it becomes difficult to convey the concept to both students and neophyte academics. Precise definition in the computing domain is made more difficult because of the pace of change in the subject area. New sub-domains emerge every few years. Cybersecurity, artificial intelligence and data analytics were far less prominent than they are now, and the means of assessing a student's critical thinking capability in each is different.

The problem is further compounded by the fact that much of computing education is practical rather than theoretical; doing rather than thinking. English (2013) argues that critical thinking is essential for managing technical development, and when one thinks about it, she is almost certainly correct. Requirements definition requires us to assign priorities often using judgements of social rather than technical criteria. Project management includes the evaluation of risk. Code testing forces us to distinguish between a fault and a feature. One of the skills employers expect of graduates is that they are capable of using their own judgement. These scenarios require critical thinking skills. However, developing a database, of itself, however complicated the database might be, would not, in itself, constitute critical thought. However, a discussion on the usability of the database interface might well include critical thought. Does a final year project that implements a new sophisticated algorithm therefore meet the benchmark standard for critical thought? The answer is probably "no", unless the project also includes a measure of evaluation of the algorithm. It might be inventive and creative, but without some reflection on what was done, whether it could have been improved or done in a different way, would not contain critical thinking. This may seem like pedantry, but when one is attempting to explain the concept of critical thinking in a TNE partnership, it becomes more important. This is because it is just this type of judgment to which student work becomes subject and can create friction between provider and deliverer institutions. Partner organisations may well feel that their students are subject to such pedantry when home students are not, perhaps with some justification.

Rather than seek precise definition, a more helpful approach might be to work with the more abstract definition (one might even consider it to be a meta-definition). Critical thinking occurs when one reflects on the process of thinking itself; what Schön (1995) describes as "reflection on action". The essential point though is that the necessity for reflection/ evaluation is made clear to students. The vehicle for this clarity is the assignment description. Three conditions must prevail.

1. The assignment itself must provide the opportunity for students to analyse, evaluate and reflect on the problem/scenario/case study/whatever it may be.
2. The marking criteria must make it clear that well-made argument carries greater weight than description.
3. These marking criteria must be applied by the assessment team.

It is greatly beneficial also if, for every assignment that is set, clear, constructive, developmental and timely feedback is given to students highlighting how well or otherwise they have met the criteria for critical thinking. This is probably the main vehicle for establishing standards, and probably the one of which most students take most note. To achieve enculturation, teaching staff need to be clear regarding the standard themselves and be capable of articulating it. Where it appears that staff are unsure, it is the responsibility of the provider institution to provide the required staff development. Ultimately, it is the provider institution's reputation for the provision that is at stake. When the necessary staff development has not been included in the cost modelling for the provision, problems may well occur.

Feedback to students on the assessment plays a very important role in the process of developing the critical thinking skills that students need. As such, feedback needs to be constructive and timely. Feedback in effect needs to act as "feedforward" enabling students to apply critical thinking principles in future assignments. The list of skills identified at the beginning of this chapter might serve as a template for assessing critical thinking where appropriate. Suggesting ways in which students might improve how they present their arguments is not only of benefit to them, it also offers a means of establishing a consistent marking scheme.

Teaching staff play another vital part in encouraging students to think critically; that of being role models for critical thinking. Staff must not only allow students to differ in their opinions from their teachers, but actively encouraging them to question received wisdom from whatever source, including teaching staff. As McMillan (2018) says, critical thinking requires scepticism, and that includes questioning the most prominent authority; i.e. the teacher in front of them. This may be difficult for some staff in partner organisations where the tradition is one of deference to authority such as teachers, but along with applying assessment criteria at the appropriate level, being open to being questioned is a potent tool for supporting student learning. Teaching staff need to demonstrate open engagement with student discussion. It can be difficult for provider institutions to know whether this is actually taking place. Some providers conduct peer observation exercises as part of the agreement. This can be expensive but can help to cement the relationship between provider and deliverer organisations if conducted in a positive collaborative spirit.

1.5 Conclusion

The educational experience students will have received before entering higher education will have been as diverse as the number of students. Some may have been encouraged to think for themselves, others may have been positively discouraged. For some, this might have been enshrined in their cultural background. For others, critical thinking might simply have been omitted from their schooling. Some cultures might regard critical thinking as subversive and dangerous. In other cultures, regard for superiors, such as teachers is considered sacrosanct, whilst yet other cultures might consider being deferential as demeaning and patronising. In many countries, challenging governmental policy is punishable in law. Even in countries that are open to critical evaluation, the lack of a tradition of such thinking may put some students at a disadvantage to others.

As Mason (2008) suggests, critical thinking requires skill, attitude and values. Each of these needs to be addressed if students are going to become critical thinkers. Delivery staff play a vital part in promoting the attitudes and values required by modelling openness to being questioned, setting and marking assessments against the appropriate criteria. They need to provide timely, constructive feedback to students for them to use in future assignments. Critical thinking skills can be taught as part of research methods classes, but interpreting how these skills are applied, and assessing the attitudes and values that accompany them is more difficult, more ephemeral. Attitudes and values rely on teaching staff. A TNE provider cannot assume that local delivery staff are fully attuned to these values. Local staff may well be as inculcated into the local culture as the students. If students are expected to demonstrate critical thinking, staff need to model these skills and present a consistent interpretation of them. It is the role of the provider institution not only to assure the standards as regards to critical thinking but also to support local staff in their delivery. This may well include ongoing staff development and commitment to true collaboration. Exploitative relationships may well flounder because a provider institution assumes staff at the delivery institution are already enculturated with critical thinking values. Working in a mutual and equitable partnership may well cut into the profits of the provider, but in the long term, it is far more sustainable.

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Chapter 2
The Challenges of Managing a Transnational Education Partnership

Neil Hart

Abstract This chapter reflects on more than a decade of experiences associated with how transnational education is managed across the UK higher education sector. It highlights what should be done, both in terms of QAA expectations and an institution's need to deliver a high-quality experience to their students, wherever those students may be located in the world. These expectations and requirements are contrasted with the realities of the situation based on observations made over many years in numerous partnership locations and also derived from conversations with a large number of TNE practitioners, during that period, both UK-based and colleagues working for TNE partners overseas. The chapter focusses on the three key phases of a partnership life cycle: set-up, ongoing management and termination with the conclusion that insufficient emphasis is placed on the ongoing management despite this being the longest (hopefully) and most productive phase.

Keywords Transnational education · Quality assurance · International partnerships · Due diligence

2.1 The Context to Transnational Education Partnerships

2.1.1 The QAA Requirements

Any UK Higher Education Institution (UKHEI) entering into a partnership with another institution, whether in the UK or overseas, has a responsibility to safeguard their own reputation and more broadly the reputation of UKHE. As such, it is critical that the management of such an operation is undertaken with the utmost assiduity and professionalism from the start of the initial partnership negotiation process through, potentially, many years of operation and finally to the, inevitable, end of a partnership. The termination of a partnership may be due to any number of negative reasons, which will be discussed later, or simply due to the natural evolution and development of

N. Hart (✉)
Coventry University, Coventry, UK
e-mail: neil.hart@coventry.ac.uk

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one or both partners in their capacity, ambition and/or status as providers of tertiary education.

As a general guideline, the revised UK Quality Code for Higher Education (Quality_Assurance_Agency 2018) has provided the following statement defining a required "*Core Quality*" in their list of "*Expectations for Quality*":

> Where a provider works in partnership with other organisations, it has in place effective arrangements to ensure that the academic experience is high-quality irrespective of where or how courses are delivered and who delivers them.

It is imperative that the quality assurance framework implemented by a UKHEI in relation to TNE provision is carefully designed to allow this QAA expectation to be delivered in all cases. This chapter contains observations and guidance on how this can be efficiently and effectively achieved and highlights some of the potential pitfalls common across the sector.

2.1.2 The Background to UK TNE Activities

Transnational education programmes are a popular alternative to overseas education in many countries. For example, according to a recent British Council report (British_Council 2019), most employers in China who have recruited overseas returnees have also employed graduates from TNE courses delivered in China. It was reported that roughly the same number of employers found value in a foreign degree course delivered in China as those who prefer overseas graduates rather than those educated domestically. This is true in a number of key TNE markets across the globe. Consequently, it is not surprising that around 85% of UKHEIs are involved in some form of TNE provision (British_Council 2016); however, it does still remain a highly contentious activity. There is often tension between the staff who are directly involved in the delivery of TNE provision and the financial and legal teams of the associated universities. The perception of the legal and financial teams may be that the risk exceeds the direct financial and indirect non-financial benefits derived from TNE-related activities. However, a report published by the Department for Education outlining the diverse benefits of TNE (Mellors-Bourne 2017) clearly states that the indirect benefits are wide-ranging and not only of value to both of the participating HEIs but also the UK more generally. Clearly, there should also be benefits for the partner institution which go beyond the increased marketability of their courses derived from being associated with a UK university. These benefits vary in nature from partner to partner and from country to country but will usually revolve around the enhanced pedagogy derived from the delivery of a foreign curriculum and the cross-cultural exchange that this brings to both staff and students. It is important that the true value to the UKHEI of delivering degree courses via a partner institution either overseas or domestically is clearly conveyed to all key stakeholders to allow them to fully appreciate the less tangible benefits. It is also equally important to be able to demonstrate that the management structures put in place mitigate against the

Table 2.1 Volume of TNE type versus perceived risk

Type	Proportion (%)[a]	Risk[b]
Overseas campus	3.6	Medium
Distance	16.6	Medium
Joint/Dual	20.7	Medium
Franchise/Validated	58.0	High
Other	1.1	Medium

[a](Universities_UK_International 2018)
[b](Leadership_Foundation_for_Higher_Education 2014)

perceived risks and can be clearly articulated to the members of the senior leadership teams of both HEIs to ensure that they are willing to provide the necessary support in the form of appropriate staff resources. It is fascinating to note that despite the relatively high levels of both reputational and financial risks associated with TNE provision, compared with on-campus teaching-related activities, UK universities continue to pursue the type of TNE associated with the highest risk as outlined in Table 2.1.

Franchised and validated courses involve the delegation of teaching, assessment and management of courses to the partner institution. This is certainly in the highest risk category given the level of detachment from the UK provider but, rather surprisingly, accounts for nearly 60% of all TNE-related activity. It is, therefore, of vital importance that the management structures and processes in place are robust and meticulously designed. Unfortunately, this is certainly not always the case which means that TNE partnerships are prematurely terminated due to quality-related issues on a regular basis.

It is interesting to note that the life cycle of a TNE partnership is often represented as cyclical (UK_Higher_Education_International_Unit and Eversheds_LLP_International 2013) as the illustration below suggests (Fig. 2.1).

The cyclical nature of this diagram is an unfortunate misrepresentation as it suggests that a terminated academic collaboration partnership might well be resurrected. This is extremely unlikely given that the breakdown in the relationship will naturally be associated with a severe loss of trust between the two parties. The reality is that the cycle tends to be repeated with an alternative UKHEI, with the period of the cycle diminishing with each iteration. The achieved level of recruitment and financial viability reduces with each iteration due to gradual erosion of the reputation of the partner institution through a series of failed course offerings. It becomes difficult for the partner institution to recruit students once a failed attempt at a TNE partnership has been observed by prospective students and their parents in that particular recruitment market. An additional problem of note is that the new UKHEI is generally aware of many of the problems they are inheriting when they step into the vacuum left by the previous partner.

Fig. 2.1 Commonly proposed cyclical nature of TNE

2.1.3 The Decision-Making Process Behind a New Development

The development of a new partnership initiative will, ultimately, be approved by the senior leadership team of a university and, in the case of developments in geographic areas of the world which may be contentious, the governing body of the university may also have a say in whether the development goes ahead. This will be problematic for the team responsible for instigating the proposal. The development team will, inevitably, have a deep understanding of the opportunities and threats of a given proposal. Having visited the potential partner, they will have an in-depth knowledge and understanding of the local operating conditions. However, the people making the final decision on whether or not to proceed with a proposal may be influenced by unconscious bias when making, what should be, a purely objective and business-related decision. There have been many examples of perfectly sound TNE projects being vetoed because a country is deemed to be a security risk despite UK government advice to the contrary (Foreign_Office 2019) and wider UK industry being actively involved in the country in question. There is almost inevitably a conflict between the opinions of staff involved directly with TNE and those, for whom, TNE is a small component of their total HE responsibilities. Numerous attempts to remove the subjectivity from the decision-making process have been made by introducing metrics at the initial project proposal stage of the development and approval of a new project. These quantitative systems are, however, not immune to distortion and manipulation and ultimately, often, tell a predefined story at the behest of a dominant member of staff. The key to successful and accurate decision-making is to ensure that the team producing the initial proposal, whatever form this might take, have the resources and information available to produce a detailed and accurate account of the potential of the partnership. Failure to commit appropriate levels of resource at this early stage can lead to problematic results further down the line and, ultimately,

the requirement for much more resource to be invested to avoid reputational damage during the chaotic failure of a partnership.

It is also true to say that the team, or individual, driving a new partnership development should be separate from those staff responsible for the maintenance of existing partnerships. The two roles require very different skill sets and given the importance of getting the initial direction of travel absolutely correct to avoid problematic consequences in the future. The partnership development team should not be pressurised into trying to meet unrealistic targets as this promotes the likelihood of partnerships being developed which have inherent excessive risk attached and the potential for financial income and student recruitment will become wildly exaggerated. This can lead to a proliferation of underperforming partnerships with institutions which do not have the potential to deliver the results they claim in the initial project proposal. The role of the partnership development team in assessing the viability of a new collaboration is sensitive to several pressures. The team itself may be subject to its own bias either in favour of the project or opposed to it. These biases can arise from a wide range of preconceptions: political, financial, travel accessibility, workload considerations and many others. Impartial assessment of the prospective partnership is therefore an aspiration more often honoured in the breach than delivered in reality. However, it is important that, as far as possible, as dispassionate a view of the prospects for the project is arrived at. This can be easily compromised by the institution's executives who will ultimately make the decision to proceed or otherwise by placing undue pressure on the team to predict unrealistic targets for income generation or student numbers.

2.1.4 The Benefits of TNE—Student Numbers or Financial Income?

Universities can suffer from a rather schizophrenic attitude to the strategic driving forces behind new partnership development. Since TNE student numbers are reported to HESA and subsequently placed in the public domain via the Aggregate Offshore Record (AOR) this metric has become an important measure of perceived success in the TNE arena. However, it is very rare to see data relating to income from partnership-related activities published since this information is deemed to be commercially sensitive. The closest one can get to this information is the "*other income*" declared in the published accounts of a university. Since this is a rather opaque measure of success it does not provide a university with the same bragging rights associated with TNE numbers. Universities, therefore generally, look for ways to maximise the HESA returns related to their TNE activities. However, it is ironic that when a truly winning formula is achieved such as in the case of the "*Oxford Brookes effect*" (Hiles 2016) it is quickly dismissed by the sector since it so dramatically skews the data reported.

Table 2.2 An illustration of the Oxford Brookes effect

	2012/13	2014/15	% increase
All students including Oxford Brookes ACCA students	598,925	665,995	11.2
All students excluding Oxford Brookes ACCA students	337,260	382,610	13.4
Oxford Brookes ACCA students	261,665	283,385	8.3

It is reported that approximately 43% of all TNE students in the 2014/15 AOR data appeared to study with Oxford Brookes University, and nearly 99% of these include Oxford Brookes University ACCA (the Association of Chartered Certified Accountants) registered students (Hiles 2016). Students are required to register onto the Oxford Brookes University BSc (Hons) in Applied Accounting degree while undertaking ACCA papers. The students would then subsequently be eligible to undertake the Oxford Brookes University Research and Analysis Project (RAP) to top-up to a bachelor's degree. The tuition fee only being payable on submission of the project (Association_of_Chartered_Certified_Accountants 2018).

The magnitude and impact of this single TNE development are illustrated in the table taken from a report by HE Global published in 2016 (British_Council 2016). This report (along with many similar reports) disaggregates the Oxford Brookes University data throughout to allow the reader to make sense of the trends in TNE numbers in isolation from this phenomenal achievement (Table 2.2).

It is worth noting that during this period when growth in ACCA students of 8.3% was observed for Oxford Brookes University that their annual accounts reported a growth of only around 0.5% within the "*other income*" (Oxford_Brookes_University 2013, 2014). This illustrates a severe disconnect between TNE student numbers and associated income which is prevalent across the sector.

2.2 Pre-cursors to a Successful Partnership

2.2.1 Set-Up (And Termination)

The size of the UK Transnational Education portfolio is growing year-on-year with in excess of 700,000 students across the globe currently registered on one of the several types of collaborative programmes offered by UKHEIs. TNE targets including number of TNE students, number of partnerships, number of branch campuses, income and surplus, are all parameters defined in the strategic plans of universities across the UK. It is not surprising, therefore, that the whole internationalisation agenda is extremely high profile among the senior management teams of UK universities. Add to that, the attraction of travel to exotic locations (the term "*Academic Tourism*" was coined many years ago) and the world of TNE quickly becomes hugely appealing to large swathes of UK academics.

The most visible part of the TNE life cycle is, without doubt, the initial set-up. New partnership proposals are paraded in front of the great and the good with the promise of untold riches and thousands of students to be registered on the new programmes to be offered. This is, certainly, an opportunity for young, ambitious academics to make a name for themselves with their superiors. The next time a partnership warrants this much attention is when things go catastrophically wrong, and it is flagged up for termination. At this point, all of the tough, ambitious, change managers come running to show how ruthlessly they can pull the "*academic rug*" from under a partner who was being wooed so effectively not so long previously. It is interesting that there is, relatively, little attention paid to partnership who are between these two high profile phases of development. There are very few plaudits for the effective and efficient management of a functioning partnership, and therefore, this part of the life cycle is often neglected.

2.2.2 Internal University Politics

To guarantee the quality of provision it is absolutely critical that the approval of the business case driving a partnership development is totally separate from the academic approval process undertaken to validate the proposed collaborative course(s). The QAA quality code states:

> Policies and procedures ensure that there are adequate safeguards against financial impropriety or conflicts of interest that might compromise academic standards or the quality of learning opportunities. Consideration of the business case is conducted separately from approval of the academic proposal (Quality_Assurance_Agency 2018).

Does this really happen? It is extremely common to find references to enhanced internationalisation, increased globalisation and the development of further collaboration opportunities in the corporate plans of universities; however, the promotion of more rigorous academic approval of partnerships is rarely a well-articulated target. The quality departments of universities, therefore, often find themselves under intense pressure to approve TNE activities which are questionable in their ability to clearly demonstrate that they are in line with sector expectations for quality. It would be fascinating to study the number of partnerships which fail to deliver the promises made in the associated business case presented to the relevant university committee. It would be equally interesting to research across the sector, the number of prematurely terminated partnerships on the grounds of poor quality.

2.2.3 Due Diligence

The most important part of the initial set-up of a partnership is the performance of due diligence checks of a prospective new partner institution. Due diligence needs to

scrutinise not only academic activities, typically through some kind of initial approval and subsequent periodic review process but also the legal and financial status of the partner institution. This legal and financial due diligence needs to be undertaken regularly throughout the life of a partnership to identify any fundamental changes in the operating conditions. This presents a challenge to the awarding institution in terms of capacity and cost.

Due diligence is a requirement of the QAA and is stipulated as a fundamental part of the initial partnership set-up process in Chapter B10 of the Quality Code but it is questionable how effectively these are performed. Universities often lack the specialist expertise and resources to conduct forensic due diligence exercises overseas where financial transparency is often deemed unnecessary. Institutional governance may also aspire to different standards than the UK, especially in private institutions.

Due diligence is expensive but can be a relatively fruitless exercise unless it is undertaken meticulously by extremely experienced individuals with an in-depth knowledge of the geographic location of the potential partner institution. Even then, many things can go wrong. It has been known for a highly paid consultant to contact the staff of the commissioning university to find out what those staff knew about the partner being investigating! A somewhat incestuous approach which is highly unlikely to be of any value to the instigators of the investigation. There is often a misconception that as long as money has been spent then the job has been done right. To put it another way, due diligence can become a tick-box exercise. It could be argued that the investment of resources might be better used by those staff committed to the prospect of the development than disinterested consultants. One might expect that the due diligence efforts would be undertaken with far more drive to establish the fundamental legal and economic foundations of the prospective partner than is sometimes the case.

Despite clear guidance being available from UKHE International Unit in the form of various publications universities often miss the obvious problems.

Broad generalisations such as the one below taken from an actual report are of little value when trying to make decisions regarding specific projects:

> Usually, government officials are high-risk on the basis that they may be vulnerable to bribery and corruption.

Such statements add very little value to pre-existing knowledge and seem only to reflect the pre-existing prejudice of the author.

Since due diligence can be, at times, merely a tick-box exercise, the reports produced are not always considered in detail and are simply filed away for the next QAA audit. The tick-box nature may be a rational response to the questionable reliability of the reports. However, this misses a real opportunity to identify issues before they develop into serious problems which can totally derail a mutually beneficial partnership. It is also an approach that would not survive scrutiny if actual malfeasance were to occur. Such activities are often, by their very nature, extremely well hidden and can be undetectable even by the most experienced investigator. An extreme example encountered by the author was a university with infrastructure, staff and students

but no right to operate as higher education institution. Clearly, if an entirely fake university can be presented by a potential partner it would not be difficult for an organisation to provide falsified documentary evidence, such as audited accounts, to support a partnership development.

Sometimes however due diligence can be heavy-handed. Care should be taken when negotiating with state-owned universities and highly respected institutions. Disproportionately invasive due diligence activities may be construed as particularly intrusive and symbolic of cultural imperialism. Unfortunately, UKHEIs often have a one-size-fits-all attitude to many aspects of TNE management. This can leave the potential partner feeling at best alienated and at worst insulted. So, due diligence needs to be undertaken with appropriate intensity and applying the optimal resource to ensure the validity of the results obtained. This should not prevent the exercise from being undertaken but the focus should be appropriately tailored to the context. The due diligence activity needs to be planned and its objectives determined in advance. A risk-based approach should be considered; identifying sources of potential risk and the severity of their impact. Resources can then be targeted at those high-risk/high-impact areas and used to inform both future management effort and the drafting of the contract.

2.2.4 The Contract

There is clearly a legal imperative to underpin any collaborative operation with an appropriate legal contract. A large proportion of TNE ventures result in a transfer of funds from the non-UK institution to the UK institution. The production of the contract is usually driven by the legal department of the UKHEI who often want to adopt a standard approach to the task. The appropriateness of this approach varies markedly across the countries in which UK TNE is practiced.

Applying the conditions of a contract across international borders is complex and expensive so the question might be asked: "*What is the value of the contract when things go wrong?*" The default expectation by many UK institutions is that when a partnership fails and termination is initiated it is standard practice for the partner to stop paying the fee associated with the provision. This may be a realistic expectation since the contract is difficult to enforce in such circumstances and the cost of international legal intervention would usually exceed the amount of money recovered. There is also the reputational risk of becoming involved in a legal battle especially in countries with a lower economic status to that of the UK. Equally, if legal action were taken against the partner, the chances of executing a successful teach-out scenario without endangering the academic welfare of the remaining students diminish greatly.

The contract, therefore, has maximum value during the smooth operation of the partnership when fees are being invoiced and paid on a mutually acceptable basis and both parties are operating within its terms and conditions. Termination should

be approached carefully, with the clear understanding that the terms of the legal agreement may not, ultimately, be fully enforceable.

2.2.5 Academic Approval Process

In order to grant an overseas institution, the right to deliver courses on behalf of a UK university there is usually an approval event of some description held at the overseas site. A large amount of documentation is produced to justify the approval and is scrutinised in detail by a large team of internally and externally appointed academics. There is wide variation in practice, but all too often the approval event, held several thousand miles away from the home institution at considerable financial cost to both parties, consumes a large amount of time which is spent scrutinising documentation which will be of questionable value to either the international partner or the partnership in general after the completion of the approval process. On many occasions, there is a disproportionate amount of time spent correcting the formatting and grammar missing the opportunity to really explore the true nature of the organisation.

As part of the approval process, there is, of course, the obligatory campus tour including a well-rehearsed library visit. A book is taken from a shelf and the publication date dutifully inspected with a disapproving look from the approval panel should the book be deemed obsolete. This charade is performed despite the fact that most partnership agreements now allow TNE students access to the e-book collection of the UK university's library. In fact, it is best practice for TNE-based modules to list as essential reading only books which are available in the form of e-books to the students. It is, on some occasions, one of the few tangible benefits that a TNE student obtains directly from the university with which they are registered to study their degree.

Disappointingly, very few approval events involve a detailed assessment of the ability of the partner's academic team to truly deliver a comparable student experience to that delivered in the UK. The judgement about the appropriateness of teaching staff is based, predominantly, on the assessment of a CV and a brief meeting with a small number of representatives of the overseas delivery team who have been hand-picked based on their ability to convey a convincing story to the approval panel. The overall effectiveness of the approval event may be limited by the political correctness of the approval panel which limits the penetrative nature of questions asked.

In reality, a truly successful approval event can only be achieved when enough trust exists between the two parties to explore potential problem areas collaboratively and work together to resolve any issues identified. Such a relationship needs to be established before the approval event and results from mutual respect being demonstrated between the initiation teams. Whether or not such a relationship exists is often missed by the approval event team.

The approval event also marks the handover from the initiation teams to the management teams and needs to provide the opportunity for this to take place in

as positive an environment as possible. Again it should be the responsibility of the initiation team to prepare the management team and the ground for the handover. Often this is not even considered and sometimes the management team has not even been established. This can cause a hiatus in the operation of the programme to the frustration of the executives of both partners, but is usually the result of the provider not putting the necessary resources in place before the approval event. Such short-termism can have more long-lasting effects.

2.3 Ongoing Management of a Partnership

2.3.1 The Main Objectives

Whose responsibility is it to recruit students onto TNE courses? At times, the awarding university fails to recognise its responsibility for the promotion of the partnership but is then surprised when the venture fails to deliver sustainable student numbers. It is critical that all contributors recognise that they have a responsibility for the success of the partnership. Some academics are short on business acumen and are happier to remain in the ivory tower of academia. However, to successfully drive recruitment onto TNE courses, the academic staff who have been responsible for the new business development must take on the challenge of becoming actively involved in marketing and recruitment activities if the new venture is to succeed.

The ultimate aim of TNE is to provide students enrolled in a programme with an educational experience which is comparable to that of home students. In order for this to be achieved, there needs to be comparability of both physical and staff resources on both sites of delivery. It is an extremely challenging proposition for this to be possible and for the awarding institution to successfully monitor the situation. An initial check on comparability usually takes place during the initial set-up but it is unlikely that a partner institution would have invested sufficiently to ensure that all resources are present at the time of approval. It would be foolish for an institution to pre-empt the outcome of an approval event to the extent of investing hundreds of thousands of pounds and engaging large numbers of staff at this stage of the development. It is then left to an academic acting as a link tutor for the partnership to audit the acquisition of resources in line with curriculum demands. This is an onerous task, for practical subjects, where many variants in required equipment are possible and a diverse range of module requirements must be assessed. For computing courses this can be particularly expensive if labs have to be set up, software licences bought and installed, and specialist systems purchased. For this reason, it is recommended that a long-term strategy is established to start off small and gradually build the portfolio of courses as student numbers grow, the institutions' reputation is built and investment resources become available.

Clearly, even with the correct practical equipment and staff with appropriate qualifications and experience, the delivery of a comparable student experience is still

down to the interpretation of the curriculum which will vary considerably across geographic regions and cultures. It will be necessary to supply exemplar teaching and assessment materials to provide some clue as to how the parent university expects the curriculum to be interpreted.

Many UK universities have very high expectations of their overseas counterparts. They provide an outline of a course through a programme specification along with a set of module descriptors and expect an inexperienced academic team in a geographically remote location to somehow deliver classes to students which in some way resemble those being attended by students in the UK. It is only when peer observation of teaching takes place that the true nature of the interpretation may be revealed. There then follows a period of intense retrospective "staff development" by staff from the UK who did not really know what they were letting themselves in for when they volunteered to take on the additional workload in the role of link tutor. So, for the experience to be truly comparable we need close to identical resources, both physical and staff, an accurate interpretation of the curriculum by an overseas academic team and a link tutor with unlimited energy, enthusiasm and subject expertise. Despite all of these challenges, it is surprising how often students produce work similar to their UK counterparts and describe classroom experiences which are very similar to those delivered at the degree awarding institution back in the UK.

2.3.2 Managing the Relationship

Successful and sustainable TNE partnerships are generally based on strong academic relationships. The diagram below illustrates the fundamental channels of communication present in a typical partnership and identifies the key interlocutors. The names given to these roles vary from university to university but those used below should be easily recognised by the reader (Fig. 2.2).

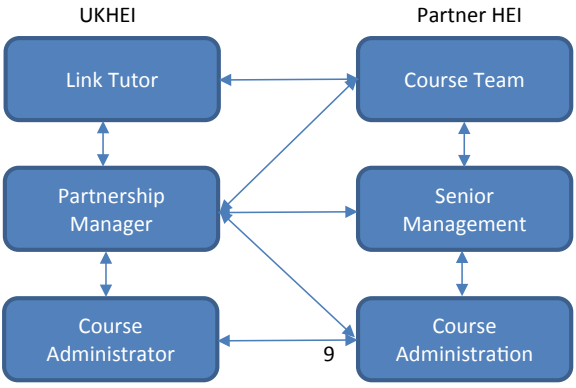

Fig. 2.2 Communication channels in a TNE partnership

1. **The Role of the Partnership Manager**:

Many of the successful TNE markets have a more traditional approach to higher education where the academic is still regarded as central to the operations of the institution. The business dynamic which now dominates in the UK is yet to become as prevalent. Some UKHEIs make the mistake of thinking that the relationship with the partner is a purely administrative one and can be managed as such. Matching a relatively inexperienced member of the administration team with a seasoned academic in some of these traditional HE markets will potentially be problematic and will almost certainly stifle the development of the partnership. Successful relationship management will be based on a combination of excellent project management skills, sometimes not possessed by a typical academic (even those teaching project management, ironically) and transparent communication. The role of Partnership Manager, or equivalent depending on nomenclature used, is therefore a challenging position to fill. However, the diagram above illustrates clearly that the position is critical to the operation of the partnership and its continued success. The individual needs a rare blend of business acumen, understanding of the academic principles of a university and the quality processes which underpin successful TNE. If this role is not suitably appointed to, the relationship is likely to be severely undermined.

2. **The Role of the Link Tutor**:

Most universities assign an academic member of staff to liaise directly with the course team of the partner. This person is often referred to as a Link Tutor or some equivalent variant. The Link Tutor usually has specific course knowledge and can ensure that the course team at the partner are supported in the delivery of the TNE provision. This is a particularly important task in the early stages of development of the partnership when teaching materials are being developed and staff are becoming familiar with a different way of working. For the TNE to have value in the host country, there will be an implicit subtle difference between the academic content and pedagogical approaches adopted by the partner. The Link Tutor plays a vital role in ensuring that there is a smooth transition to the successful delivery of the TNE provision. The selection of the Link Tutor is, once again, critical to the success of a partnership. There are, however, many challenges to successful selection. The workload of academic staff in the UK has risen dramatically with the introduction of NSS, PTES, TEF, KEF, etc. Link Tutors are usually allocated a nominal time allowance when they take on the role of Link Tutor which is almost certainly inadequate in the early stages of a new partnership. The Link Tutor, therefore, often provides excellent support when in-country but when back at their home institution where the everyday pressures of the "*day job*" return, along with the additional workload accumulated during their absence while overseas, the support provided often diminishes rapidly.

3. **The Role of the Course Administrator**:

The Course Administrator has a critical role to play in the day-to-day management of the quality assurance processes which are in place to ensure that the TNE

courses comply with standard on-campus norms of operation. The course administrator should be assigned exclusively to TNE operations rather than sharing resource with on-campus provision. This person can then develop a deeper understanding of the principles underpinning TNE and also the inner workings of the partner through daily communications about student-related issues. The Course Administrator can help to spot anomalies in the operation of a partnership and quickly bring issues to the attention of the Partnership Manager and the Link Tutor before problems escalate and become detrimental to the student experience and the operation of the partnership.

2.3.3 Monitoring the Quality of Teaching

The quality framework wrapped around the majority of TNE provision is very often based on frequent remote intervention with regular, but far less frequent, direct face-to-face involvement in the collaborative provision. There are ways of measuring the quality of the teaching remotely, such as inspection of teaching materials and the pre- and post-moderation of assessments with student work being, to some extent, indicative of the quality of teaching, or at the very least, the quality of the learning experience facilitated by the partner institution. Meetings with students can provide an insight into the quality of the classroom experience but comments obviously need to be treated with caution since student opinion is very often polarised and we only hear the voices of those who have something to say; be that negative or positive. Additionally, the reaction of students to the presence of a representative from the UKHEI responsible for awarding their degree can provoke disproportionately emotional outbursts as the perception is that the representative wields unlimited power. Therefore, the only way of accurately establishing the quality of the teaching experience provided is through class observations. This is a costly exercise and needs to be undertaken with the utmost sensitivity for obvious reasons analogous to those applicable during peer observations undertaken at the home institution.

2.4 Some Final Thoughts

Transnational education provision is growing and the UK is leading this growth along with some other key players in the market such as the USA and Australia. Not surprisingly, China and India are starting to increase their involvement in TNE and will certainly become dominant in years to come. There are many direct and indirect benefits to be derived from the activities associated with the academic relationships developed through TNE partnerships. As the UKHE sector is subjected to increasing financial pressures related to reduced EU recruitment, possible reductions in fees, overinvestment in campus developments and increased pension contributions; the income from “other activities” such as TNE will become more important in the sector. Partnerships can deliver large financial returns over a period of several decades

if they are set up with the utmost of care in the first instance and well managed according to carefully structured principles throughout their life. Termination of a partnership should be handled sensitively with the welfare of the student remaining paramount through to the ultimate conclusion of the relationship. If these guidelines are followed, in accordance with the requirements of both domestic and international quality assurance agencies, there is no reason why UK TNE should not continue to grow and be a highly successful, integral part of the activities undertaken by many UK universities throughout the coming decades. However, success can be readily undermined by short-termism and lack of ongoing investment. UKHEIs need to recognise that there are ongoing costs in maintaining a successful TNE and that these should be factored into the expected returns. Some of those costs have been identified here. Each TNE partnership will undoubtedly be different, but it is probably prudent to assume that the costs will be greater than enthusiastic proponents of the partnership assume, whether this enthusiasm comes from the institutional executive team or the delivery team.

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Chapter 3
International Student Achievement in Computer Science

Dave Wilson

Abstract Many studies have been performed on the achievement of international and UK students. These studies usually represent a comparison of results between the two different student bodies and the variables that affect final degree classifications. Whilst most studies consider the wider student population, we concentrate only those students within the computer science subject area. Although there are a number of different variables used to consider degree outcomes such as gender and national identity, the key variables used in the analysis of achievement for this study are motivation and English language. We consider whether students that are self-funded are better motivated to succeed and how the command of the English language affects results.

Keywords Computer science · International · UK · EU · Students · Comparison

3.1 Introduction

International students have been a fact of life in British universities for many centuries. The earliest surviving record of an international student is recorded as being Emo of Friesland, who appeared at Oxford University in ~1190 (https://www.oxfordstudent.com/2016/02/22/studying-abroad-middle-ages/). With the growth and expansion of UK universities, there are now approximately 458,500 international students in UK higher education as of the 2017–18 academic year. This represents 20% of all student enrolments in higher education (https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics/location). This article is interested in those students that study in the computer science subject area. As of 2017–18, there are approximately 107,000 students studying a computer science-related subject. Of these students, there are approximately 19,000 female and 88,000 male students. Whilst we are not specifically interested in gender classification, 65 students identified themselves as being something other than male or female (https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics/subjects). The spe-

D. Wilson (✉)
University of Huddersfield, Huddersfield, UK
e-mail: d.r.wilson@hud.ac.uk

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cific area of study for this article is postgraduate (taught) students. Again, as of 2017–2018, there are approximately 14,000 computer science students on postgraduate (taught) courses (https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics/subjects). Historically, the total number of students since Emo or Friesland stepped into Oxford University, and in particular those studying computer science-related subject, will be significantly higher.

Student comparisons are nothing new; pedagogical studies regularly look into student achievement, whether it is gender differentials (Jiang et al. 2018; Berdousis and Kordaki 2015; van Langen et al. 2006; Verniers and Martinot 2015), widening participation (Donnelly and Evans 2019), ethnicity (Burrell et al. 2015) or social inequalities (Marks 2005) among others. However, few, if any, have looked into a straight comparison of achievement between home and international students. Morrison et al. (2005) considered how well international students in the UK performed academically. In this, they define international and home students as those that are permanent residents outside the UK and those that are permanent residents within the UK. They write that it can be argued that to compare UK students with non-UK students is of dubious value given the diversity of international students. As such, they grouped the students they considered for their study into specific global regions and, where there were large numbers of students, into individual countries. They set out to achieve four key aims, two of which were:

- "*Is there a significant difference in the performance of overseas-domiciled students as compared with UK domiciled students?*"
- "*Do the country of domicile and the discipline studied affect the relative performance of overseas students?*"

These aims will, in part, be used as aims within this study. As well as these aims, this study uses elements of the modelling technique proposed by Morrison et al. (Morrison et al. 2005) as a template for analysing the acquired data.

Significant other aims from Morrison et al. (2005) included:

- "What is the contribution of different factors to differences in performance?"
- "Does the institution attended affect the differences in performance?"

Whilst we could mirror the study of Morrison et al., we are not looking at the same specific factors that were considered or indeed different institutions. In their study, Morrison et al. used HESA data for 1995 and 2000, where specific data types were obtained, namely:

- Degree classification;
- Country of domicile;
- Age;
- Gender;
- Mode of study (full-time, part-time, other);
- Discipline of study;
- Highest qualification on entry;
- Institution identifier.

The results obtained showed that international students achieved fewer first and upper second class honours degrees than UK students but there was evidence of regional variations where students from specific regions performed equally well as UK students.

3.2 Aims of the Study

Within this study, we aim to compare the overall results by assessment mark/grade achieved by UK and international students. Additionally, we will consider the final degree mark/grade achieved and the mark/grade achieved in the individual dissertation. As such, the research will concentrate on the following primary questions:

- Is there a significant difference in the performance of international students as compared with UK students?
- Is there a significant difference in the ability to self-support in studies by international students as compared with UK students?

Secondary aims will consider the following questions:

- Are there regional differences in performance for international students?
- Do sponsored students perform better than self-funded students?
- Do students that have taken a pre-sessional English course perform better than students that did not require the course?

There are many variations on the questions that can be raised in this study from the data we have available. We could ask questions regarding gender, mode of attendance, course type and continuation (continuation is defined in the research method below). Whilst we have not brought this information into our analysis, we could consider the age of students, undergraduate degree classification on entry and the profession or not of part-time and sponsored students. Whilst we do hold this information we feel that the number of students considered in this study needs to be significantly larger than the group of students we have analysed. Our assumptions on this are that the deeper the level of analysis, the fewer students there are that will fit into a specific category. As such, the accuracy of the results will degrade.

There are severe limitations in this study. We are not investigating directly why we get specific results. To determine why we are getting specific results would require a much deeper level of study than is practical for this research. As such, we are relying on a speculative view, assumption and probability to justify the numbers we are getting. For example, the numbers we get that are associated with Fig. 3.3 are in all probability produced because of the support that is put in place for the international students. Although there is a lot of speculation and assumption being used, there is a lot of hidden knowledge held by the author, who has worked with postgraduate and international students for fifteen years that informs the speculation and assumptions being made. However, without the deeper level of study required, we cannot determine that his knowledge and assumptions are correct.

3.3 Research Method

In this study, we are looking at international postgraduate computer science subject area student achievement when compared to home-based postgraduate computer science subject area student achievement. This study is based entirely on those students that have attended The University of Huddersfield. We looked at a random selection of 300 postgraduate students that have taken technical and non-technical courses between 2000 and 2019. Technical courses are defined as those requiring significant programming and mathematical skills, whilst non-technical are information systems-based students.

The specific data we considered is as follows:

- National identity (home, European, international);
- Degree classification (distinction, merit, pass);
- Module grade;
- Dissertation grade;
- Fee status (self-funded, sponsored);
- Gender;
- Regional identity (British, European, African, North African, Asian, Indian, Middle East, Far East, Americas);
- Course type (technical, non-technical);
- Pre-sessional English course;
- Continuation (undergraduate to postgraduate within the institution).

Our initial analysis looks directly at percentages of grade/mark results and the average result gained by all students. In this, we took a direct comparison of results based on national identity. These results do not take account of variables such as gender, regional identity or command of English, for example.

3.4 Results

From our analysis, we can summarise the results of the primary and secondary research questions. However, it must be impressed on the reader that we are working with a small data set and that the results presented here could vary depending on the number of students used in the sample.

For the first primary question:

> Is there a significant difference in the performance of international students as compared with UK students?

We found in general that UK students performed better than international students but unexpectedly, EU students performed better than UK students (See Fig. 3.1).

There are potentially many different reasons and variables that could affect, or have not been considered in, these results. For the most part, both international and

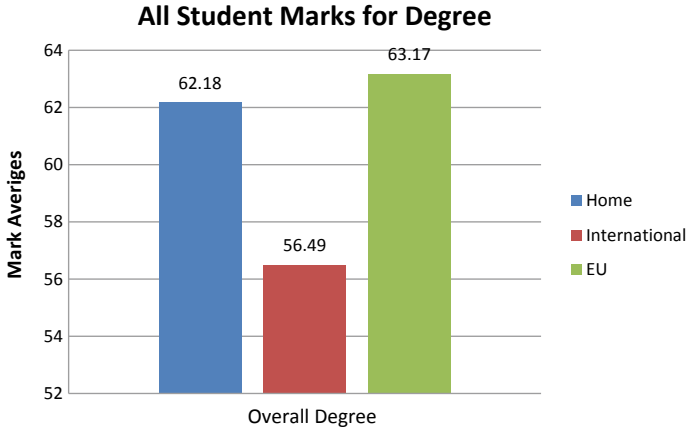


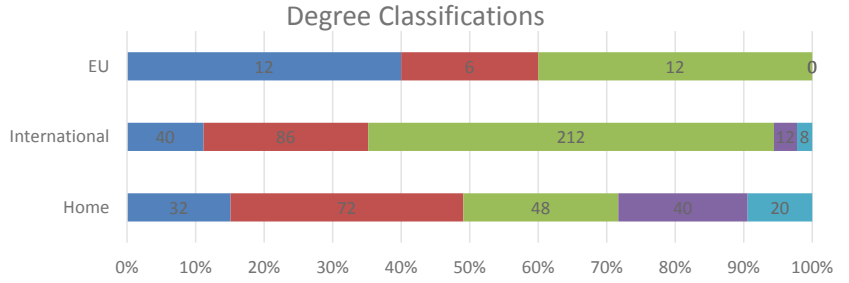
Fig. 3.1 All student marks for degree

European students have English as a second language, so we might not expect these students to achieve at a higher level than UK students.

There could also be a rational explanation for EU students outperforming UK students. The number of EU students in the computing department at the University is quite small but of those students that do enrol, they are relatively high achieving and therefore do have a better performance profile.

Figure 3.2 considers degree classifications as opposed to the average mark achieved.

The results as presented in Fig. 3.2 do not change the overall student performance when considering the high-end degree classification for merit and above. However,



	Home	International	EU
Distinction	32	40	12
Merit	72	86	6
Pass	48	212	12
PgDip	40	12	0
PgCert	20	8	0

Fig. 3.2 Degree classifications of students

when we consider students that have achieved the postgraduate degree, we can see that 100% of EU students had a pass or above, approximately 94% of international students gained a pass or above but only 72% of home students gained a pass or above.

Our interpretation of this drop in achieving a full degree is that it is easier for a home student to drop out and take an interim degree award such as a PgDip or PgCert than it is for an international student. International students through sponsorship or self-investment have a vested interest in completing and passing a degree. Whilst most home students that have taken a postgraduate degree are self-funded and therefore also have a vested interest in passing the degree, many of the home students that did not complete a full degree were part-time students' already in full-time employment and therefor did not have the same motivation to finish the degree.

For the second primary question:

> Is there a significant difference in the ability to self-support in studies by international students as compared with UK students?

In this, we found that there is little difference in the ability of students to self-support in their studies. Figure 3.3 below shows only a marginal difference in achievement between the overall degree classification and the mark achieved for the dissertation. For home students, there is only a 2.92 lower average mark achievement for a dissertation when viewed against the average mark for the overall degree. For an international student, this difference is only 1.18. However, the bigger difference comes with the EU students. The difference in this category of student is 5.64.

For these results, we could speculate that the international student is not fully self-supporting, in that they do by default have dedicated support staff in place to help with their English and academic skills. On the other hand, whilst the EU students also have access to dedicated staff, they do not take up the support available to them because of their already better command of the English language—very few EU students require a pre-sessional English course. However, not all international students require pre-

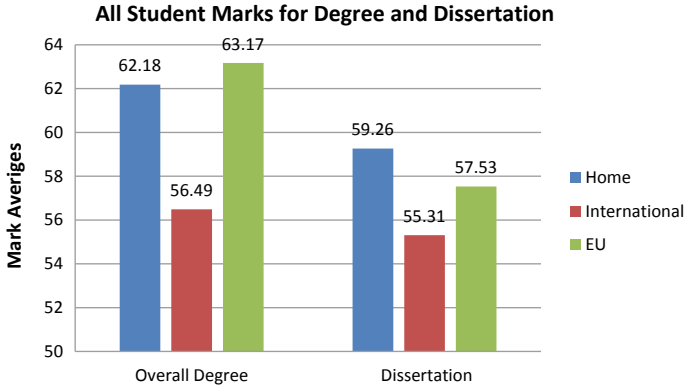


Fig. 3.3 All student marks for overall degree and dissertation

sessional English. Currently, within the computer science department of the school, there are no instances of Indian or African students requiring pre-sessional English. However, in all probability, those students that do use the English and academic skills service are bringing the numbers closer together in terms of the ability to self-support.

For the first of the secondary questions, we are looking to establish if there are noticeable regional differences in results.

Are there regional differences in performance for international students?

For this, we are comparing each international region with the results of UK students. Regional identities are identified in the research method above.

From Fig. 3.4, we can see that there is little change in the self-support profile. Whilst we have already seen the figures obtained for Home and EU students, the breakdown of international student into specific regions have not changed the profile; in all cases, dissertation marks are less than overall degree marks on average. The most noticeable difference in this respect is those students from India whose average dissertation marks are 9.28 below their overall degree mark. This is put against an average grade difference of 4.2 and the lowest grade difference of 1.82 from Middle Eastern students.

The more interesting results to come from this question, apart from EU students, are those from Africa and the Americas who have a marginally better profile than UK students on both the overall degree and dissertation. Again, we could speculate on this as being a result of a good educational background and high performing students. However, it is more likely to be as a result of English as a first or common language. Other than India, which is an anomaly in this respect, those students with a lower profile (Asian, Far East, Middle East, North Africa) for the most part required a pre-sessional English course before they commenced their degree.

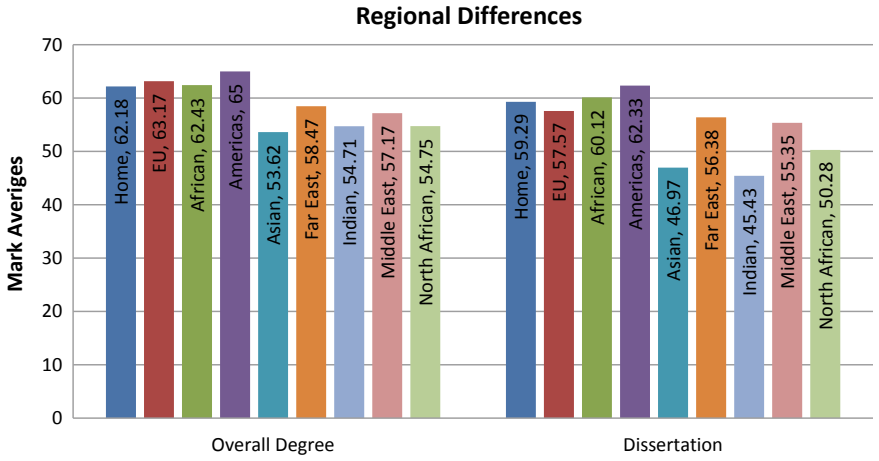


Fig. 3.4 Regional differences in performance

For the next two questions, we are looking primarily at comparing results of international students rather than comparing them to UK students.

The first of these questions asks:

> Do sponsored students perform better than self-funded students?

For this question, we are essentially comparing Middle East and North African students, who are by majority, sponsored, to all other international students, who are by majority, self-funded.

When we consider all students, we can see from the results in Fig. 3.5 that the difference is marginal, supporting the theory discussed from the previous question that the command of English is the defining factor in student achievement.

The theory that English is a defining factor in international student achievement is supported by regional profiles presented in Fig. 3.6. In this, we look at the results of international students from different regions. The results are very similar to those presented in Fig. 3.4. The exception to this is the improved results of self-funded Middle Eastern students. It is known that those students from the Middle East that are self-funded have a very good command of the English language and did not require pre-sessional English before taking up their courses.

The final question considers the following:

> Do students that have taken a pre-sessional English course perform better than students that did not require the course?

When looking at all international students there is again only a marginal difference in student attainment in the overall degree. We do know from previous results that student from the EU, Africa and the Americas have a good command of English on entry. We might expect that pre-sessional English would bring student attainment up to the level of students that do not require English on entry. However, there is no evidence to support that expectation. For the most part, students that come from

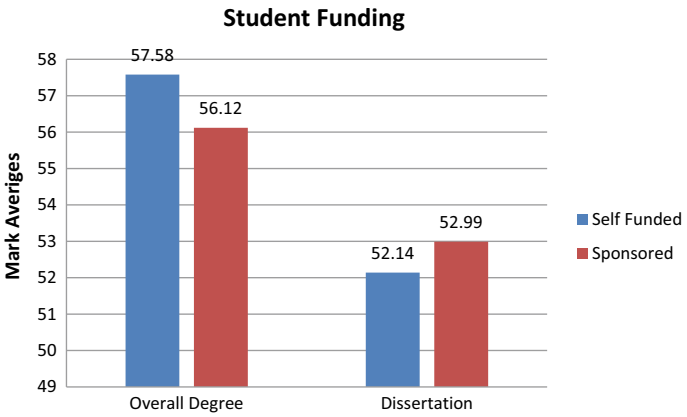


Fig. 3.5 Student funding

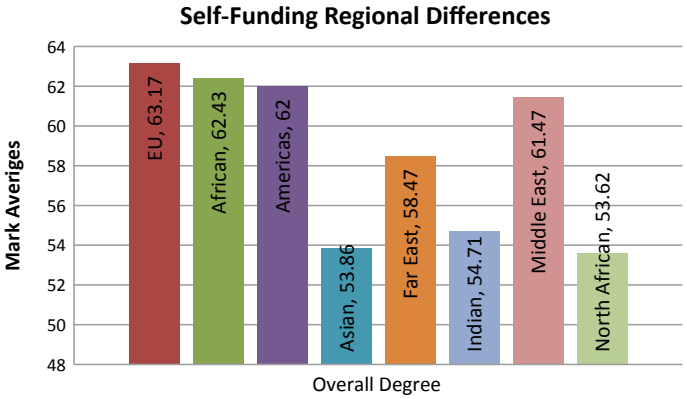


Fig. 3.6 Self-funding regional differences

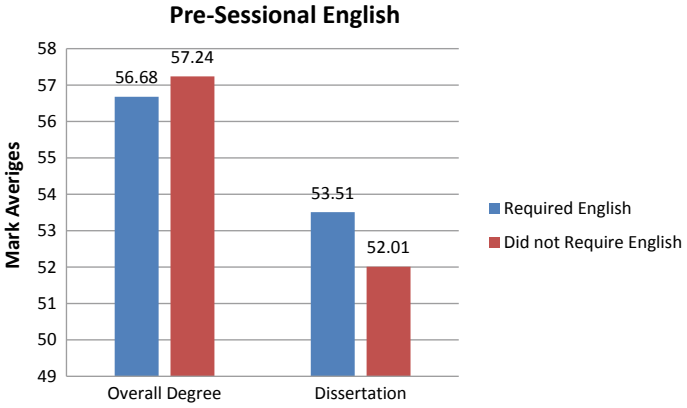


Fig. 3.7 Pre-sessional English

the Far East, Middle East and North Africa require pre-sessional English, whilst students that come from the EU, Africa and the Americas do not. Therefore, we are not comparing like-for-like. To get a more conclusive answer we would need to compare students from individual regions (Fig. 3.7).

3.5 Conclusion and Future Work

This study has looked at averages for different groups of students. We can see on average that UK students do better than international students in most instances. We could go for a deeper level of analysis using additional variables such as age, gender, grades on entry, English qualifications, etc. However, for a deeper level of study, we

need to expand the number of students from which we are collecting data to help eliminate anomalous variables. For example, it is known from the data sample used that the highest recorded mark for a dissertation came from a female Iraqi student. The probable reason why European students perform better than UK students can be put down to the low number of these students in the data. We could also use full statistical analysis to obtain our results; such was done by Morrison et al. For a broader picture, we could look at data from other "New Universities" and different types of universities such as those branded as Russell Group or Red Brick to see if their students have a similar profile.

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Chapter 4
Sino-UK Educational Differences: The Impacts of Cultures and the Current Educational Curricular on Students in Computer Science

Prapa Rattadilok

Abstract With the increased worldwide mobility of students, the need to understand the impact of different cultures and educational curricular also increases. This chapter focuses on how the National University Entrance Examination or Gaokao and Confucianism influence the way Chinese students learn. Questionnaires were distributed to senior secondary school students, undergraduate students and parents both in China and the UK with the aim of understanding their decision-making processes regarding their education, as well as their views on the quality of the degrees from different Asian and European countries. The views of lecturers from both China and the UK were also obtained with regard to student's proficiency in Mathematics and Computer Science, as well as how their receiving and transmitting skills in English may impact the learning of students from different Asian and European countries. The findings show that parents shape student's educational development choices through their investments which may have been influenced by their cultures. Compared to other Asian and European students, the English language skills of Chinese students are lower; however according to their educators, this does not impact how well they can learn in subject areas such as Computer Science. For British higher education institutes to maintain their brand image as the most celebrated and respected education providers in China, some adjustments should be made to those that deliver UK content to Chinese students.

Keywords Transnational education · Computer Science education · Confucianism · Higher education · Learning styles

4.1 Introduction

Chinese students are a primary source of overseas students for most non-Chinese universities. Both the fierce competition within the Chinese universities and the recognition of the revenue from the international students by Western universities are contributing to the increased number of Chinese students in English-speaking

P. Rattadilok (✉)
The University of Nottingham Ningbo China, Ningbo, China
e-mail: Prapa.Rattadilok@nottingham.edu.cn

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countries. Whilst the cost of education in the UK is the highest of the English-speaking countries, the brand image and international rankings are most celebrated and respected in China (Edwards and Ran 2006).

This chapter aims to highlight the differences in the compulsory educational structures in China and UK through the process of a thorough literature review, comparing the differences in the available subjects, perceptions of teaching and the assessment methods a student uses to decide on a university. This review focuses only on the mainstream curriculum and not the vocational courses for both the UK and China.

A questionnaire approach is used in order to gain further insight from senior secondary school students, undergraduate students, lecturers and parents. The latter half of the chapter focuses specifically on analysing the data from this questionnaire which focuses on Computer Science. The aim is to identify the relationship, if one exists, between culture and learning differences in order to highlight key areas for those delivering a British curriculum to focus on.

4.2 Chinese Education

Since the implementation of economic reforms and the open-door policy in 1978, with a GDP growth rate between 7 and 8% a year, China has become the world's second largest economy (World Bank 2019). Over the last decade, China's investment in education has increased at a rate of 19% on average, and this investment is equal to 4% of GDP in 2012. Since 1956, all classes in schools, except for minority areas, were to use Mandarin Chinese, i.e. Putonghua (Goldstick n.d.b). The standardisation of the language also dramatically increased the literacy rate from 12% to the current literacy rate of between 86 and 90% (Goldstick 2009). However, the sudden change from a traditional communist system to China's contemporary system, i.e. market-socialism, has led to inequality in access to education (Goldstick n.d.a).

In addition to the central government, China's constitution consists of three levels of administration, which are provincial, county and township level. There are four kinds of provincial-level divisions, which are province, municipality, autonomous region and special administered region.

4.2.1 Compulsory Education

China, the largest education system in the world, is educating 260 million young people and employs 15 million teachers in about 514,000 schools (OECD 2016). Education is state-run where county-level governments have primary responsibility of governing and delivering of primary and secondary school education. However, provincial authorities administer higher education institutions. In 2015, there were 2,852 county-level divisions in China (National Centre for Education Development Research and Chinese National Commission for UNESCO 2008).

There are 9 years of compulsory education in China. This consists of 6 years in primary school and 3 years in junior secondary school from the age of six to fifteen. The Law on Compulsory Education, revised in 2006, stipulates that all students are exempted from tuition fees in compulsory education and the parents are responsible for enrolling their children. The school year is divided into two semesters, i.e. fall and spring. Fall semester begins in early September and spring semester starts in late February. Classes begin by 8:00 am, splitting into four to five 40 to 50-min periods in the morning, and three to four 40 to 50-min periods in the afternoon. Many of these students will also attend some extracurricular activity after school before returning home and commencing their homework (Ziklová 2014).

Memorisation and extensive test preparations are the main teaching methods in secondary school and university entrance examination or Gaokao (Mack 2018). Nonetheless, according to research, memorisation and Gaokao contribute to China's best knowledge in Mathematics and Science. According to the Programme for International Student Assessment (PISA) test in 2009, students in Shanghai, China received an average score of 600 in Mathematics and 575 in Science, whereas the students in the United States received an average of 487 and 502 in Mathematics and Science, respectively (Goldstick n.d.b).

4.2.2 Optional Education

Following the compulsory education, the government uses a public examination called Zhongkao to assign students that chose to continue with 3 years of senior secondary education, to different senior secondary schools. Although senior secondary schools are not compulsory, 94.9% of junior secondary students continued to senior secondary schools in 2017, an increase from 57.5% in 1997 (National Bureau of Statistics of China 2018). However, research shows that rural junior secondary schools receive an unequal quality of academic resources and unequal amount of education as well as preparation towards university entrance examination when compared to urban senior secondary schools (Goldstick n.d.a). In fact, the last year of senior secondary school is targeted towards preparing the university entrance examination (Goldstick n.d.b).

Undergraduate degrees require 4 years of study in China. Admissions to undergraduate programmes are based on their Gaokao entrance examination score. The entrance examination itself is 3 days in duration and takes place in June or July each year. The Gaokao entrance examination takes 9 hours in total and is under high security where students are scanned to prevent them from using any electronic devices, and the examination rooms are monitored by surveillance camera during the exams (Schrock 2011). According to statistics, three out of five senior secondary students that attend the Gaokao pass the examination, where those that fail end up as blue-collar workers (Goldstick n.d.b). The gross enrolment throughout China increased from 3.83 million in 2006 to 4.63 million in 2017 (UNESCO Institute of Statistics 2019). This increase in the number of enrollees could be influenced by the reform,

where some local governments allow longer term migrant children to sit for examination in their hosting provinces instead of their domicile registration or Hukou province (National Bureau of Statistics of China 2018).

In 2010, a national standardised student enrolment and status information management system was built. All students are assigned an enrolment number which is linked directly with their identification number. The whole education process of a student is recorded with this ID. This also impacts on their school enrolment according to their residential information.

4.2.3 Teachers and Teaching

Like many Asian countries, teachers and teaching are highly respected. In China, different qualification certificates are required for different types of teachers which can be applied for from local educational administration departments at the county level. The teachers' qualification examination is held nationally. Separate examinations are provided for teacher certifications at pre-school, primary, secondary and vocational level of education. Every teachers' certificate applicant has to pass the examination including both written examination and interview. For higher education, the certification process is more complex, whereby some universities have the right to issue certificates, but all teachers at other universities must hold government-approved certificates (OECD 2016).

4.2.4 Curriculum

The curriculum for junior secondary students mainly includes morality, Chinese, Mathematics, foreign language, science (or physics, chemistry and biology), history and society (or history and geography), physical education and health, art and comprehensive practical activity. For senior secondary school, the government suggests that various elective subjects in addition to the compulsory subjects must be offered by schools. The comprehensive practical subject covers information technology, research study, community service and social practice for primary and junior secondary school students. For senior secondary students, only research study, community service and social practice are covered.

The new curriculum reform was initiated in 2001 and focuses more towards essential knowledge and skills to lifelong learning; as well as active and problem-solving learning style.

4.2.5 University Entrance

From 2014, Shanghai and Zhejiang provinces have been the pilot regions of the new National University Entrance Examination or Gaokao. Instead of testing students on two broadly defined subjects, i.e. art and science, the new test will be structured as a general examination which will consist of national unified exam and an assessment of academic proficiency. The national unified exam part includes Chinese, Mathematics and foreign language, whereas students can choose the disciplines according to their interests in the academic proficiency part, i.e. relevant to their majors when applying for university admissions. In Zhejiang, a 3 + 3 model is used. For the national unified exam part, the foreign language is English. For academic proficiency, students can choose three subjects from physics, chemistry, biology, politics, history, geography and technology. Foreign language and two other selected subjects may be taken twice and the grades can be valid for up to 2 years. For the three subjects in the national unified exam, the maximum score is 150 each. For the subjects in academic proficiency, an alphabetical grade from A, B, C and D are given. Unlike in the past, students can now apply to any university regardless of their score or the tier the university is in.

4.3 UK Education

In England, Scotland, Wales and Northern Ireland, the respective local Departments of Education are responsible for education. The UK spends 90 billion pounds sterling on education or about 4.3% of the national income in England (Belfield et al. 2018). In 2017/2018, total spending on schools in England represented about 42 billion pounds sterling. There were only 4% of 16–17-year-olds who are not in any form of education in 2017. The Teaching Excellence Framework is a set of metrics the government uses to incentivise universities to improve their performance, and therefore, this is one of the metrics students use to decide the quality of the education provided (Universities and Colleges Admissions Service 2019).

In the UK, student loans are also available for students in higher education. Rather than fixed repayments like mortgages, it should be noted that what students pay back depends on their income after graduating with the repayment threshold set at 25,000 and a write-off period of 30 years from graduation (Belfield et al. 2018).

4.3.1 Compulsory Education

Education in the UK is compulsory between the ages of 5 and 16 (18 in England). State schools are free to attend and over 90% of all school children attend this type of schools. For private schools, e.g. public schools, parents pay the fees. By law,

parents have the right to educate their children at home, if they can show they can do it. Their day begins at 9:00 am and finishes at 3:30 pm where one afternoon a week is usually dedicated to Physical Education. The academic year generally runs from September to July each year.

The main state examinations are the General Certificate of Secondary Education (GCSE) or O-level (Ordinary) and are usually taken at the age of 16. Usually, students take 5–10 GCSEs and they must pass relevant GCSEs in order to do their A-level (Advanced). The exam results are in letter grades between A* and G, where A*, A, B and C are the higher satisfactory grades; and D to G are the lower satisfactory grades. These letter grades are to be replaced by numeric values of between 9 and 1; this will be phased in during 2018 and 2019 (Nuffic 2018).

English, English literature and Mathematics account for around a third of GCSE achievements in England (Ofquals 2013). Schools decide which tier they enter a student, for example, foundation tier will give access to grades C–G whereas higher tier will give access to grades A*–E. However, the plan is to un-tier this wherever possible to allow students to be awarded the highest possible grades reflecting on their performance during the assessment. In order to design suitable assessment(s) and assess students of all ability fairly, certain subjects are tiered. For example, Mathematics GCSE is tiered and therefore provides sufficient challenges for able students, but should also not demotivate less able students. The recent change to enhance student's capability for workplace and A-level also includes focusing on real-world contexts and multi-step problems in Mathematics and the use of grammar, spelling and vocabulary in English and English literature (Breslin and Moores 2015).

In the UK, 60% of students entering employment stop their education at the end of their GCSEs (Rushton and Wilson 2015). Many employers take GCSE grades into account when deciding to give an individual employment or training opportunity. Similar to employment, GCSEs also determine fields of study in A-level and university. For example, if Medicine, Science or Mathematics is of interest, then the right kind of GCSEs in certain sciences and Mathematics are required (Breslin and Moores 2015). Whilst employers are dissatisfied with how well school-leavers are at applying Mathematics they leant at school in the workplace, there is also a large dropout rate during the transition from GCSE Mathematics to A-level Mathematics. For entry to most A-level Mathematics courses, a grade B or higher are usually required, similar grades are also deemed as sufficient by the employers (Rushton and Wilson 2015).

4.3.2 Optional Education

To continue to higher education in the UK, students have to attend 2 more years and take their A-level exams in at least three subjects at the age of 18. The exam takes place in May or June and there are five grades which are A, B, C, D and E. Prospective students are required to submit their application a year prior to their intended admission date to the Universities and Colleges Admissions Service (UCAS). The general

minimum requirement for admission via UCAS is 2 GCE A levels and 3 GCSEs in 5 different subjects. Universities also specify their own requirements, but most degree programmes usually require a minimum of 3 GCE A levels and 3 GCSEs.

In the UK, undergraduate programmes are mostly 3 years with exception for Medicine, Veterinary, Dentistry and Architecture that have a duration of 5–6 years. Bachelor degrees are traditionally awarded in two separate domains: science and arts. An honour degree marks bachelor's degree programmes that have a higher study load and more exams than ordinary programmes within the same duration, and only those students completing honours programmes are able to continue their studies at post-graduate level.

4.3.3 Teachers and Teaching

In England and Wales, Qualified Teacher Status (QTS) is required by all teachers in schools. In Scotland, a teacher needs a university degree which includes the Teaching Qualification of the General Teaching Council of Scotland. In Northern Ireland, a teacher needs a university degree or certificate which includes the teacher competences from Department of Education (British Council 2005). There are a number of routes a teacher can take to obtain their QTS status, e.g. university-led training, school direct courses and Teach First's learning development programme (Waitzman 2016). For higher education, institutions set their own requirements which can include the Postgraduate Certificate in Higher Education (PGCHE) or accreditation with the Higher Education Academy.

All trainee teachers must obtain their official certification of their suitability to work with children, which must be countersigned by the institution the teacher is working in (British Council 2005), this may contribute to how the public view teachers as social workers (Hargreaves et al. 2007).

4.3.4 Curriculum

The national curriculum for secondary schools includes English, Mathematics, Science, History, Geography, Art, Music, Technology, Religious Education, Physical Education and a foreign language, i.e. usually French or German. In England, Information and Communication Technology (ICT) is also a required subject (Qualifications and Curriculum Authority 2005). The students themselves select their examination subjects as well as the number of subjects they want to take exams in their GCSEs which are available in over 45 subjects (Qualifications and Curriculum Authority 2005).

4.3.5 University Entrance

Universities may ask for a specific number of GCSEs with specific minimum grades. For example, a number of medical courses may ask for five or more grades at the top of the range. Depending on the degrees, the universities may often require a minimum of a GCSE pass in English and Mathematics. A number of universities ask that grades and number of subjects are achieved at one setting, in order to ensure that you can manage workload of this size in your study. For example, three A levels taken in Year 13. Common facilitating subjects required by many degrees include Mathematics, English literature, Physics, Biology, Chemistry, Geography, History and languages (Russell Group 2018).

4.4 Cultural Influences

4.4.1 Confucianism

Confucianism is a Chinese religious and philosophical tradition dating back 2500 years, brought back by Kong Qiu (commonly known as Kong Zi) to restore social and political harmony of the ruling class and the literate elite. Confucius' three major virtues are humanity 仁 (ren), ritual propriety 礼 (li) and filial respect 孝 (xiao). Humanity is regarded as to be humane. The ritual propriety is the outward expression that is consistent with cultural norms. Filial refers to the respect for elders. Confucianism focuses on the transformation of a person by learning from the past sages and teachers in order to realise their full potential (Adler 2011).

Confucianism's decline following the decline of Han dynasty, when popularity changed to Buddhism and Daoism. The major revival of Confucianism was strongly influenced by Buddhism with Zhu Xi as the dominant figure, who extends education in China to the Ph.D. level. However, when Zhu Xi's system became the basis of the civil examination system, people who hoped to get government jobs began to memorise the interpretations of the Confucian tradition rather than understand the moral purpose of the system. Later on, Confucianism was used politically to support conservative agendas, particularly on the obedience towards elders and the strict subjugation of women to men (Adler 2011).

The Zhu Xi's system may have influenced how the Chinese culture of learning to largely emphasise rote learning from an authority figure (either a teacher or a book) and reflecting upon that text internally. Voluntary interaction with teachers in an open class would be considered rude and interaction only occurs when students are invited to respond to the teacher on an individual basis, creating a typically teacher-centred learning environment (Jin and Cortazzi 2016). Jin and Cortazzi (2008) find that Chinese students say that they are capable of adapting to the expectations of Western universities; however in doing so, they felt that their cultural heritage was being lost. Therefore, the outward and collaborative interaction that is desired within

a British institution is directly at odds with the Chinese culture of learning. However, when anonymity is provided through technology, especially in large lecture theatres, voluntary interaction with teachers is more sustained (Lamb et al. 2019).

4.4.2 British Empire's Influences

At the height of the British Empire, it covered around 25% of the world's land surface and other areas were closely linked to it by trade. The expansion of the British Empire was driven by the quest for resources, i.e. to eat, to process and sell on, or valuables (Pagden 2001), for the development of Britain's evolving economy. There is a lot of disagreement about when the British Empire began, some saying it was as early as the twelfth century, but the empire came to the end after the Second World War (The National Archives n.d.).

The British Empire contributed to the nature of education through the functions of an elite schooling system. "Public schools" created a community of "gentlemen", i.e. identifiable elites that shared outlooks, values and codes of honour (McCulloch 2009). Intellectualism was not the reason why pupils achieved high prestige positions, but family background and therefore social class of their parents (Griggs 1994). Principles, character and manners were taught, ritualised and hidden within the curriculum. Prefects and hierarchies are amongst many other rituals which kept influencing the way of life of the colonised to live the lifestyle of the colonisers (Mayo 2014).

Hegemony is leadership or dominance by one country or social group over the others (Antonio Francesco Gramsci 1891–1937). When it exists, the ideas of dominance are viewed as natural, normal or even beneficial (Freestone 2015). Language is one of the key examples to demonstrate the dominance of the West, in order to protect and promote their interests (Burns and Coffin 2001). Hence, advanced English skills are perceived to be highly desirable, as it is used by the global elite. However, due to globalisation, students see English as a form of social capital and not Western dominance (Freestone 2015).

Whilst in ancient China, one develops into a person by learning their duty in relation to others, interdependently with human community, Western philosophical tradition conceive the same concept more individualistically. Aristotle distinguished a person from animal based on the capability to reason. When one is rational, they are therefore being able to make the right choice for their own sake. For Kant, a person's ability to be self-legislating, through their rational and autonomous behaviour, is most important to living a good life. For Utilitarianism, a person is defined by their will to right the course of action to experience happiness. These principles all point to how being a person also meant freedom, independence and respect of the autonomy of all agents (Bockover 2010).

4.5 Survey Results

4.5.1 Choosing Between Degrees and Universities

A total of 150 questionnaires have seen sent out to senior secondary school students, 125 of these were returned and usable. Out of the 125 students, 6.4% and 8% of them think that their parents are the only ones who make the decisions regarding which degree and which university they will be attending, respectively. 14.4% and 22.4% of these students think that they themselves and their parents are making the decisions regarding which degree and which university they will be attending together, respectively. Out of the 125 students, 10.4% of these students also suggest that their teachers are either making these decisions with either themselves or with themselves and the parents. One student in particular suggests that "the society" makes the decision regarding which university they are going to. It may be assumed that the student is referring to the Gaokao.

A total of 100 questionnaires have been sent out to undergraduate students, 54 of these were returned and usable. Out of the 54 students, only 3.7% of them think their parents are the only ones who make the decisions regarding which university they will be attending. None of them think their parents are the only ones who make the decisions regarding which degree they will be attending. When compared to the senior secondary school students, a higher number of these university students think they themselves and their parents are making the decisions together regarding which degree (22.22%) and which university they will be attending (35.19%). It is possible that the students thought they were going to make the decisions by themselves when they were in senior secondary school, but the actuality changes when they are making these decisions. It is also interesting to note that, unlike the senior secondary students, none of the university students suggest any other individuals that will make these decisions with either themselves, or with themselves and the parents. However, 3.7% and 5.56% of these university students suggest that their Gaokao decides which degree and which university they are attending, respectively.

A total of 70 questionnaires have been sent out to parents, 27 of these were returned and usable. Out of the 27 parents, 29.63% of them think that they themselves are the only ones who make the decisions regarding both the degree and the university their child will be attending. If the parents are categorised by their countries of origin, 16 of the parents who participated are from China and 50% of them think that they themselves are the only ones who make the decisions regarding both the degree and the university their child will be attending. 22.22% of the 27 parents think they themselves and their children are making the decisions regarding which degree and which university they will be attending together. Figure 4.1 compares the importance of different factors when senior secondary school students, undergraduate students and parents use to decide which university they themselves or their children will be attending.

Both students and parents are asked to rate the importance of different deciding factors with 1 being the least important and 6 being the most important. Distance

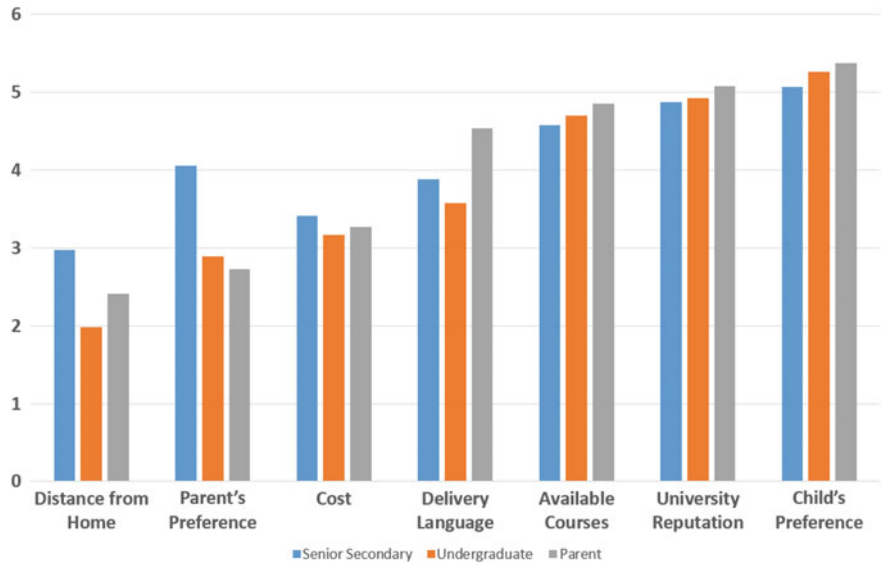

Fig. 4.1 The importance of different deciding factors

from home is considered the least important from both the student's perspective as well as the parent's perspective. It is curious however that the child's preference is considered the most important from both perspectives, but 50% of the Chinese parents are making the decisions alone, regarding the degree as well as the university their children are attending.

It is also interesting to note a significant change, i.e. a decrease from 4.06 to 2.89, between how the senior secondary students and the undergraduate students rate the importance of their parent's preference as the deciding factor. The average age of the senior secondary students and the undergraduate students who have completed the survey are 17.33 and 20.63, respectively. This represents a spread of 1–2 years before and after students begin their first degree, i.e. generally at the age of 19. It may be possible that the undergraduates, having had the parent's advice for their first degree, they are now more confident in making their own decisions regarding the degree and the university they will be attending.

Delivery language is another interesting factor. For parents whose first language is Chinese, the importance of the delivery language is at 3.93. This number is much closer to the student's perspectives, i.e. 3.88 and 3.57 for the senior secondary school students and the undergraduate students, respectively. However, for parents whose first language is English, the importance of the delivery language is at 5.36. The survey also asked for "other deciding factors". Majority of the students input "food", "entertainment", "hardware" and "gym". One student in particular suggests that "politic and economic" are also part of their deciding factor. For parents, their answers suggest "employment record" and "safe city".

4.5.2 Choosing Between Home or Abroad

Out of the 125 senior secondary students, 24% will not choose universities outside of their home country. The most common reasons are the familiarity with "the culture", "the country" and "the language". One student in particular noted the paramount importance was their safety in China over anywhere else in the world. Out of the 125 senior secondary students, 25.6% will only choose universities abroad. The two most common reasons for studying abroad for these students are to "see the world" and "attend better universities".

Out of the 54 undergraduate students, only six of them would not choose universities outside of their home country. However, their reason for not choosing universities outside of their home countries was their Gaokao results. Unsurprisingly, this reflects the most popular answers from the 54 undergraduate students when they are asked "why would you choose universities in China". Many of these undergraduate students mentioned that they would only choose to study in China if they were accepted in the C9 League, i.e. top 9 Chinese universities (People's Daily Online n.d.). Out of the 54 undergraduate students, 20.37% will only choose to attend universities abroad. Similar to the results from the senior secondary students, the two most common reasons for studying abroad for these students are "expand my horizon" and "quality of education". Although the senior secondary students have not provided any reasons why they would not choose to attend universities abroad, the undergraduate students suggest "financial situation" is one of the common reasons.

Out of 27 parents, 62.96% of them would allow their children to attend universities abroad. There is a difference between the parents whose first language is Chinese allowing their children to attend universities abroad, i.e. 50% and the parents whose first language is English allowing their children to attend universities in China, i.e. 36.36%. However, for the parents whose first language is English, 81.82% of them would allow their children to attend universities abroad. Figure 4.2 compares the proportion of selected options between universities in their home country, universities abroad or both.

From Fig. 4.2, it is "home only" in the least popular option amongst the students. It is also interesting to note that, from the parent's perspective, none of them would only allow their children to attend universities abroad but not home.

4.5.3 Investments in Mathematics and Computer Science

It is clear from the survey that both the students and parents think that Mathematics and Computer Science are important, i.e. 96.65% and 94.41% from the student's perspective, respectively, and 100% for both subject areas from the parent's perspective. In addition to this, 93.85% of the students also think that Mathematics is important for Computer Science whereas it is 96.30% from parent's perspective. When asked for the main reasons why Mathematics is important for Computer Science, the most

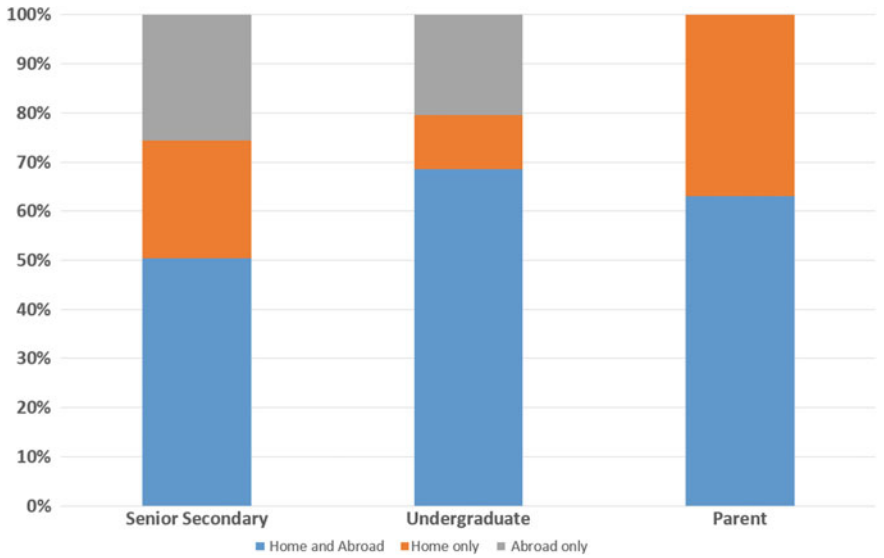

Fig. 4.2 Comparisons between parent's and student's choice when selecting a university in their home country or abroad

common answer from the senior secondary school student's perspective is "because Mathematics is the basic of Computer Science". It is interesting to note that undergraduate students are more precise with their answers and the most common answer is "because Mathematics is the basic of computer algorithms".

For senior secondary students, the two most common types of investments for both Mathematics and Computer Science are in the form of tutors and extra lessons. For undergraduate students, the two most common types of investments for both Mathematics and Computer Science are in the form of books and online courses. Figure 4.3 displays the survey results when students and parents are asked if they invest in Mathematics and Computer Science.

There are only 36.8% of the senior secondary students who think Mathematics is important but they do not invest any extras outside of their curriculum, while there are 68.8% of the senior secondary students who think Computer Science is important but they do not invest any extras outside of their curriculum. It is interesting to note that whilst there are massive differences between investment in Mathematics and Computer Science at the senior secondary school level, the difference is smaller in relative terms at the undergraduate level and also the opposite way around. In fact, there is more investment in Computer Science at the undergraduate level than Mathematics when compared to the senior secondary school level.

A similar reflection of the investments in Mathematics and Computer Science from the senior secondary student's perspective can be seen from the perspective of the parents. This possibly reflects the fact that the majority of the senior secondary school students are still living at home. One important point to note is the fact

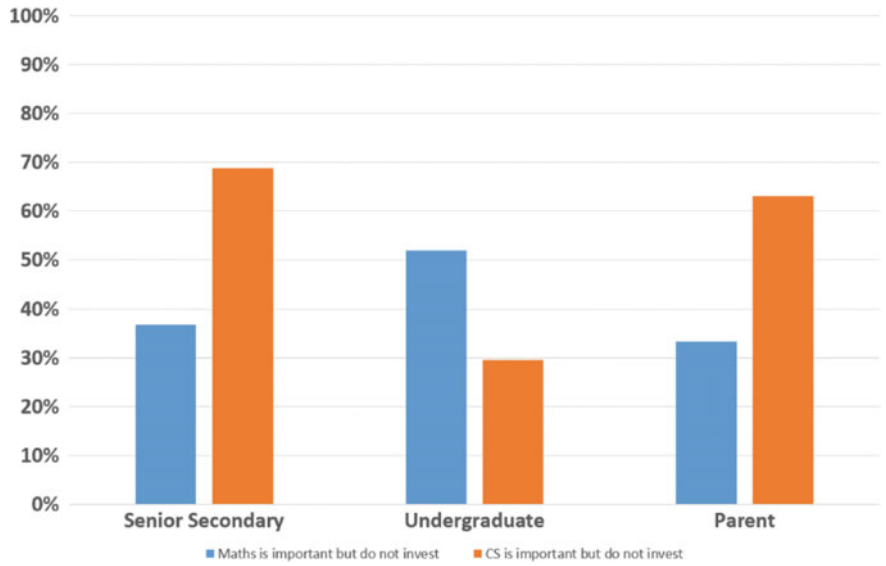

Fig. 4.3 Investments on Mathematics and Computer Science

that only 6.25% of the parents whose origin is Chinese recognise the importance of Mathematics but do not invest in any extra support outside of their children's curriculum, but 72.73% of the parents whose origin is not Chinese recognise the importance of Mathematics but do not invest in any extra support outside of their children's curriculum. For Computer Science, only 50% of the parents whose origin is Chinese recognise the importance of subject area but do not invest in any extras outside of their children's curriculum, but 81.82% of the parents whose origin is not Chinese recognise the importance of Computer Science but do not invest in any extras outside of their children's curriculum. Other than Mathematics and Computer Science, "Language" and "Chemistry" are the two most popular investments for the parents whose origin is Chinese, whereas "music" and "sport" are the most popular investments for the parents whose origin is not Chinese.

4.5.4 Quality of the Degree

When asked about the quality of the degree from different countries in Asia and Europe, with 1 being the worst and 6 being the best, it is clear that both the students and the parents agree that UK's degree is among the best with the average rating of 4.94 from the students and 5.32 from the parents. From the student's perspective, degrees from China are only marginally better than degrees from other European countries, i.e. 4.56 and 4.55, respectively. However, the difference widens and is

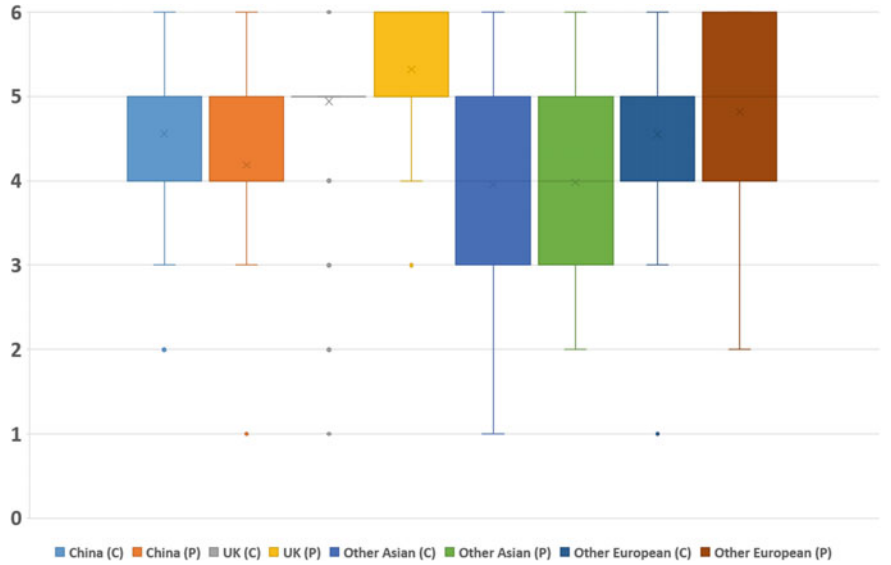

Fig. 4.4 Comparisons of the rating on the degree quality from different regions

in a reverse polarity from the parent's perspective, i.e. 4.19 and 4.82, respectively. Figure 4.4: displays the box and whisker plot of the rating of the degree quality.

Figure 4.4 shows the minimum, the first quartile, mean, the third quartile, the maximum and the outlier values. The x in the box represents the mean. The bottom (top) line of the box represents the median of the bottom (top) half or the first (third) quartile. The whiskers extend from the ends of the box to the minimum value and the maximum value. The interquartile range is defined as the distance between the first quartile and the third quartile. Data points that exceed a distance of 1.5 times the interquartile range below (above) the first (third) quartile are considered outliers.

4.5.5 Level of Mathematics and Computer Science Skills

When the students were asked to compare their skills in Mathematics (Fig. 4.5a) and Computer Science (Fig. 4.5b) with students from different countries in Asia and Europe, with 1 being the worst and 6 being the best, it is clear that the students view themselves as having lower skills than other students from other countries in Europe and Asia. When excluding students from China, the difference is only marginal in the case of Mathematics skills, i.e. 3.85 and 3.99, but the gap widen in the case of Computer Science, i.e. 3.49 and 4.35.

Although humbleness may affect how the students view their level of skills, it is clear that the students view the Chinese students as having a much higher level of skills in Mathematics than other countries in Asia and Europe. At the same time, the

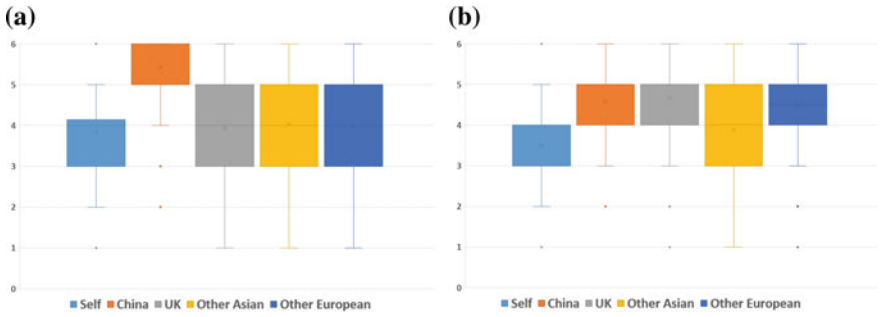

Fig. 4.5 The student's perspective of the rating on skills in **a** Mathematics and **b** Computer Science

students view the UK students as having a slightly higher level of skills in Computer Science, but only marginally better when compared to their view on the Chinese students, i.e. 4.68 and 4.58, respectively.

A total of 70 questionnaires have been sent out to university lecturers, 33 of these were returned and usable. The average number of years in teaching experience of these teachers is 2.53 in China, 7.27 in the UK, 4.34 in other Asian countries and 1.27 in other European countries. Figure 4.6a, b displays the number of counts on different ratings with regard to skills in Mathematics and Computer Science, respectively, from the teacher's perspective.

When comparing Fig. 4.5 with Fig. 4.6, it can be seen that both the student and the teachers share similar views on the difference between the skills rating of Chinese students and UK students, where the gap is much wider in (Fig. 4.6a) Mathematics than in (Fig. 4.6b) Computer Science. For Mathematics, the majority of the teachers rate Chinese students as 5 and rates UK students as 4 with the averages of 5 and 3.74, respectively. For Computer Science, the majority of the teachers rate Chinese students as 4 and rate UK students as 5. However, the average is much closer when compared to Mathematics, i.e. 4.5 and 4.45 between Chinese and UK students, respectively.

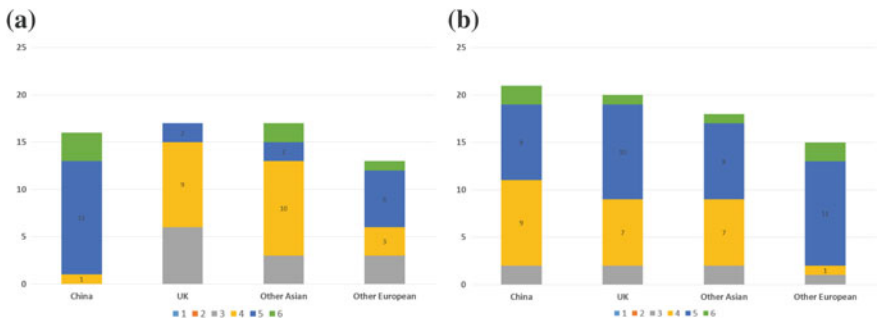

Fig. 4.6 The teacher's perspective of the rating on skills in **a** Mathematics and **b** Computer Science

4.5.6 *English as a Delivery Language*

Figure 4.7 displays the teacher's opinions in terms of receiving (i.e. listening and reading) and transmitting (i.e. speaking and writing) skills in English of students from Asian countries and European countries.

Unsurprisingly, the UK students are rated at the top in both receiving and transmitting skills, closely followed by those in Europe. Chinese students are rated slightly lower amongst other in the same region. Out of the 33 lecturers, only 30.30% and 39.39% think delivery language will present a problem when teaching Mathematics and Computer Science, respectively. One lecturer in particular suggests that language is used for the exchange of ideas and in fact "Native English speakers are a minority of speakers of scientific English now".

When asked if the culture plays a role in learning Mathematics and Computer Science, 57.58 and 66.67% of teachers agree in both of the subject areas, although this is not to say that the lecturers who think culture plays a role in learning Mathematics will also think culture plays a role in Computer Science. A number of lecturers used the terms "memory" or "memorise" to describe the relationship between Mathematics and culture. One lecturer in particular suggests that "Some cultures are very accepting of authority. Cultures used to questioning and demanding evidence are more conducive the mindset needed to do Mathematics". From the Computer Science viewpoint, one lecturer suggests that "We have a lot of students studying CS here [China] who don't want to do CS but are doing it to appease parents' wants.

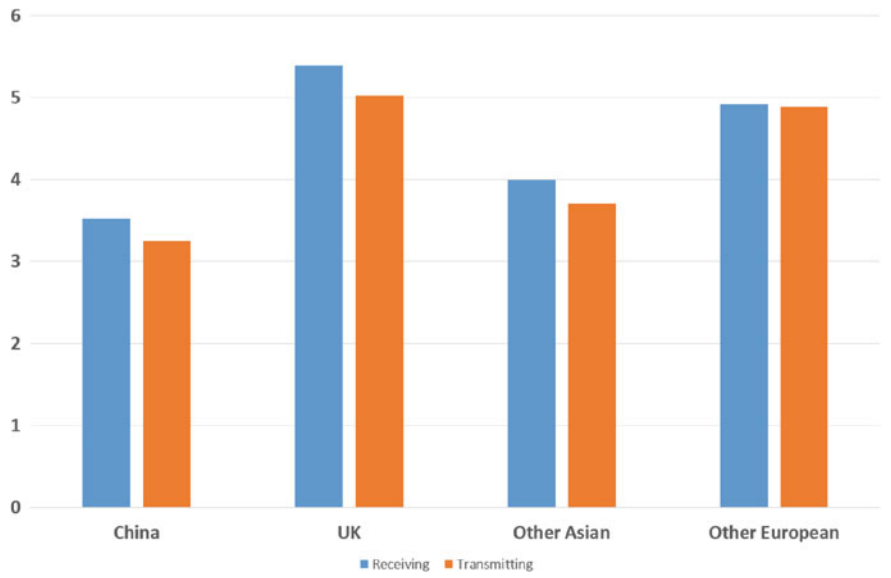

Fig. 4.7 The average ratings for receiving and transmitting skills in English of students from different countries

This doesn't happen in UK". Another lecturer suggests that "if access has previously been restricted, etc., so resulting in a more limited experience and background knowledge". It is possible that in this case, "access" refers to the Internet which is known to be very restrictive in China when compared to the rest of the world.

4.6 Limitations

The questionnaires for the students and parents were distributed within the east coast of China and East Midlands (UK). Specifically for students in China, the questionnaire was distributed only to those that are able to understand English.

The questionnaires for the teachers were distributed within Ningbo (China) and UK wide. However, this is limited to the lecturers in three subject areas including Mathematics, Computer Science, Engineering and English for Academic Purpose (Computer Science).

4.7 Conclusions

Despite cultural contradictions, Gu (2011) observes that all students, regardless of cultural background, mature and gain independence during their higher education experience; therefore, this is likely to lead to more autonomy, confidence and familiarity with educational expectations. Parents play a role in student's learning through their investment. Culture indirectly plays a role in the choice of investments the parent's made as well as how the students learn and therefore excel in certain subject areas. In Computer Science, delivering UK content to Chinese students will require certain terminologies and jargon to be clearly introduced and explained, possibly less so in Mathematics. Particularly when, unlike the UK, Computer Science or even Information Technology is not a part of the compulsory education in China.

The teachers need to take notice of the student's mentality with regard to adapting the content. For example, formative assessments which are popular in the UK may be more suitable for students who actually want to learn the subject areas, but less so if the students were there only to please their parents. Reinforced learning through repeated practice and prompt response can motivate students to work harder on their learning (Rattadilok and Roadknight 2019). Although the ideal goal of the institution may be to teach them the British Style of education, a gentle introduction may be required allowing them time to adapt to the new culture, e.g. classroom interactions as a part of the summative assessments in the beginning of their British Style of education which gradually reduces its significance to formative assessments.

The need to develop British and Chinese awareness of differences exists and should be addressed to ensure that all students can fulfil their potential. Edwards and Ran (2006) highlighted a number of issues including teacher–student relationships, learning styles, plagiarism and group work. Being culturally intelligent also allows for

effective communication in cross-cultural environments, which is of significance in any international operation including higher education sector (Esther and Olukayode 2018).

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Chapter 5
Revising ICT Programmes Through Learning Outcome Alignment: A Practical Exercise in Belarusian Universities

Armaghan Moemeni, Richard Gatward, Lina Kankeviciene and Aliaksandr Pyko

Abstract EU-Funded ERASMUS Capacity Building in Higher Education project called 'Innovative ICT Education for Socio-Economic Development (IESED 2017–2019)' has been established in the consortium of five Belarusian (BY) Higher Education Institutions (HEIs) as well as four HE partners across Europe. The goal of this project has been to enhance the competencies of ICT specialists and to improve the quality of ICT education across BY HEIs to meet the challenging needs of the social-economic development programme in the Republic of Belarus considering the Bologna process. In order to address this, the HEI partners worked towards updating selected study programmes in Information Resources Management, Mathematics and IT, Management with IT specialisation, Information Systems and Technologies, Informatics, compliance with the priorities of National Higher Education Strategy of Belarus. During the course of this project, some issues became apparent such as difficulties in developing generic course templates that could be adopted for years to come; limiting the reusability of course design, both level distinction and programme function of proposed courses which were not easy to identify when the focus was on competencies rather than mapping appropriate learning outcomes; and complications with evaluating credits especially with no clear fixed translation of course hours into credits. Finally as the Belarusian partners were required to follow the national ministry of education's restrict guidelines, the recommended modifications by EU exert partners normally took longer to be approved and implemented. In this

A. Moemeni (✉)
De Montfort University, Leicester, UK
e-mail: armaghan@dmu.ac.uk

R. Gatward
University of Huddersfield, Huddersfield, UK
e-mail: R.A.Gatward@hud.ac.uk

L. Kankeviciene
Alytus University of Applied Sciences, Alytus, Lithuania
e-mail: lina.kankeviciene@akolegija.lt

A. Pyko
Business School of Belarusian State University, Minsk, Belarus
e-mail: pyko@sbmt.by

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article, the authors (IESED project managers) reviewed this revision and implementation practice in order to achieve the IESED project goals in by resolving raised issues. They then moved on to discuss the formal methods that the project partners employed in order to revise and update the mentioned study programmes through learning outcome's alignment.

Keywords IESED · Reflective practice · Bloom's taxonomy · Learning outcome · ERASMUS+ · Qualifications framework (QF) · Quality assurance agency (QAA) · ICT education · Bologna process · Bologna 3-Cycle System · ECTS · Belarusian Ministry of Education Road Map

5.1 Overview

The Belarusian economy is currently facing the challenge of innovative change. Undoubtedly, the Republic of Belarus possesses the potential to become a prosperous and competitive economy. However in order to achieve this, the current economic model requires consistent and comprehensive reforms. For that purpose, the Belarusian authorities have worked out a national strategy of sustainable economic development until 2030. In order to reach this goal, the country is going to make drastic changes within the next 15 years.

Due to the Strategy of the Information Society in the Republic of Belarus for the period up to 2015, every citizen should now be ready for living in the digital society. However, Belarus is not fully using the potential offered by the new technologies and digital content to improve the efficiency, accessibility and equity of education, training and learning. The existing demand for IT specialists is three times as high as their supply; however, the graduates of many educational institutions lack the state-of-the-art knowledge required by employers as educational institutions often lag behind the requirements of the latest technology. Therefore, a new approach to training is extremely important. New and updated higher education study programmes in the computing sector that meet the Bologna requirements are urgently required.

Accordingly, five Belarusian higher education institutions—School of Business of Belarusian State University (SB BSU), Belarusian State Pedagogical University named after Maxim Tank (BSPU), Private Institute of Management and Business (PIMB), Vitebsk State Technological University (VSTU) and Belarusian State University of Informatics and Radioelectronics (BSUIR)—in partnership with four HE institutions from across Europe–Alytus Koiegija University of Applied Sciences, Lithuania (AK); De Montfort University, UK (DMU); University of Lille, IUT A, France (UDL); and University of Economy in Bydgoszcz, Poland (WSGB)—formed a consortium towards an ERASMUS Capacity Building in Higher Education project called 'Innovative ICT Education for Social-Economic Development (IESED)'. This project aims to enhance the competitiveness of these BY HEIs offering high-quality higher education that meets the changing needs of the socio-economic environment consistent with the Bologna process requirements.

During the course of IESED[1] project (IESED's Official Website 2019), a range of revisions were considered and developed towards the modernisation of ICT programmes in Higher Education across Belarus. As part of this project, pilot programmes were developed using current thinking in HE pedagogy—including the work of Bloom, Laurillard (2001), Biggs (2003, 2011) and Ramsden (2003) amongst others—applying reflective practice, learning outcome alignment (to both assessments and levels) and the use of learning technologies in the implementation. Following the initial scoping phases of the project, a number of workshops and internships were organised in order to create pilot programmes exploring the ideas that underpin the project (see IESED project website for full details of these workshops) (IESED's Official Website 2019). This article discusses the principles being applied, the context of original framework and improved implementations, the progress which has been made in development of the pilot programmes and the lessons learnt from the programme.

5.2 Introduction

According to Belarusian Ministry of Education Roadmap for Higher Education Reforms (EHEA 2015; Piro 2016), a set of procedures were structured in order to align Belarusian HEI with the Bologna process for the EHEA membership. Some of these reforms were to establish Qualification Frameworks (QF), launch of an independent Quality Assurance Agency (QAA) and formally recognising these changes through bringing new legislations. Over years, various obstacles have impeded this progress through the road map, and the process proved to be well behind the agreed timeline as recognised in the independent report produced through the Eastern Partnership Civil Society Forum (EPCSF) report (Piro 2016; Eastern Partnership Civil Society Forum 2017).

Furthermore, in relation to this structural paradigm, the roadmap implementation fell short of its commitments. One of the particular structural insufficiencies was in relation to the new proposed code. Although the new code complied with the[2] Bologna 3-Cycle System for Higher Education in Europe[3], it stepped back from using European Credit Transfer System (ECTS) to map credits and levels. In addition, the

[1](INNOVATIVE ICT EDUCATION FOR SOCIAL-ECONOMIC DEVELOPMENT (IESED, 2017–2019) 574283-EPP-1-2016-1-LT-EPPKA2-CBHE-JP (http://iesed.esy.es/).)

[2](IESED Project Partners: *Belarusian Partners*: School of Business of Belarusian State University (SB BSU), Belarusian State Pedagogical University named after Maxim Tank (BSPU), Private Institute of Management and Business (PIMB), Vitebsk State Technological University (VSTU) and Belarusian State University of Informatics and Radioelectronics (BSUIR) *Partners from Europe*: Alytus Koiegija University of Applied Sciences, Lithuania (AK), De Montfort University, UK (DMU), University of Lille, IUT A, France (UDL), and University of Economy in Bydgoszcz, Poland (WSGB).)

[3]Bologna 3-Cycle System for Higher Education—European Higher Education Area and Bologna Process http://www.ehea.info/page-three-cycle-system.

new code introduced an inconsistent and incompatible terminology, making integration unnecessarily complicated. Furthermore, as this was only incorporated within a continuous programme of higher education for health care professionals, there was a need for that to be extended to the entire sector as a fully integrated continuous programme. The other significant shortfall was that the research-oriented professional education system was not fully integrated into the 3-cycle system defined by the new code. Finally, there has been no establishment of a legal basis for an independent QAA.

In the context of the IESED project, some of these failings of the roadmap have been beyond the scope and ability of the project to address. However, in relation to move towards a qualification framework, the project provided a number of useful guidance in the form of pilot schemes for computing, within the Bologna 3-Cycle System (Gatward et al. 2018).

Following the project progress so far, this article discusses the principles being applied, the context of the implementation and the progress which has been made to date in development of the pilot programmes and the lessons learnt from the programme. The authors (IESED project managers) reviewed the project implementation phases in order to achieve the IESED project goals by resolving raised issues. They then moved on to discuss the formal methods that the project partners employed in order to revise and update the mentioned study programmes through learning outcome's alignment.

5.3 The Project Framework and Its Shortfalls

The EPCSF report (Piro 2016) made a reference to the fact the proposed 3-cycle system fell short of a framework as it made no reference to the precise specification of the nature of the learning outcomes. There was also no use of ECTS as basis for assessing the size of study units in the new code. The importance of incorporating level expectations into any QF, in particular using the well-established taxonomy established by Bloom (Bloom et al. 1956), and revised by Anderson and Krathwohl (2001) has also been stressed, in particular at the Lille meeting (IESED's Official Website 2019) in relation to this project and was also presented in (Gatward et al. 2018).

On analysis of the individual study programmes, however, there was a notion of an expectation of the amount of effort required for a year of study. There was also a notion of relative time differences to be spent on individual sections with the programme during any particular time period of the programme (i.e. years or semesters). In other words, at taught level, there was, at least in some cases, an understanding of the nature of definition and use of an appropriate Higher Education QF, even new code as realised by the BY Ministry of Education incomplete and confusingly presented. It, therefore, seemed to be a useful exercise to take an existing programme, assume QF based on an interpretation of EHEA expectations for the first two cycles, and represent this in the context of a reimagined interpretation of the new code, compatible with

the Bologna process, and addressing the problems noted by the EPCSF report. There were some apparent issues during this exercise which can be summarised here. First, taking the proposed Framework literally presented difficulties in developing generic course templates that could be adopted for years to come, limiting the reusability of course design. Second, both level distinction and programme function of proposed courses were difficult to identify when the focus was on competencies rather than learning outcomes. This is what the authors emphasised in this work and will be seen in upcoming sections. And finally, it was difficult to evaluate credits especially with no clear fixed translation of course hours into credits. Furthermore, there was the notion of self-study hours which was often difficult to quantify precisely (Gatward et al. 2018).

All the above issues with the proposed framework were individually explored and possible solutions were discussed and implemented during the course of IESED project. (Refer to IESED's official website1 for most up-to-date implementation results.)

5.4 Developing a Pilot Programme

In the second Minsk meeting or the project (IESED 2019), development workshops were held on revising programme specifications. As discussed previously at length (Gatward et al. 2018), two key aspects emerged in these sessions as being significant areas for development in revising programme specifications:

- The credit system, and the need for a clear alignment to ECTS, and standard credit requirement for specific levels of qualification.
- The need to apply level-oriented learning outcomes for given modules, and the need to revise these in the case where a given topic is being presented at various stages in two different award programme. As an example network architecture may be introduced at an introductory level in year 1 of a programme, or possible year 3. At present, there is no notion of the need to vary learning outcomes to take account of students' different levels of academic maturity that might be expected at these different stages in their academic journey.

A further issue that emerged in these sessions was that a number of named courses (modules) had been devised to be addressed differently depending on which programmes they were being incorporated into Gatward et al. (2018). This only became recognised as a problem because of the desire to retain course titles and codes throughout the suite of programmes (across multiple institutions) that each particular course was intended to contribute too. A set change in design here would be to recognise that, in these circumstances, differing course titles and codes would be required, even though addressing the same material. The initial workshops at this stage in the programme provided invaluable insight in devising the internship programme for subsequent meetings, throughout the year of 2018, and resulted in a number of successful case studies addressing the identified key development topics.

5.5 Case Studies

A number of internship and workshops were held by the project partners (De Montfort University—UK, Lille University of Science and Technology—France and University of Economy in Bydgoszcz–Poland), which addressed the various aspects of the project. In the context of this article, the focus on learning outcomes took place through workshops at an intensive internship at De Montfort University in September 2018 (see Appendix A for the outline of this internship). Existing programmes were considered and practical exercises established to revise them in the context of the learning outcome-based approach. This included rewriting course objectives as learning outcomes, understanding appropriate keywords for the level being addressed and specifically aligning assessment to the revised learning outcomes for those courses (modules). The expectations at these workshops were that understanding that resulted from undertaking these exercises would be applied on a large scale to the relevant programmes being offered in the host institutes of the Belarusian teams (project members involved in developing the pilot). The success of this further exercise was reviewed through the feedback presented at the follow-up project meeting in Bydgoszcz, Poland (Management group meeting at the partner Institution University of Economy in Bydgoszcz, February 2019).

This is the aspect where there is most scope for development. There is an implicit indication that some of the units are introductory, by the nature of the titles, particularly for those scheduled for the first year, such as Fundamentals of Management. The distinction however was lost in the subsequent years and, in fact, was a feature confirmed in discussions at the Lille meeting.

There are several examples of study modules from the second and third years of the programme, such as in the case of the specialist programme in Information Resource Management—roughly equivalent to Bologna 1st cycle, but there are complications in that respect. All are specified with competencies; however, there is no discrimination between, say, Principles of Algorithmisation and Programme, offered in the second year, very much a foundation unit in its title and nature, and Web-Technologies offered in the final year. It's not clear from the title if this is a foundational programme or not, but the list of competencies and syllabus topics indicate that it is a self-contained unit which develops the subject from introductory topics, Basic Concepts of Web Technologies, for example, to those requiring an advanced understanding of data modelling in XML. The first competence listed, 'Analyse the prospects and directions of development of information systems and technologies' would equate within a Bloom's analysis to a QF level above introductory, the others, though, all suggest the introductory level.

Computer Graphics[4]is offered in various years (levels) depending on the programme within which it is included, as it is the case with many of the units under consideration. It has probably the kind of competencies listed that one would be most expect to see in a fully developed QF, though they are rather vaguely drawn, and there is no indication of any introductory stage to this unit, so yet again, it can be

[4]Computer Graphics description in Russian: https://www.bsu.by/Cache/Page/401573.pdf.

assumed that this is designed as a standalone course, contributing the set of technical competencies and knowledge addressed by the programme, rather than seen in the context of a developmental programme.

The above, though, presents a rather simpler picture than in reality is actually the case since the notion of levels is not current in the learning outcome realisations. A structural reason why this will be difficult to resolve is that, in some cases, different programmes use the same courses at different stages during the period of enrolment. There is not a generally understood notion of a developing understanding during the student journey, but rather that a programme is put together with concept that the content must include the required topics, and it is too important where it sits during a student's engagement with the programme. This observation is perhaps best illustrated in the comments from the participants presented in Appendix B, which illustrates the revelations that the workshops achieved for those taking part, and gives a hint as to the mindset that prevailed before taking part in the project.

5.6 Analysing the Local (Belarusian) Context

As a result of analysing the framework and its deficiencies, three major issues have been identified as the key problems to address while revising the Belarusian programmes during IESED project:

- Accommodating academic maturity as realised by learning outcomes in course modules that are used at different stages in different programmes.
- There is no notion of the total amount of credits required for equivalent levels of an award.
- Lack of flexibility in revising the courses from the point of view of the institutions—things are imposed to them by the ministry of education.

The first two of these are being resolved through the development of the pilot programme and the third needs to be accommodated (Gatward et al. 2018).

During the course of IESED project, five Belarus higher education institutions were selected to take part in a number of workshops. At each project meeting partners presented their progress. As an example in one of the recent project management meetings at the partner institution University of Economy in Bydgoszcz (February 2019), BY partners presented their results in relation to readiness of learning materials, purchasing equipment, level of the budget used, dissemination events and existing major challenges. Project coordinators prepared 'Course and Syllabus Design',[5] where partners could find methodological material for the programme designers, e.g. the academic leads. Partners were then asked to develop a set of procedures to test and evaluate their programmes and the taught teaching material considering the new

[5]COURSE AND SYLLABUS DESIGN 2018 http://iesed.esy.es/wp-content/uploads/2018/09/Course-and-syllabus-designg.pdf.

teaching and learning approached they adopted. As a result, relevant recommendations were made available to all partners in order to complete course development by the end of summer 2019.

5.7 Discussion and Conclusion

In this article, the authors explored the Belarus Higher Education's Roadmap and appropriate initiatives necessary to achieve, considering the challenges of innovative change in the current climate of the Belarusian economy. Following previous project internships and seminars associated with the IESED project, a number of observations have been made and crystallised in the each and individual experts meetings during the course of this project. This study is motivated and guided by much of the work done which reflects on these observations in a practical setting to suggest future progress towards realising the roadmap. As a result of this observation, the following recommendations were considered:

- A learning outcome's approach to course design will be instrumental in moving on the progress the Belarusian HE Road Map. Major progress has been made through IESED meetings and workshops in rewriting pilot course to take account of this approach. There remain a number of unresolved difficulties, specifically:
- Establishing the notion of 'levels' within the assumed framework, as building blocks towards developing knowledge. Bloom's taxonomy has been incorporated in much of the discussion, but the sense of intellectual development within a programme, rather the acquiring of topic-based information, is yet to be fully incorporated.
- Changing a course/programme associated mindset on award design. The use of reusable stand only modules, rather than contextualised courses, not only makes delivery of programmes simpler but also adds to the educational experience of the students, in that the fully developed knowledge associated with a topic is presented to all, rather than just those aspects which are deemed to be immediately relevant to achieving the award. A practice that has a tendency to move the programme away from Higher Education expectations, and more towards the realm of advanced training.
- Establishing the notion of equivalency of effort in similarly rated awards, and removing the arbitrariness of credits needed to gain them.

In summary, during various implementation phases of this project, the authors realised that what really was lacking to offer to Belarusian institutions was in fact a QF and consistency of effort for programmes and the QA. It was not about the content, but about description and organisation, and this was perceived understanding of a modern approach in teaching and learning in HE, as accordingly applied to the Belarusian's ICT programmes/courses modification.

It can finally be noted that collaboration with partners from post-Soviet countries, e.g. Lithuania who has gone through same restructuring and familiar with the

Belarusian HEIs, provided project partners with a deep insight into approaches to proceed with implementation of above in integration of Bologna process. In order to successfully upgrade and restructure the study programmes, the project team learnt to work flexibly together to establish a new culture and apply modern pedagogical theories into practice considering the BY's ministry of education roadmap. The feedback from both academics and students who were involved in this pilot programme restructuring reflects the impact this innovative approach had on teaching and learning amongst Belarusian HEIs. The results of this analysis will be published on IESED's official website (IESED 2019). Furthermore, as a result of this successful outcome, the project partners are now considering applying the same model of practice into other study programmes in coming years.

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Part II
Supporting Students

Chapter 6
Supervision of Postgraduate Independent Study in a Distance Learning Environment

Jenny Carter, Orestes Appel, Massimo Salomoni, Ioannis Vourgidis and Francisco Chiclana

Abstract This chapter is written in collaboration with one past and two present Computer Science doctorate students who all studied a UK Master's programme by distance learning and whilst living overseas; all three went on to study for a Ph.D. in the same way; one completed and two are still current. The chapter explores their first-hand experience and ideas in order to arrive at some recommendations for achieving success with this kind of study. The exploration involves a narrative from each of the three co-authors who studied in this way. Not surprisingly, communication and engagement from supervisors/tutors and students are key here. However, other recommendations range from motivational elements—such as achieving publications, to the very practical, such as being supported with technical issues. The lessons learned from these experiences are particularly pertinent for distance students but many of them will resonate for on-site staff/student interactions just as well.

Keywords Postgraduate · Distance learning · Ph.D.

6.1 Introduction

Studying at a distance is not easy; however, many more people are choosing to study in this way as a means of enabling them to continue to work in their current employment, not relocate, yet study the course of their choice wherever it is in the world. As well as undergraduate study, students study postgraduate Master's courses and frequently progress to Ph.D. study using the same study mode. Working on a Ph.D. full time in a university environment with supervisors nearby is potentially the most supportive way to do such study, though there can be issues that hinder progression even in these situations but studying at a distance and in particular as an international student brings many other potential problems. In this paper, we look at the difficulties of Ph.D. study by distance learning with a focus on international

J. Carter (✉) · M. Salomoni
University of Huddersfield, Queensgate, Huddersfield, UK
e-mail: j.carter@hud.ac.uk

O. Appel · I. Vourgidis · F. Chiclana
De Montfort University, Leicester, UK

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distance students. Three of the authors are students who have studied in this way and they provide a detailed insight into their experiences. All three graduates studied a taught postgraduate course before embarking on their Ph.D. One of them has completed his Ph.D. whilst two are still in studying. The other two authors are experienced supervisors of both M.Sc. projects and Ph.D.s We draw on the literature and on their personal experiences to conclude with recommendations for preventing issues arising and for dealing with them when they do arise.

The remainder of this paper is structured as follows: Sect. 6.2 reviews the literature related to the issues of distance study at postgraduate research level; Sect. 6.3, the methodology; Sect. 6.4, the three case studies; Sect. 6.5, discussion and recommendations for students and supervisors of postgraduate research; Sect. 6.6 concludes.

6.2 Motivation and Related Literature

Transnational Education (TNE) includes activities such as working with remote campuses, joint degree programmes and it also refers to multi-directional mobility amongst the student population. The definition of TNE varies in the literature, the report by JISC in 2017, specifies that it is distinct from international recruitment and from international research collaboration; however, they note that boundaries are blurring in relation to incoming and outgoing mobility of students. In the same report, JISC (2017), "The UK is the second largest provider of international education with a 10% share of the global market". According to the QAA TNE review (2019) more than 80% of all UK degree-awarding bodies engage with some form of TNE (which they define as "higher education delivered overseas").

For the work presented here, the focus is on those students who study for research degrees (primarily Ph.D. level) in different locations to that of their awarding institution, thus studying as international Distance Learning (DL) students. There are a number of studies that consider the differing needs of distance students to those studying on-site but the domain of research degree supervision more generally is a sub-set of this, having some significant differences to students studying taught materials remotely; for example, taught masters (Carter et al. 2015) or undergraduate courses.

Vakoufari et al. (2014) looked at loneliness and self-esteem as factors affecting distance learning students (both undergraduate and postgraduate). They considered how these might contribute to social presence within the course and also academic performance. In their study, they found that there was a very significant correlation between students having a perception of low self-esteem and both dropout and course satisfaction. In their conclusion, they observe that social presence is associated "more with the course design and the communication skills of the tutor". This suggests that from the planning stages, the study mode must be accommodated. They go on to state "one of the main priorities of the educational organization should be to train the tutors so that they can develop the appropriate communication skills. Moreover, apart from academic support, tutor-student communication should involve issues of

emotional and psychological support as well". The key word to note from this that appears throughout the literature is "communication".

An earlier study (Erichsen et al. 2014) compared student satisfaction with blended and completely online graduate supervision. One finding was that the blended learning students were generally more satisfied than the entirely online. One factor raised (across the whole group) was that only 30% had collaborated with their supervisor/s for a presentation or publication which is remarkably low. The kind of issues raised were lack of communications/response to contact/feedback; distance between student and supervisor; lack of direction provided; lack of connection/personal relationship; supervisor unsupportive; not reading drafts of work. Positives were such things as freedom and flexibility. The students also provided suggestions for future students, for example: ask questions; set goals; email often; use the online library a lot and so on. Across the students' interviews, a wide range of interaction frequencies was reported—from two or three times a year to the same quantity a week. Once again, the suggestions collectively point to communication as the key.

It certainly seems that more students are studying in this way and that the quality of arrangements in place for their supervision varies enormously even within the same institution. Vonberg (2015) studied a Ph.D. as a distance student (though not international) and observed in her article in the Guardian: "With the rise of the Internet, the possibilities for studying at a distance have exploded. But the consequences for students are being ignored. We are left to forge our own support networks and, feeling detached from our institutions, we struggle to motivate ourselves".

At the start of any Ph.D., it is necessary to be clear about what happens next, as stated by Woolderink et al. (2015), "Ph.D. candidates and their supervisors can save a lot of time and mishap when discussing mutual expectations and needs before and during the Ph.D. trajectory. This might diminish the dropout rate as well as enhance timely completion of Ph.D. trajectories without compromising the quality of scientific output". Completions and the timeliness of them have become more important and more closely monitored in universities now and for students that are not based on-site and therefore not in the midst of a group of students, identifying ways of preventing dropout and encouraging timely completion is very important for success.

There are useful publications available to help prepare tutors for supervision of this nature and for supporting students studying in this way. The Higher Education Academy publishes some useful articles and guides (O'Mahony 2014; Atkin et al. 2015; Weller 2013). These cover the enhancement of student learning and teacher development in transnational education, a guide on internationalising the curriculum and a discussion of unintentional plagiarism in relation to international students.

In this paper, two of the authors are current Ph.D. students and one successfully completed some years ago. All study/studied as international students (Canada, Italy and Greece). All three students studied M.Sc.s by distance learning and experienced distance supervision of their independent learning project for this course as well. Given the first-hand experience of studying Ph.D.s as international students, the three students are well placed to give case study type narratives about their experiences

from which we were able to extract some key features of distance supervision for new student/supervisor pairings to take into account.

6.3 Methodology: Guiding Question for Student Narratives

From the literature on experience of Ph.D. students and in particular those studying at a distance, it was possible to derive questions to guide the case study narratives. The guidelines given below were followed by the case study narratives as written by each author.

The authors were each asked to write about 1000 words and were asked that it could be read as a narrative about their experiences as postgraduate Ph.D. students. It was acknowledged and encouraged that some of the reflections might also relate to the M.Sc. project supervision from their earlier courses studied prior to joining the Ph.D. Programmes. The guiding questions refer to features shown to be relevant from the related literature (previous section). Some questions were about Ph.D. study in general and others more specifically about supervision at a distance. The authors were advised that they didn't need to follow the questions exactly but that it was probably a good idea to cover most of them though it could be in any order. They were also advised that they may have other things to add that were not included in the guidance questions.

6.3.1 The Questions

1. When studying at a distance, what are the hurdles? What are the success factors?
2. To what extent do the following interfere? How do you balance them?
    a. Pressure of work and
    b. Pressure of home life.
3. What motivates you to continue? E.g. acceptance of publications? Interaction with supervisor/other students.
4. What are the key differences in your opinion between studying at a distance and studying on-site?
5. Did the M.Sc. by DL (especially the project) help prepare you for Ph.D. study by DL or is it very different?
6. Are there any tensions for you resulting from comparisons with past educational styles? Bearing in mind different educational systems of different countries.
7. Are the general activities difficult as a DL student, e.g. supervision meetings on Skype, feedback in emails, monitoring of progress?
8. Are the practical processes made difficult by being DL, e.g. annual reviews, training, interaction with research office, etc.?
9. Do you have/not have, miss/not miss interpersonal communication? E.g:

a. Tutor–student,
b. Student–student and
c. Feeling part of a community.

10. Did/do you consider dropping out? What might help with this?
11. Would/does an e-social presence help?
12. Do/did you experience the following?

a. Loneliness and
b. Low self-esteem

13. Are/were the following things relevant to you?

a. Importance of own initiative and
b. Importance of good match with supervisor/s—match of your personality/supervisor's personality

Can you think of other things?

6.4 Case Studies

6.4.1 Case Study 1: Distance Education: Self-motivation and Interaction to Overcome Hurdles

A university degree is important, not only from a professional point of view but also to keep one's mind open. Earning one through distance education poses some extra challenges as well as some advantages. Online interaction with other students and supervisors is the key to keeping your motivation high.

Earning a degree through online learning is a challenge. It is hard, especially if you are not a full-time student. Personally, I decided to complete my M.Sc. as a distance learning student because De Montfort University had an outstanding course on Intelligent Systems and Robotics, and all the related exams looked extremely interesting. I wanted a degree from a reputable university, more for my own satisfaction than for my career, but not only has this qualification allowed me to expand my skills and knowledge, but it has also helped me to find new customers for my software development business. I could not have found such syllabi at any Italian university, not to mention the fact that most universities here in Italy require full-time presence on site, so there I was, at age 37, starting my career as a part-time M.Sc. student.

Having to manage your personal and professional life and adjust them to your student life is not something that comes without effort.

The first hurdle, common to full-time students, is that you miss the physical presence in the classroom. It is not really a matter of listening to the professor speaking, nowadays technologies can easily solve that kind of problem. But the environment is not the same. Being surrounded by fellow students can give you that

extra boost and keep you in check with your deadlines. In short, it is easier being a student when everybody around you is a student!

Then comes your work life. Being a freelancer, as in my case, can help you but it can also be a curse. You can decide to study in the middle of the day, which is a huge advantage over someone working regular hours. But when you are working on a project for a customer, there are no weekends, no days off, and this kind of non-schedule can really slow down your progress. Finding the right balance and planning your study hours can mitigate this hurdle to a certain extent.

But people working regular hours have their hurdles too. In fact, most of the online students I was in touch with during my M.Sc. were over 25–30, and most of them had a family, including myself. It was hard to manage their personal life and find time to study for exams and to create their thesis project. On the other hand, having the support of your loved ones is a very important key to success, and in this case, your family is of vital importance.

Another important factor in your success is the chance to keep in touch, at least virtually, with your fellow students. Such interaction is not only useful for better understanding of what you are studying, it is indeed very important to keep you motivated. Loneliness is always around the corner when you study on your own, and sometimes you feel like the only one unable to fully grasp a concept. The mere fact of knowing that someone else has your same problem is per se positive and makes you braver when it comes to asking questions.

Something that worked for me when I had to boost my motivation was looking for online resources that talked about the subject I was studying. Even if we could always rely on our video lessons, expanding our horizons was often encouraged by our professors, who always recommended extra reading material but also suggested looking for other sources.

The loneliness factor is greater now during my Ph.D. than it was during my M.Sc.. A Ph.D. by research is often a matter of carrying out a personal project. This means not having the chance to share your doubts or moods with other students, and you can feel overwhelmed by your own expectations when facing the reality of the many hurdles.

In this case, having a good relationship with your supervisors is of great importance. You are often communicating only with them and, having already had to deal with these hurdles, this interaction can really make the difference. Instant communication technologies help, even if I still think that on-site presence would sometimes be better.

In my case, my Ph.D. is on the same subject as my M.Sc. thesis, of course, more in depth and introducing new concepts. Naturally, this helps a lot as I am not starting from scratch, but still a Ph.D. needs a higher level of dedication and determination. The temptation to drop out is always there, especially when you see that you cannot keep up with the schedule you wanted to follow. In this case, tutors are of fundamental importance, as they can really make you feel more comfortable with your own shortcomings, and sometimes just talking about the problems you are facing is already a solution, or at least a partial solution. Low self-esteem also hits when you think you understood something and then you discover that you did not

really understand at all, you just thought you did. For the Ph.D. you do not have fellow students that help you to understand you are not the only one with such problems, so you have to deal with it by yourself and with your tutors. Not taking yourself too seriously and, again, trying to find extra sources of information can really help. Taking initiative is fundamental to avoid stagnation, even if it is not always easy to understand which direction to follow. But the abundance of reputable online courses, even video lessons, makes it easier to deal with this aspect.

To summarise, I would say that to make a distance study experience more enjoyable and fruitful one should:

(a) Communicate—with fellow students, if possible, and with supervisors, always;
(b) Keep motivated—find different reliable sources, video lessons, MOOCs, any kind of information that can make things more interesting and allow for deeper understanding;
(c) Schedule—it does not matter if there are a thousand unforeseen factors that can make scheduling seem useless, but scheduling is still vital to avoid losing focus.

6.4.2 Case Study 2

Studying at a distance is a hard enterprise. It requires will, persistence, concentration and an outstanding team of supervisors at one's school. Staying on track and dealing with doubts about the decisions made in isolation are the hardest topics, I think. In second place, in terms of challenges, come having to juggle your Ph.D. work with your regular job and the pressure of home life (social activities, vacation, time for your children and spouse, etc.).

Some elements are key on keeping the momentum going. Establishing a very good relationship with one's supervisors is essential. Feeling comfortable asking questions and proposing alternate paths, and having supervisors that are available, willing to help and challenge you. Supervisors that understand the dynamics of research push their students to publish early and to develop a self-critical attitude towards her/his writing. Getting published, in my mind, is a source of additional energy, a booster, to one's research and I feel extremely lucky that both my supervisors were of the kind just described. All these elements assist in countering the difficult problem of not being able to have peers to interact with on daily basis. The natural feedback process existing when one pursues on-site studies is completely missing for distance students. In addition, just walking into the office of your supervisors or inviting them for a coffee to discuss some ideas, is out of the question. Getting to know the rest of faculty members is missing, too, as the ability to interact with the rest of personnel of the school/department, research centres, etc.

A few steps can be followed when one moves from the M.Sc. to the Ph.D. enrolment. The M.Sc. project/thesis serves as a preparation to face the Ph.D. research process, especially when it comes to independent thinking, structuring one's research and learning the tools necessary to produce high-quality scientific documents (e.g.

Tex/LatEx). Even if you M.Sc. research topic is different, the project/thesis will still serve its purpose. Exposure to the "library" resources is important, too. Much more of what it is during one's first university degree (B.Sc.).

In my case, I obtained my B.Sc. in South America, my first master's degree in the USA, and my second M.Sc. and Ph.D. in the UK. The three systems I was exposed to during my studies are completely different. However, I cannot identify a specific issue I faced being a distance-learner that I could relate to these differences in educational systems. In my particular case, they were completely unimportant.

Technology has been a big help, too. Nowadays, connecting through Skype, Google, text and email is so easy and pervasive, that as long as one is relatively well organised, planning videoconferences is easy and they add necessary elements, like being able to appreciate voice intonations, body language, facial expression, etc. I found staying in touch with my supervisors relatively easy. In order to improve my relationships with my supervisors, I made the extra effort of visiting them "physically" once a year. In my mind, that helped in a significant fashion. Once we met a couple of times face-to-face, maintaining that relationship "virtually" was much easier. Monitoring progress, which is key during one's Ph.D., is easy to do once the communications channel has been established and the right technology is in place. The same goes for annual reviews. Interactions with the Graduate Office and other administrative instances were easy as well once we all were on the same page.

Talking with some DL colleagues, some of them reported that they missed the interpersonal aspects of tutor–student and student–student relationships. I would agree with the Student–Student component. However, in my case, I feel like my Tutor–Student relationship was as robust as any other that could have been established by studying on-site. The piece that I probably missed the most was feeling part of a community, or rather "not" feeling as part of a community. I think that latter is very difficult to address effectively when one is a distance-learner. Perhaps, a candidate solution that could be explored is the creation of virtual workshops for Ph.D. candidates once a semester. Attending this session should be made mandatory. I recall some colleagues that were DL in other schools that they felt so isolated that they were considering dropping out. In my opinion, one way to sort this situation out would be to force yourself (if finances allow it) to go and pay a physical visit your university. In my mind, it really changes things in a positive way. An element that was introduced during my time in grad school as a DL was the utilisation of e-social media. Personally, I didn't find this to be too helpful as the time-zone situation removed one of the most attractive components of social interaction: that it's "real-time". Reading a message in social media that was 12 h old makes it somehow old news.

Another reported situation some people have gone through was the development of feelings of loneliness and/or low self-esteem. I am happy to report that I never experienced those. However, some people I know have experienced loneliness and even low self-esteem, when they did not have a sense of progress in their projects.

Some colleagues suggest that having a strong will and showing own initiative combined with supervisors that are committed to the student's research are the key elements of success for a DL student. I would tend to agree with these characteristics,

but would add as well that early publishing, which is usually encouraged and guided by the supervisory team, is essential to maintain a sense of direction and for the generation of feelings of well-being and accomplishment. Writing material worth "publishing" has an additional positive effect, which is "putting out there" to others your initial research ideas, in order to get early feedback of the research community and develop a strong culture of sharing and debating ideas in a positive and safe environment.

6.4.3 Case Study 3

This case study combines reflections of the taught master's (as an international distance student) and the subsequent Ph.D. study, (also at a distance). When studying at a distance, the main difficulties were: To keep pace with the course outline and the deadlines; to be able to work individually, especially when it comes to labs exercises, because the interaction with the tutor and the rest of the students was missing.

On the other hand, if the student manages to overcome those hurdles, and continue being motivated, these difficulties will become his/her success factors. The main success factor for a distance learning course is to quickly adjust to the course's requirements, while the student must be dedicated to his/her goals/objectives, and being as much self-discipline as possible.

Pressure of work can be a real limiting factor for distance learning study. Many companies do not support their employees in part-time studying. In the case of a really demanding workplace, studying at the same time could be difficult and tiring for the student. Similarly, pressure of home life could prove to be the critical success or failure factor for distance learning study. If the family supports the student and accommodates his/her needs, then the student will be able to work without disruptions towards his/her studies. Changes in personal life are a huge obstacle for this kind of study.

From my perspective, the following are factors that help to maintain motivation in my opinion:

- The subject of the study/research,
- Papers publication,
- Technical challenges and
- Interaction with the supervisory team.

The key differences between studying at a distance and studying on-site for me are:

- Less face-to-face interaction with tutors/supervisors and rest students.
- Less accessibility to the university's facilities. This could be overcome if the University establishes the kind of infrastructure to facilitate flexible and smart study/working.

Having studied the M.Sc. at a distance it still doesn't fully prepare you for Ph.D. study as a distance student. Studying an M.Sc. by DL can provide you with some attributes/skills to pursue a Ph.D. via distance learning. However, a Ph.D. by distance is very demanding since the student has to be much more self-motivated. In this sense, there is a huge difference between a Ph.D. via DL and an M.Sc. via DL.

The student must be always on track with his/her emails and notifications. This could be difficult especially if his/her work is demanding. Also, sometimes is difficult to arrange Skype meetings with the supervisors, due to stretched work schedule of both sides and sometimes different time zones.

In terms of practical and administrative procedures relating to the Ph.D., the difficulties mainly faced with DL studying is the lack of technical training and accessibility to resources. All the other communications were accommodated via Skype and emails.

For me, it felt that with the Ph.D., there was a lack of communication between other Ph.D. students and other members of the research group. However, during the M.Sc. DL studies, via such things as group projects, students were able to establish a communication pipeline. For the Ph.D. study, becoming or feeling part of a community is mainly the responsibility of the supervisory team and the research group the Ph.D. study is undertaken within. In my case, I didn't feel part of a community. During my Ph.D., most of the times I had the feeling that I wasn't engaged with any specific team, and for sure not being an active member of a team. I couldn't see any vision of where my research stands between other researches in the same group.

I considered dropping out of the Ph.D., due to lack of personal interest for the subject, but also miscommunication between me and the supervisory team. I have since changed the focus of my Ph.D. and have a different supervisory team.

While studying a Ph.D. via DL, it is very important for the student to take the initiative to develop his/her research, while he/she has to find ways to overcome technical and interpersonal communication challenges. The existence of good chemistry between supervisors and student, especially for Ph.D. studies, is vital and can help them achieve this.

6.5 Recommendations for Effective Supervision of International DL Ph.D. Students

Issues observed from the case studies and from the related literature:

- Lack of physical presence in classroom,
- Difficulty of time management,
- Keeping in touch with fellow students,
- Keeping in touch with supervisors,
- Loneliness and
- Generally not feeling part of a community.

Ideas for improvement from the case studies and from the related literature:

- Basic needs such as:
  a. Recommended reading material—it is important to make sure that the use of library resources is facilitated and encouraged. Ensure availability of relevant journals and information on how to access them.
  b. The supervisor should ensure that the student has access to necessary resources such as software and that the technical requirements on the students' part are discussed and clarified before they start the course. For example, they may need specific hardware and software, some of which can be provided by the university but some to be sources by the students themselves.
  c. Supervisors to encourage good quality scheduling/planning/time management of the project.
  d. Appropriate Skype (or similar) meetings, keep minutes and try to set achievable goals and work plans for the periods between meetings.
- Provide some kind of Ph.D. e-community, e-social media channel. The best way to achieve involvement here is to discuss with the students. Some students like Facebook but some don't, for example. More appropriate media channels may be Twitter or Instagram or for more privacy, a WhatsApp group. The benefits of having something like this, independent of the virtual learning environment are:
  a. Share ideas,
  b. Share pointers to useful resources,
  c. Share related interests/applications of related technologies,
  d. Share study skills tips,
  e. Mutual support and
  f. Depending on the medium chosen, it could be wider than the students and involve connections with external people as a way of widening knowledge and ideas and making connections in the area.
- Some specific benefits of communication with other students and with supervisors more generally are:
  a. Knowing someone else has the same problem,
  b. Emphasis that all questions are valid and
  c. Ease of meetings or brief exchanges with supervisory team.
- Motivational support—previous communications ideas can provide motivational support but additional features could be:
  a. Find supporting resources to help—MOOCs, video lessons, etc.
  b. The supervisor can help the student find up to date ideas in relation to the topic or direct them to other tutors who may have a special interest in that area.
  c. Regular meetings and brief informal email updates can help boost relations, maintain the connection and can encourage the student to feel at ease in asking for guidance from their supervisor.

d. Similar to c. maintain contact and be prepared to have short exchanges. Sometimes, a very quick short response can solve what seemed like a bigger problem for the student.

- Publish—supervisors to support and encourage publications (initially conferences, book chapters and then later, journals); this helps to develop the student's confidence, writing skills and adds energy to the process of working. There is the additional benefit of feedback from the reviewers. It can give the opportunity to attend conferences and therefore to meet the supervisors in person and to network with and gain feedback from others working in the same or similar areas.
- Make occasional physical visits if possible—two of the three case study students did this approximately once a year. Many Ph.D. programmes require an annual physical meeting of supervisor and student in either location.
- Virtual workshops—one suggestion was to make these compulsory though for Ph.D. would need to be general—maybe research supervision workshops at appropriate stages.

6.6 Conclusion

In this paper, we look at the approach to supervision of distance learning students who are undertaking a Ph.D.

By drawing on the literature and the narratives of three such students (all co-authors of this work), we are able to list some key issues that face students studying in this way. We are also able to use the gathered experiences to list approaches that can be adopted to help students through the difficult times of studying in such a way and to maximise the support they have.

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Chapter 7
'We All Need Cultural Awareness and Cultural Affinity': The Academics' View on Chinese Students' Academic Transition into Undergraduate Studies in Britain

Dongsheng Xu and Eileen Roddy

Abstract Despite the growing trend of more Chinese students coming to the UK to study, they still face considerable problems and difficulties adapting to local life. Chinese students also often struggle with their academic studies due to cultural differences. This research explores the acculturation journey of Chinese Mandarin-speaking students taking undergraduate studies in Britain. It identifies issues that impact their acculturation and academic adaptation, in order to improve their teaching and learning experience. The chapter provides a practical framework that incorporates the influentially cultural factors and practical suggestions around the students' academic transition. The framework has been developed using case studies. The initial findings suggest that the greater the cultural affinity between academics and students, the quicker students adapt to the different academic environment and the more successful they are in their studies.

Keywords Chinese students · Academic transition · Cultural awareness · Cultural affinity · Undergraduate studies · British higher education

7.1 Introduction

Figures from Higher Education Statistics Agency (HESA 2017) indicate that the number of student enrolments from China was much larger than from any other overseas country. In 2015/16, the number of student enrolments domiciled from China reached 91,215 in the United Kingdom (UK), 12,500 more than in 2011/12 when there were 78,715 student enrolments from China. Despite a large number of

D. Xu (✉) · E. Roddy
University of Salford, Salford, UK
e-mail: d.xu1@edu.salford.ac.uk

E. Roddy
e-mail: eileen.roddy@outlook.com

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Chinese students studying in the UK, Gu (2011) and Spurling (2007) highlight their problems and difficulties in transition and adaptation to their academic studies under the new cultural and educational settings. These difficulties included being reticent in classroom and in group work activity, possessing a perceived lack of critical thinking, difficulties with independent learning and essay writing, and reluctance and reticence with regard to interaction with lecturers and other peer students. These issues seem to be perennial problems for Chinese students.

Under such circumstances, this chapter attempts to identify why culture factors play an important role here and identify which cultural and pedagogical influences may lead to these challenges in relation to the Chinese students' academic transition. Practical measures are put forward and suggested to be adopted by stakeholders in the British Higher Education context in order to help with Chinese students' academic transition and achievements. As for Chinese students in the UK, their goal is mainly to attain high-quality, short-term academic performance (Wu and Hammond 2011).

It is noted that there is a gap in the literature that suggests studies concerning Chinese students' learning transition, specifically at undergraduate level, are scant, although there are numerous studies at the postgraduate level. This chapter has not included the views of Chinese students which forms another part of this study. However, it focuses on the perspectives of academic staff, with regard to Chinese students' academic transition when undertaking undergraduate programmes in the British high education context. Findings are presented from 18 interviews with academic staff from both British universities and from the Chinese universities, where students studied before coming into UK higher education. The 16 interviews were conducted with UK academics across the subject areas of business management, computing science, mathematics, digital business, IT, language studies and construction. Another 2 interviewees were from transnational education (TNE) institutions based in China, delivering Sino-UK joint programmes.

The chapter introduces a transition framework (Fig. 7.1) which counterposes culture influence and academic transition. The upper part of the framework expounds what cultural and pedagogical factors may influence the Chinese students' academic transition. Further illustrations of these factors are identified in Sects. 7.2–7.6. The lower part of the model identifies practical measures that can be taken by Chinese students (Sect. 7.7), British academic staff (Sect. 7.8), and the university management authorities (Sect. 7.9), based on the findings of this study, Sect. 7.10 concludes that cultural awareness and cultural affinity should be nurtured for the improvement of teaching and learning practice which will benefit all parties.

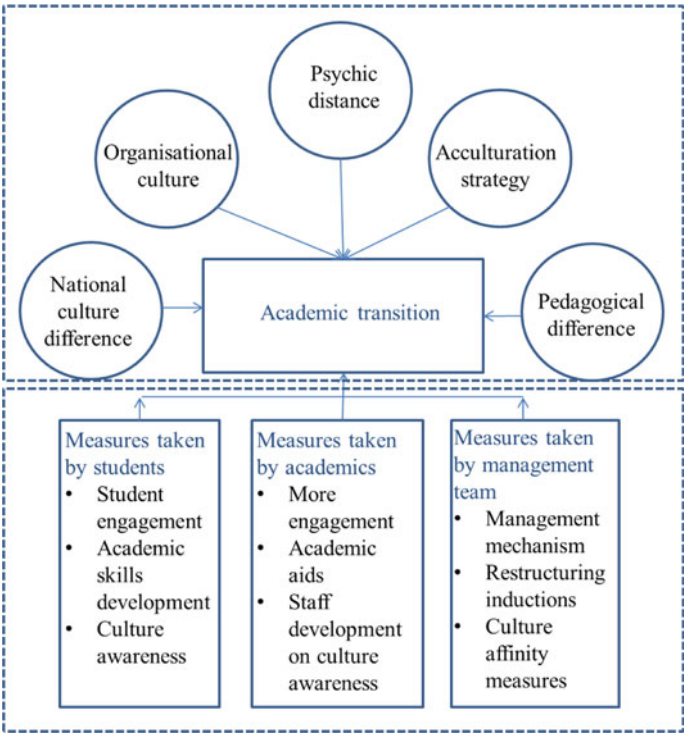

Fig. 7.1 Cultural influence and the academic transition framework

7.2 National Culture Difference

Hofstede (1991) proposed four cultural dimensions when identifying the culture difference between different countries (nations): power distance, individualism versus collectivism, uncertainty avoidance and masculinity versus femininity. Whilst restructuring his research with the involvement of Chinese researchers to avoid deliberate Western bias, Hofstede (2003) introduced the fifth dimension, long-term orientation. Culture dimensions demonstrate the clarification of the culture difference between nations (countries) and 'culture shock' (Oberg 1960) that the immigrants, in this study Chinese students, might come across during their stay and studies in another country, for instance, the UK.

Power distance represents the perception of relations between individuals with different hierarchical authorities in a specific nation. In large power distance countries, like China, one can perceive marked privileges, and different ways of interaction/behaviour between individuals, compared to much more egalitarian interactions in small power distance nations, for example, Britain. During the course of Chinese students' transition into their undergraduate studies in the UK, power distance offers a powerful explanation of their transitional behaviours, particularly within

the interaction with academics. Chinese students are very polite towards academics both in the classroom and in other private settings. They are reticent to, and seldom do ask questions on the class, which they feel are rude and annoy lecturers. Their classroom attendance is always good, which they think is a way to show respect to lecturers. They also respect authorities and published knowledge, although they might be frustrated when they read books or papers portraying different views on the same phenomena. To some extent, power distance also partially explains why Chinese students are perceived as lacking critical thinking and argumentation during their academic studies (Durkin 2011).

Another phenomenon that can be illustrated by the power distance is that of 'speaking out'. Chinese students have great difficulty using their lecturers' forenames. Instead, they call 'Teacher XXX'. For example, a lecturer named John Smith would be called 'Teacher Smith' by the Chinese students but not normally 'John'. They think they are at different levels and of a different age to the academics and this forms 'an invisible wall' which keeps Chinese students away from their lecturers. In lower power distance countries, for instance, the UK, students use their teacher's forename directly which represents equality in the relationship and makes the interaction easily delivered between the student and teacher.

Collectivism means, in one sense, that all the group members' interests are protected, and in return, the members' loyalty and commitment to the group is required. Individualism prioritises a person's own and his immediate family's interests over others. Academics in British universities may observe that Chinese students prefer to stay together, keeping in a closed group, either when socialising, eating and living, having classes and tutorials, or attending group work. They are from China, a collectivist nation. Chinese students sometimes find it difficult to ask questions that they might think will appear stupid in front of the wider group of students. They think other people, especially their co-national group members may laugh at them. Such a collectivist group may regulate and repress its members' behaviour or performance by expecting its members to take on the obligations for the group. For instance, if a Chinese student does not appear in the classroom due to personal reasons, other Chinese students might stay away as well. However, if the opinion leader within the Chinese students' group becomes active in classroom participation, other Chinese students may also engage.

Being reticent in the classroom and rarely asking questions can also be explained by the Chinese students' perceptions of 'uncertainty avoidance', the third national culture dimension identified by Hofstede (1980). Hofstede defines uncertainty avoidance as the way a person reacts and looks when he/she confronts unpredictable, unclear or unstructured situations. Chinese students may feel frustrated and worried about 'losing face' to their lecturer and peers, if they ask some silly or very basic questions. Actually, the Chinese students should not necessarily feel uncomfortable when asking random questions in the British higher education contexts. The academics prefer them to ask questions because there might be lots of other students in the classroom who do not understand the same issues either. On this occasion,

there is evidently a gap in the expectations around classroom participation between Chinese students and their lecturers, due to the culture difference when situations lack certainty.

Chinese students studying in the UK are perceived to work hard at their academic learning; sometimes too hard and struggle with work life balance.

> Although hard working is good, it may affect productivity…Some of the Chinese students need to find time to relax, socialise with their friends and have a good time. The time for work is definitely important, but they should think of their health status and their wellbeing (S11).

One of the reasons for the Chinese students to work hard lies in the culture dimension of 'long-term orientation'. Chinese students are from long-term orientated societies, which foster pragmatic virtues oriented towards future rewards, such as saving, persistence and adapting to changing circumstances (Hofstede 2003). Their families have high expectations of them and consider them studying overseas as a valuable investment in the future; their parents want them to have a great education in a prestigious British university, undertake master's degrees afterwards, and return to China to obtain a good job. As a result, the Chinese students are very single-minded in terms of what they should achieve.

7.3 Organisational Culture

Denison (1984, p. 5) defined corporate culture as

> the set of values, beliefs, and behaviour patterns that form the core identity of an organisation

Korsakienė and Gurina (2012) acknowledged that Cultural differences at the national level are posited mostly in values and less in practices, whilst cultural differences at organisational level, are considered mostly in terms of different practices rather than values. For instance, Denison and Mishra's (1995) organisational culture model was derived from organisational management practice, and the culture web advocated by Johnson et al. (2011) analyses the elements of organisational culture at operational level. The culture-related practice of organisations where Chinese students undertake their pre-UK studies in China and undergraduate studies in the UK, either the management or operational level, may heavily influence the Chinese students' academic transition to the UK.

One notable trait within the organisational culture model, developed by Denison and Mishra (1995), is adaptability, which is defined as the ability to adapt the internal operations of the organisation to the demands of the external environment, as the external environment changes. Adaptability factors include creating change, a customer focus and organisational learning. The increasing number of Chinese students and other international students within British higher education represents an emerging change for British universities. No longer is British higher education solely for its home students, but to some extent, it has been transformed into a

multi-national education (MNE). Under such circumstances, British universities' development strategies need to be reformulated, management mechanism needs to adjust accordingly and a culture of organisational learning throughout the universities should be encouraged.

The culture web advocated by Johnson et al. (2011, p. 176) describes a 'behavioural, physical, and symbolic manifestations of a culture' at organisational level. Six elements of the culture web are enumerated, among which are stories and routines. These two elements particularly impact the extent to which Chinese students are able to adapt to their studies in the UK. Stories refer to the people, events and other historical issues that people regularly refer to within an organisation, providing insights into the conventions and rituals in the organisation. A Chinese student in a college or university who tends to study in the UK may be influenced by the previous students' stories from the same one, such as how well they did whilst at the college/university and what they have achieved afterwards. Routines and rituals are defined as the typical daily behaviours with a long history and particular activities or special events 'that emphasize, highlight or reinforce what is important in the culture' (ibid., p. 177). Well established Sino-British Centres that prepare Chinese students for study in the UK have developed annual events that provide services to their students, such as pre-departure training containing sample classes, counselling sessions delivered by the host UK universities, alumni guest lectures and so on. These stories and routines support their transition into British higher education by managing student expectations and providing valuable insight into what student life is likely to be like in the UK.

7.4 Psychic Distance

Psychic distance is defined by Hallén and Wiedersheim-Paul (1984, p. 17) as the 'difference in perceptions between the buyer and seller regarding either needs or offers' within an international business. It is composed of three elements: cultural affinity, trust between the buyers and the sellers, and personal experience. Cultural affinity within a business transaction is construed as the cultural similarity between the buyers and sellers in language, business habits, cultural and legal environments etcetera. Bell et al. (2014) apply this construct to their research on the process of cross-cultural decision making in higher education sector. Swift (1999) introduces a metaphor of cultural affinity as a 'catalyst' for relationship building in the first place, even before the relationship begins.

Borrowing the notion of psychic distance regarding Chinese students' transition to British higher education, cultural affinity can be addressed and mediated in the process of relationship build-up for the Chinese students during their transition journey. It is normal for Chinese students to set up their own co-national group in which they feel comfortable and to which they belong, due to the existence of cultural affinity among the group members. But with their lecturers, clearly and generally, there is little cultural similarity or affinity between them (besides in a few circumstances

under which an ethnically Chinese member of staff works for the university, though the Chinese staff might behave in the British way). However, in the course of close interaction and communication between Chinese students and university academics, cultural affinity can be explored and cultivated if there is the willingness to do so on behalf of both parties. This is beneficial in supporting the students' academic transition.

7.5 Acculturation Strategy Adopted

Berry (1990) identifies four acculturation strategies for immigrants who are being settled into a host community with a different cultural heritage: integration, assimilation, separation and marginalisation. He contends that integration strategy is most adaptive for people who accept the host culture, whilst retaining an affinity with their original culture. Based on Berry's findings, Searle and Ward (1990) argued that psychological and sociocultural adjustments are two acculturation outcomes to be considered. The author would allege that, for specific immigration groups, such as Chinese students, whose goals are to achieve short-term academic performance, acculturation is a critical factor in achieving their success and their academic adjustment under the new cultural settings should be embedded into their acculturation outcomes. Students who are aware of their own acculturation needs will cope better with the psychological, sociocultural and, most important of all, academic challenges.

Berry's acculturation strategy delineates four possible different outcomes for acculturative activities, based on the dichotomy of the individual's self-identification within their culture of origin and participation in another culture. However, the dichotomisation, although it is convenient, can hardly do justice to the cultural and intercultural complexity potentially existing in reality. As a reformulation or development of Berry's acculturation framework, Bourhis et al. (1997) propose an interactive acculturation model, which places emphasis on the interaction between the host community and immigrants group, when adopting the four acculturation strategies. Bourhis et al. found that only when the same integration or assimilation strategy is adopted by both groups, can they reach a consensus status; otherwise, conflicts and problems may arise.

Berry's framework and Bourhis et al.'s interactive model facilitate the development of the Chinese students' academic transition, particularly when they are conducting interactions with their peer students and lecturers. Students from both cultures may initially adopt a separation strategy, retreating into their co-national groups as a way of managing their self-protection. Gradually (how long this time period might be is individually dependent), the Chinese students become aware of the purpose of their study period in the UK and so they might attempt to change their strategy and seek to integrate more with the local community, i.e. their lecturers and peer students. Most Chinese students studying in the UK adopt an English name, though sometimes a different name from the one on their passports, which be perceived as troublesome. Rather than use their hard-to-pronounce Chinese names, this

gesture is designed to show goodwill and facilitate easier communion. However, if their counterparts, the lecturers and the home or other international students, do not respond positively to their attempts to connect or are positively hostile, the Chinese students' academic transition becomes even harder.

7.6 Pedagogical Issues

It is difficult to describe the differences between Western and Chinese pedagogies that may influence Chinese students' intercultural adaptation and academic transition into British higher education (Gu and Maley 2008). One of the reasons is that Chinese pedagogies originated from within Confucianism and are actively entangled with Western discourse, in the course of industrialisation in contemporary China (Cheng and Xu 2011).

However, Pratt et al. (1999) suggest that learning approaches, under the Confucian heritage culture (CHC), is a sequential, indivisible and irreversible four-stage process. It covers memorising, understanding, applying and questioning. Memorisation and repetition ensure that the knowledge is available when needed. Appropriate and deep understanding by repetitive learning ensures that the knowledge is applied properly to problem-solving under specific circumstances. Questioning and higher level critique are expected only at the last stage of learning, usually after encountering new problems or new situations. These mental processing stages can, to some extent, explain why the Chinese students, with CHC backgrounds, are quiet and reticent during the class, especially newly enrolled students, as they might be engaging in the process of repetitive learning, deep understanding and attempting to master the knowledge, to resolve problems they have not met before. In the view of Chinese learning, critical thinking should not be attempted before the knowledge is fully comprehended. Chinese students would be frustrated and anxious to handle their psychological journey of learning, if the British academics raise a question for critical thinking at too early a stage in their learning.

Mismatched pedagogical expectations between the teachers and international students may lead to academic transition problems (Zhou et al. 2008). Such mismatches occur very commonly in reality. From the perspectives of the Chinese students, university academics should be knowledgeable and be teaching them what and how to learn with clear guidance. A well-behaved Chinese student should sit quietly in the classroom, listening to the lecturers and taking notes without questioning and challenging what the teachers say. However, from the British academics' point of view, the teachers' role is to be a classroom organiser, facilitating the development of the students' creativity and independence. According to an academic in the subject field of business with IT, the students are assumed to

> know how to structure and write an essay, what critical thinking is, how to organise their independent learning, and how to engage in group discussions (S7)

Jin and Cortazzi (2016) advocate that cultural synergy should be introduced to the intercultural teaching and learning settings. Under such circumstances, the academics have a positive learning attitude, to learn from and with international and local students. Equally, different groups of students learn, understand and appreciate each other's cultures together, with a view to formulate a status of cultural synergy and with no threats to the loss of their own cultural identity (Jin and Cortazzi 2002). To reach a status of cultural synergy in an international teaching and learning environment, the author would suggest that cultural awareness is essential for all the stakeholders, the academics, students and even the management authorities within the higher education sector.

7.7 Suggested Measures Taken by the Chinese Students

From the perspectives of academic staff, the Chinese students are expected to engage themselves more either in the classroom or their social life, develop their academic skills and build up the sense of cultural awareness, for the sake of smooth academic transitions into the British higher education settings.

7.7.1 Student Engagement

All academics involved in this study, either in computing or other subject fields suggest that Chinese students need to be more responsive and participatory in the classroom. They need to be more open to come and talk to lecturers, academic advisors or personal tutors, specifically from the very start of their studies, rather than keeping their issues and concerns to themselves. This would stop many of their potential problems from becoming more serious, particularly in the case of not understanding what the requirements are from their lecturers. Some Chinese students may resort to asking their co-nationals in the same classroom for resolution of an academic problem, but this may be highly risky, as all of them may have misunderstood or share the same problem.

Some academic staff worry about the Chinese students' attendance, as they have come across the situation where one Chinese student approaches them to ask for more handouts for their peer students. They warn the cohort of Chinese students,

> it is not right if you think struggling with a course makes no point for you to attend. At the end, it will hurt you even more, because you will understand even less. (S5)

Chinese students are encouraged to use the office hours of their tutors, if they prefer to meet face to face or outside the time of being lectured to ask questions. Alternatively, if they are not confident enough or feel uncomfortable to meet in person, email communication is also welcomed. However, it is suggested that they should deliver email correspondence in a professional way, by using the university's

email address instead of their personal ones. Not only can the email records be easily traced, but the personal email address of the Chinese student's, which are physically being served by a China-based email server, can be blocked due to some technical reasons. Outside the classroom, Chinese students are advised not to surround themselves only with their co-nationals and they are encouraged to get involved in broadening their university lifestyles. Socially, the Chinese students need to have more willingness to participate in social events, make friends early on with British or other international students from other countries, and go with their newly made friends to the local cinema, the pub and restaurants. The rationale is quite simple,

> Learning overseas does not mean the study part only, it is the entire experience. (S3)

7.7.2 Academic Skills Development

This research indicates that academic staff believe Chinese students need essentially to

> learn to play the game first, by means of which you have got to manipulate the situation for yourself. And, you have got to know how to learn and adapt within a new educational system to get the most out of it. (S5).

Regarding the student handbook which is offered to all students when a new semester starts, the content provides a comprehensive way for a Chinese student to learn the 'game'. If they read the guidelines in the handbook carefully, they will know exactly what their tutors expect, and thereby a lot of misunderstandings can be eliminated, whilst the workload of staff and students, can be reduced considerably at the same time.

With the instructions coming directly from their teachers, the teacher-centred pedagogy in China provides guidelines for the Chinese students to follow easily and incorporates lecture behavioural guidance and homework guidance. However, the Chinese students are required to bear in mind that independent learning is the core of British higher education. What are being taught in the classroom are bare essentials only. As a result, students' homework should cover preparing for the lectures, regurgitating and digesting what they have learned from the class, and reading the recommended reference materials independently. Tactically Chinese students are encouraged to form a habit of reading, searching and retrieving areas for academic evidence within the reading materials to support and justify their views, rather than from the lecture alone. In this way, the students' independent learning abilities ought to be improved and developed gradually.

British higher education per se is not only there to teach the students facts but aims to develop the students' critical thinking abilities. There is not only one right solution, but a lot of other interpretations within the work and these require exploration. Chinese students ought to challenge, criticise and make critical arguments, in order to generate their own views when writing an essay or other required assignment, not just to regurgitate lecturers and repeat what is in textbooks.

7.7.3 Cultural Awareness

'Developing cultural awareness and taking advantage of the opportunities available when studying overseas, is important'. This statement was made by an academic (S6) who was appointed as a China link tutor (the Chinese students' personal tutor) by his university, just before being interviewed for this study. S6 embarked on Chinese language studies to develop Chinese cultural awareness, since he has started to deliver his own scholarly exchange activities and business promotion work for his university in China. He believes,

> the Chinese students who are studying in the UK are experiencing what the UK is offering to people, and they ought to perceive how the British people interact with each other, which provides reflections on their behaviours. Meeting people from different cultures and other nationalities is very useful in terms of broadening their mind-set individually (S6).

Cultural awareness can lead to a smoother academic transition as well. Once the Chinese students realise random interaction with lecturers and other nationality peers is universally acceptable, they will start to follow. The excellent Chinese students, who perform well and graduate with highly graded degree levels, are the ones that have become fully aware of how their assignments and papers are to be structured in the British way. Moreover, introducing some Chinese cases into their assignments or dissertations would add considerable benefits, as their lecturers might be curious to know what the situation in the China context would be. On such occasions, the Chinese students and their tutors are learning from each other, responding to the proposition of cultural synergy advocated by Jin and Cortazzi (2016).

7.8 Suggestions for the Academics

7.8.1 Staff Engagement

Some of academics, who have abundant teaching experience with Chinese students, realise that the Chinese students are generally not going to approach them. Instead, the tutors need to approach the Chinese students initially to discover if the Chinese students have special requirements and may try to involve the Chinese students in the classroom activity. Additionally, the academics ought to remind the Chinese students of the support and extra help available throughout the course, for example, the additional free English classes, small modules on how to write an essay, computing training sessions by the library and so on. Academics also need to make the Chinese students aware of the academics' availability and the comprehensive support guidance provided. Interestingly, once a personal relationship between tutors and the Chinese students is established, they are then comfortable to visit their tutor. Under such circumstance where the interpersonal relationship is being built, cultural affinity between the academics and the Chinese students will develop.

Academics interviewed for this study recognised that it is difficult to engage Chinese students, when delivering lectures to a large students group. However in tutorials or seminars with a small group of students, it is easier for the academics to interact with the Chinese students. In terms of the techniques and measures applied,

> I would raise examples from the Chinese context and ask Chinese students to contribute their China-based knowledge to whatever topic or academic subject is being delivered. I would say we really want to learn how things work in China, which makes Chinese students feel relaxed, comfortable, and more confident. They are also happy as they are talking about something where no one in the classroom knows the answer (S6).

Unconsciously, this academic staff proposes the concept of culture synergy (Jin and Cortazzi 2016), asking for mutual efforts from both academics and Chinese students to understand each other's cultures. Another measure to help with the Chinese students' transition is the intervention from the academics in the group discussion. If academics ensure that the Chinese students know others in the group and understand what the expectations for the group discussion are, the group works go well and Chinese students become actively engaged.

However, staff engagement does require the Chinese students' input also; it is actually a '50-to-50 road'. The academics may initiate and make the first move at the beginning, but after that, the Chinese students need to take the lead. The Chinese students are required to be honest with what they do not understand and then go to see and talk to their tutors. Also, they need to put the required effort into their work, be open-minded, embed themselves into their studies, and be ready to engage and participate. Only when the university and its staff are made aware of an issue can it then be resolved. Under such conditions, the academic staff and the Chinese students tend to meet each other halfway.

7.8.2 Academic Aids

The interviewed academics agreed that academic essay writing skills are a priority in the Chinese students' development. In terms of their past experience, the essays written by Chinese students are often required to be considered line by line, to be corrected and clarified. The best time for support activity is at the stage when essays are due for the first semester, and a session on how to structure an essay in the British higher education context should be delivered. After the work has been marked, a feedback session on their essay writing is also needed.

Since Chinese students are believed to adopt a less critical approach in their teaching and learning contexts, academics are asked to produce different examples to show what critical thinking means and to compare the descriptive versus critically evaluative methods within academia, in order to make the Chinese students aware of how to apply critical thinking abilities within their studies.

Although there are different views between interviewed academics on how to develop the Chinese students' independent learning skills, time management could

be a starting point. A timetable from one of Chinese students could be set as an example to present to all students. Depending on how many free hours a week that the student has, a plan as to how the student uses their time outside of their class could be developed. All of the students, including Chinese ones in that session, have a chance to think about how they are going to use their time for independent learning. Alternatively, a different approach to time management might be adopted. The Chinese students can be made aware of the different deadlines for submission of their coursework in relation to their timetable. The task to ensure timely completion of their coursework can be dissembled into pieces, by setting up different milestones at different points in time.

7.8.3 Staff Development on Cultural Awareness

In order to facilitate the Chinese students' academic transition into British Higher Education, it is crucial for the practitioners to have both cultural and pedagogical awareness of the differences between the different educational systems. If it is financially viable from the universities, the academics should make a visit to China and sit in the classroom within Chinese universities for a period and observe what it is like in the Chinese higher education context. It is easier to understand the key issues through direct personal experience.

Another option for university staff in developing their cultural awareness, is a training programme on equality and cultural diversity, so as to learn and be aware of unconscious bias and stereotypes around specific ethnical student groups. Many Universities provide this in the form of an online provision. For example, some staff may make immediate negative assumptions about a Chinese student due to the fact that their oral English is not very good; however, their level of fluency in English is not a direct measure of the student's intellectual abilities.

Some academics who were interviewed recommended a book and a BBC video programme to help academic staff develop their cultural awareness, specifically for the Chinese students' academic transition. The book is called 'The Geography of Thoughts: How Asian and Westerns Think Differently and Why', within which the views can be related a lot to what the Chinese students are struggling with. The BBC video footage records the exchange of teachers between China and the UK. Chinese teachers go to a British sixth form college and the British teachers go to a Chinese one. In spite of the different levels, both the Chinese students and their UK lecturers in British higher education can benefit from this programme by reflecting on the contents of the programme—how teaching and learning work either in the UK or in China.

7.9 Measures Suggested to the Universities

There was some disagreement between the academics in this study regarding inequality and racism. Some academics wonder if it is right or necessarily needed at university level to offer a specific ethnical student group, like Chinese students, special care and supports for their transition into their life and studies in the UK. However, the British universities have become providers of higher education products and service to home and international students. In this sense, the students have been the clients for the universities which have obligations to satisfy and enhance their university experience. Echoing to this,

> the university needs to do a better job at acclimatizing all international students to our system and our expectations. (S5)

7.9.1 Management Mechanism

At university level, the management team has the responsibility to support their students' well-being. For Chinese students' academic transition, support may include bridging and transition courses to help to adapt to university life, special tutoring programmes and Chinese student mentors helping the new entrants. It is also suggested to universities to develop Chinese student-linked performance indicators throughout the teaching programmes, by analysing their academic results on every assignment, trying to understand what factors pose academic challenges for Chinese students, thereby assuring every student is on the right track during the whole of their academic journey. Only by this means, can the transition problems be identified early, rather than trying to remedy the situation at the end of the academic term or semester.

Another approach at the organisational structure level to help Chinese students would be more interaction with the wider Chinese student community. The student community may be better placed to identify transitional problems that Chinese students might come across. Monthly meetings with the involvements of the international office, faculties and the Chinese student community are suggested. They should be arranged in order to discuss how any outstanding problems can be ideally dealt with. At a wider level, the universities should strengthen links with the local Chinese community. The more the universities involve the wider Chinese community, the more opportunity of support by the universities can be provided to Chinese students, for example, student placements, Chinese culture events and so on.

The universities ought to work closely with their Chinese partners who help with student recruitment in China, to prepare Chinese students academically ahead of their departure to the UK. Not just around specific luggage advice, but to prepare a well-structured pre-departure training event for Chinese students, which should also cover the knowledge about critical thinking, independent learning and cultural awareness. It could teach Chinese students how to interact with local people and manage academic challenges or any other incidents in the appropriate manner in the British context.

7.9.2 Restructuring Student Inductions

It is important for any education institution that their international students are given the right support mechanisms during 'Induction'. Rather than a general induction for all students, the author would suggest a specifically filtered induction to be introduced for international students. For instance, the content around things like student loans, a UK centric input, may be excluded. Furthermore, often too much information is given to new international students (new Chinese students included) at the outset, for them to receive and digest within the short time of the induction week. A model similar to the university's open days' model for international students could be adopted, encouraging students to engage with various induction sessions (which could be jointly held with open days) later on in a year, especially in universities which have multiple entry points for welcoming international students. Furthermore, since a large number of students attend the induction, which is similar to a big lecture, the author would recommend that a follow-up feedback session within a tutorial or seminar may be offered, in order to check whether Chinese or other international students have further enquiries or questions.

Some helpful practices were suggested by the academics interviewed for this study. For instance, a boot camp provides a good format. Within a boot camp, all academics who are involved in a specific programme are present to meet up with the students, course specifications are provided and learning skills and techniques are highlighted. Another good practice is a Chinese student community such as the one at Manchester University, Chinese Students and Scholarly Association (CSSA) delivered a specific induction for newly arrived Chinese students in early October 2017. Some ethnically Chinese academics working in the university are invited to talk about academic support, internship, full-time jobs after graduation and how to apply to a master's programme etcetera. From the perspective of the university management team, the event held by a specific student community should always be encouraged, not only for the benefits of students themselves but for the development of university's teaching and learning capabilities per se.

7.9.3 Cultural Affinity Measures

Universities need to support academics who are teaching or supervising Chinese students to be more prepared, knowledgeable and appreciative of Chinese culture. These academics should have an understanding of the cultural contexts from which the Chinese students have joined, in relation to the learning style and social dynamics in Chinese education. Cultural awareness leads to the appreciation of the perspectives of Chinese students' and provides understanding around the reasons why they might have particular problems or issues at certain stages of their transition and acculturation journey. Attendance of training sessions on what Chinese culture and pedagogy

entails should be encouraged amongst staff that are lack knowledge or appreciation of Chinese culture.

If a university wants to support Chinese students, they could involve their ethnically aware Chinese staff with fluency in Mandarin, by giving them time within their workload to provide support. Going further, the author advocates that more ethnically Chinese staff should be employed if a high proportion of Chinese students are present at a university campus. The reason is simple,

> Only Chinese staff can understand what Chinese students need exactly and what challenges them within a British university (S13, who is ethnically Chinese).

Cultural affinity reduces the cultural distance between students and academics, provides students with the necessary academic support at the right time and resolves issues before they grow bigger and become more problematic.

7.10 Conclusions

This chapter has drawn on research data gathered from the academic staff working with Chinese students, to provide a deeper understanding of the cultural transition students undertake, when commencing their undergraduate studies in the UK. The factors that impact upon the students include culture differences at national and organisational levels, and psychic distance at a personal level (which defines the extent to which students and academics interact). How an acculturation strategy could be widely adopted and pedagogical differences due to differing cultural contexts between Chinese and Western education systems managed are illustrated as well. Practical measures to aid Chinese students' academic transition have been suggested. Chinese students themselves need to be better prepared, but both academic staff and the universities' management authorities could do more. It is suggested that greater cultural awareness is required and cultural affinity should be nurtured among the three sets of stakeholders, which are involved in the Chinese students' learning journey within the UK.

Further research is required to compare and integrate the findings from the Chinese students and the academics. However, it is hoped that the culture influence and academic transition framework presented in this study can benefit all of the stakeholders in intercultural and transnational education settings. After all, every university wants each of its students to succeed and maximise the value of their student experience.

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Chapter 8
Addressing Academic Misconduct in Transnational Education Computing Courses

Thomas Lancaster

Abstract Despite the best efforts of instructors to promote academic integrity, some students will always engage in academic misconduct. This manifests itself in forms such as plagiarism, contract cheating and exam cheating. There are particular academic misconduct challenges in computing not seen in other disciplines. In this discipline, students are tech-savvy and regularly exposed online to material on "how to cheat". Students are expected not only to become proficient writers, but also to develop programming skills and incorporate source code written by third parties which they access online in code repositories. When computing courses are taught in transnational education (TNE) settings, there is further cause for concern. Local norms may mean that the sharing of knowledge and information amongst students is expected, even though this would be considered to be a form of collusion elsewhere. Interpretations of what is meant by academic integrity may differ. Technical solutions to identify and investigate academic integrity breaches may not be widely available. Despite the importance of academic integrity, little advice is published specific to TNE in computing. This chapter provides an exploration of these areas as they surround academic misconduct in TNE computing courses and makes recommendations for those involved in the assurance of academic integrity.

Keywords Academic misconduct · Academic integrity · Transnational education · TNE · Computing

8.1 Introduction

Preserving academic integrity can be challenging for the Computing instructor. Many methods already exist through which students can breach academic integrity. This may be through the deliberate route of cheating or through accidental breaches such as a lack of understanding of academic referencing conventions. Such breaches of academic integrity are referred to as academic misconduct or academic dishonesty.

T. Lancaster (✉)
Imperial College London, London, UK
e-mail: thomas@thomaslancaster.co.uk

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Lancaster (2018) provides a summary of issues surrounding academic integrity that are relevant for Computing instructors. As well as classifying ways in which students can breach academic integrity, Lancaster recommends three specific solutions including: (1) working with students as partners to help them understand why academic integrity is important; (2) developing assessments that make it difficult for students to commit academic misconduct; and (3) using manual and automated techniques to detect academic misconduct. Lancaster also suggests that these are not techniques to be used in isolation, but approaches that should be combined together for the best results.

This chapter focuses on addressing a specific challenge of academic misconduct which takes place when a computing course is delivered overseas in a transnational education (TNE) setting. Such settings naturally provide opportunities for misconduct which may not be present at a home institution. Courses are being taught by different staff with their own motivations. Instructors may be delivering material that is supplied to them or may be required to teach across a wide range of subjects in which they are not expert. Quality monitoring may be limited or restricted to specific time periods or assessments. There are opportunities for provider-level fraud, particularly where TNE partners are judged solely by results and dependent on the income from successful students. Students may come from cultures with their own understanding of the ownership of information, or where cheating is considered acceptable.

This chapter is timely as it brings together three subjects that are most often considered in isolation or in pairs, namely academic misconduct, computing teaching and TNE. That is, sources exist discussing: (1) academic misconduct in computing; (2) academic misconduct in TNE; and (3) computing in TNE settings, but it is rare to find literature considering all three topics.

Figure 8.1 illustrates this in the form of an Academic Misconduct Literature Issues Triangle. It is possible to find papers that provide recommendations to address one or two corners of the triangle, but rarely all three.

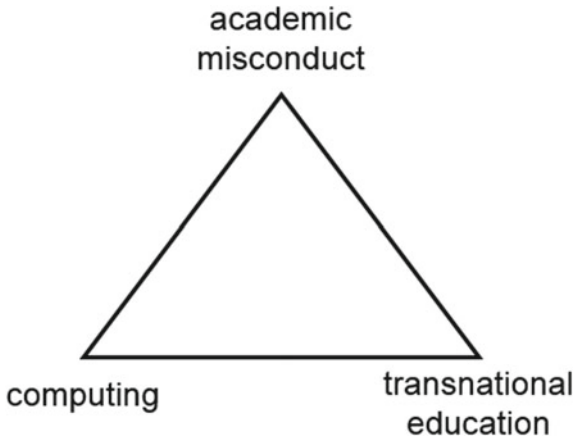

Fig. 8.1 Academic misconduct literature areas triangle

This chapter compiles together what is known about academic misconduct in TNE computing courses. It considers information relating to international students in general, as well as those in a TNE setting since many of the findings and recommendations for best practice are common to both groups. The vast majority of existing research focuses on student plagiarism, so that is where the focus of much of the chapter lies. Although some sources are given, much of the discussion is based on the long-term experiences of the author working in this field. It is often impossible to trace back ideas which have developed organically and through discussion to one definitive source and no attempt is made to do so.

This chapter concludes with practical suggestions regarding what institutions and individual educators can do to address academic misconduct within computing TNE courses.

8.2 Academic Misconduct

For the purpose of this discussion of TNE students, academic misconduct can be thought of as taking two types. The first type is misconduct that can be committed accidentally. The second type is misconduct that would usually be committed intentionally. Table 8.1 shows some examples of these two types of misconduct.

Table 8.1 is far from a complete list of all the possible ways in which a student can cheat. It illustrates the principle that some types of academic misconduct carry with them attempts of fraud and deception. For example, contract cheating, most commonly defined as a student paying someone else to do their assessments for them, is unlikely to be accidental (Clarke and Lancaster 2006). This requires the deliberate act of money or its equivalent changing hands. It shows a student attempting to remove themselves from the act of assessment and to replace themselves with a third party. Likewise, where a student takes unauthorised materials into an exam or attempts to communicate with someone outside an examination hall, it is hard to argue that this happened by mistake (Lancaster and Clarke 2017). If a student runs an assignment through an essay spinning tool which changes the language so it looks different to the original, then hands in the resulting version, their actions show a deliberate attempt to cheat (Lancaster and Clarke 2009).

Some types of academic misconduct can happen accidentally. A student could be judged to have plagiarised not because they intended to deceive, but because they

Table 8.1 Types of academic misconduct

Unlikely to be committed accidentally	Possible to be committed accidentally
Contract cheating Exam impersonation Falsification of exam results Research fraud Essay spinning	Plagiarism Collusion

lacked the skills to reference correctly or to write in their own words. Two students could be judged to have colluded because they worked closely on an assignment, but left it too late in the process to begin to independently document their results. Many commentators would argue that TNE students are particularly at risk here.

Teaching computing students the right from the wrong is essential, but this can be completed as part of wider discussions about ethical behaviour and academic integrity. Teaching computing students about plagiarism represent more of a grey area. There are lots of areas where a nuanced discussion is necessary. One such example involves code reuse. It appears unclear even to experienced academics when it is acceptable to reuse code and when this should be avoided (Simon Sheard et al. 2016). Even when code reuse is allowed, there is debate about referencing conventions.

Traditional written reports are used in computing, although they may be more common in other disciplines. For these, the requirements for referencing are generally widely understood. A large portion of this chapter will focus on that specific problem, supporting TNE computing students in avoiding plagiarism within written aspects of assessment.

8.3 Plagiarism and TNE Students

It is important to recognise that not all TNE students have a problem with plagiarism. Many students, despite being educated internationally, have excellent English language skills and do not intend to breach academic integrity. Where problems do arise, this is often accidental. Such problems can be addressed with support, mentorship and guidance.

A larger challenge occurs where student cultural norms are rather different from that which would be desired in a Western style higher education system. Where this occurs, the literature largely suggests that TNE student attitudes towards plagiarism can be classified into three ways. These are shown in Table 8.2.

Within the literature, some of the areas shown in Table 8.2 are hotly contested. For example, where one author argues that plagiarism for one group of students is cultural and acceptable, another will state that students have already been educated regarding writing and referencing and, for them, it is a conscious decision if they

Table 8.2 Typical reasons given for plagiarism in TNE student work

Reason
Students believe that all information is shared knowledge and that is polite and respectful to use the same words and phrasing as their instructors
Students understand the concept of plagiarism, but believe that academic misconduct is culturally acceptable
Students understand the concept of plagiarism. They plagiarise only because they lack the practical skills to do anything else

choose to plagiarise or not. There is deliberately no view taken in this chapter as to why students breach academic integrity, but it is important for readers to know that such wildly different views exist, often even within the same group of instructors.

A number of examples relating to the concepts shown in Table 8.2 follow.

Some researchers indicate that TNE students may not understand plagiarism. For example, Sutherland-Smith (2005) found that students with English as a second language thought that information on the Internet was free and they could use this information as they saw fit. Others think differently. Adhikari (2018) instead argues that international students '*either already know about the concept of plagiarism or learn about it quickly*'. Adhikari instead believes that students need practical help to develop skills surrounding writing without plagiarising. Although the concept is there, the ability to successfully execute academic conventions may not be.

The argument that TNE students plagiarise deliberately also exists. A survey of 574 students in Singapore studying an Australian curriculum found that one quarter of students "*would knowingly plagiarise*" (Palmer et al. 2018). The same investigation also found that many students believed that self-plagiarism was acceptable, as was the re-use of work created by other students.

The sources demonstrate that there is no such thing as a '*one size of hat fits all*' type solution. Educators need to understand the landscape in which the TNE organisation they're working with is operating. Even then, it cannot be assumed that every student is operating with the same motivation as their peers. They all may not act in similar ways. Making sure that all students are operating from a level playing field has to be the key driver ensuring that students on TNE computing courses are able to avoid academic misconduct. To achieve such as goal may need additional education and support being put into place right at the start of the higher educational level journey of TNE computing students.

8.4 Recommendations

Many recommendations exist in the literature for discouraging academic misconduct. The intention of this section is not to simply restate these, but to focus in on recommendations that are of most value for TNE students.

8.4.1 Provide Supervised Access to Anti-plagiarism Software

Software can be useful for instructors and students alike. It can provide a deterrent from deliberate cheating, but can also provide support for students who may be plagiarising accidentally or may not understand how to reference (Halgamuge 2017). Anti-plagiarism software can be used in a formative way to support students.

Although it is good practice to provide students with access to anti-plagiarism software to improve their academic writing, this access needs to be monitored. Stu-

dents have been observed trying to find ways to beat such software, for example by making a cumulative sequence of small changes until their writing appears to be original. In addition, the reports given by plagiarism detection tools can be difficult to interpret, even for experienced markers. A high similarity score does not necessarily represent plagiarism. It may be appropriate to restrict students to one formative use of such software per assessment. For the first few assessments, this formative use should be reviewed with an instructor.

8.4.2 Teach Academic Integrity Principles

A detailed discussion of how to teach academic integrity principles to computing students is given in Lancaster (2018), but students need to understand what academic integrity means, why this is important to them and their wider community and how they can work successfully with information sources. For TNE students, this may require including additional tuition that would not be necessary for home students. Such tuition could also be developed to include a wider discussion of computing ethics of the type often requested by professional accreditation bodies.

Gunnarsson et al. (2014) recommend approaching research with a focus on its ethical and legal aspects. Duff et al. (2006) suggest a focus on "*critical scholarship*".

Adhikari (2018) recommends teaching students how to develop an academic voice. Adhikari believes that students need to be taught in a "*friendly and motivating*" environment.

Any such additional teaching can be used to address the specific needs of different groups of TNE students. Instructors may find it useful to discuss with students what their own beliefs and cultural norms are and to use this to shape their own provision.

8.4.3 Teach Academic Writing Principles

The need to teach academic writing principles is supported by the results of Glendinning et al. (2017). They found that students in Southeast Europe generally said that they had not been taught how to write and reference and that their instructors generally assumed that they knew how to do this. Such tuition may not be simple to arrange. The same source found that instructors themselves were asking for more help and support with academic writing.

It can be helpful to point students towards other sources of writing help available within their institution. There may be classes specifically arranged for TNE students. But there is a challenge that students will not always use such support services and attend classes voluntarily. Despite that challenge, efforts should be made to ensure

that students do use internally available support. Contract-cheating services have been observed advertising themselves as support services. Where a student uses these services, this can be a gateway towards them committing academic misconduct that they had no intention of doing.

8.4.4 Develop Assessments That Make Academic Misconduct Difficult

The same techniques that work to discourage academic misconduct amongst a traditional student body can also be useful for TNE students. Key to this is the idea of varying the types of assessments to better engage students, equip them with a wider range of skills and make it difficult for them to continually cheat in the same way (Lancaster 2018). Computing is unusual amongst academic disciplines by having a wide range of suitable assessment types available to engage students. Within computing, assessment types can include written assessments, programming and technical coursework, practical tests, written exams, presentations and project work, to name just a few examples.

For TNE students used to operating in languages other than English, delivering presentations and participating in authentic assessments and viva voce exams can be difficult. Support needs to be scaffolded throughout the course to help students to acclimatise to a new type of academic environment.

8.4.5 Train the Instructors

Where instructors have also been students in part of the same higher education system, as can be common in the TNE environment, they may have become used to that style of operation. They may think that such operation is the norm around the world. Adapting to the way in which the partner institution that the TNE provider is operating underworks, can be difficult for them. Instructors may continue to teach students bad habits. They may assess students in a way which is simply not acceptable. Specific training of instructors is necessary, including showing them how to develop suitable assessment briefs, how to mark consistently, how to follow a moderation process, how to give feedback and how to embed a culture of academic integrity within their classes.

It might also be helpful for instructors to engage in continued professional development. There are regular international conferences, workshops and events devoted to academic integrity, where examples of good practice are shared. Instructors attending such events can bring new ideas and insights back to their home institution. Glendinning et al. (2017), for example, found that institutions benefited from allow-

ing staff to spend a semester or longer abroad working at a partner institution, bringing back with them the experience of working under an alternative ideology.

8.5 A Note of Caution

Although much of this chapter has focused on plagiarism, the temptations for TNE students to commit academic misconduct can be great. A whole industry has been established designed to help students to gain an unfair advantage in tests and assessments. This includes the offer to sell students devices to enable them to receive outside help during exams, presentations and vivas. This wider classification of services helping students to breach academic integrity includes the contract-cheating industry, where students pay a third party to complete their assessments for them.

It would not be fair to say that TNE students are any more or less likely to engage in breaching academic integrity in these ways than any other students. But what can be established is that the contract-cheating industry markets heavily to these specific groups. Contract-cheating providers have been observed promoting their offers, which are often presented as if they were "*student support*", in multiple languages. This makes the existence of these adverts very difficult to spot by those staff who are not fluent in other languages. Contract-cheating providers have also been seen trying to present themselves as a new community for students, encouraging students to sign up their friends. This can be particularly dangerous where close-knit communities of students develop for whom English is not their first language.

In the United Kingdom, studies of the number of students caught cheating within their institutions have seen international students over-represented in the figures (Mostrous and Kimber 2016). This does not necessarily mean that international students are more likely to cheat, just that they are more likely to be detected as having done so. It may be that less developed study skills are a root cause here.

Although addressing plagiarism is essential to support TNE students, as is providing them with the tools needed for success, academia should not rest of its laurels. Instructors need to be aware of the changing ways in which academic integrity can be breached. Developing students to understand that they need to act ethically and to see the value of completing assessment tasks for themselves is essential.

8.6 Conclusion

The challenge of encouraging academic integrity is not one that is unique to TNE students or to the computing academic discipline. Much of the best practice in the field applies as equally for TNE students as it does for all others. Students of all backgrounds arrive at university without a real understanding of how to write and reference and they need access to resources and support.

For TNE students, the challenge can be amplified due to the cultural norms from where they are operating. Addressing academic integrity in these different environments therefore has to be considered at all stages throughout the TNE development process, from course approval, through the appointment and training and staff, into the development of the course curriculum. As well as helping students to develop a shared and consistent understanding of academic norms and expectations, instructors need to assess that that knowledge has been retained throughout the course and that students are working with academic integrity at all times.

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Chapter 9
Developing Independent Learners: A Guide for International Partners

Carlton McDonald

Abstract UK degrees are required to furnish students with "the ability to manage their own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline)" (QAA in UK quality code for higher education, part A: setting and maintaining academic standards, the frameworks for higher education qualifications of UK degree-awarding bodies, p. 26, 2014). This independent critical thinking characteristic is realised best in an Independent Study (IS) or Final Year Project (FYP). These skills are so important that the IS module is typically a double module. "Studying a UK degree, you'll be encouraged to read, think independently, question and analyse what you read and learn" (Why study in the UK—benefits of getting a British degree https://www.studying-in-uk.org/why-study-in-uk/. Accessed 12 May 2019). This chapter looks at the staff development that has been provided to staff intending to deliver a UK comparable learning experience of independent studies and also the induction that is provided to students in preparation for the UK IS experience, not just to complete the IS, but to do well.

Keywords Independent study · Final year projects · Academic writing · Supervising undergraduate dissertations · Supervising undergraduate projects · Supervising independent studies

9.1 Introduction

Why have UK degrees been so popular globally? Why do many students from outside of the UK struggle with UK study, particularly at level 6? How do we change the culture, in a short space of time, to help UK university overseas partner organisations enable their student to produce good quality independent studies?

There are a few papers sharing research into supervising undergraduate independent studies (IS), but hardly any on transnational education. There are issues concerning supervision as teaching, looking at student expectations of their role in research

C. McDonald (✉)
University of Derby, Derby, UK
e-mail: c.g.mcdonald@derby.ac.uk

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and supervisor style (http://www.ukcge.ac.uk/article/thinking-research-supervision-as-form-teaching-357.aspx). This research is aimed at undergraduate students. Todd offers an approach that will "guide students towards a successful completion of the final year project" (Todd n.d.). The work here is more ambitious in that it seeks to enable students to achieve good honours grades in their IS.

This chapter will look at these very tough questions and propose that staff development for supervisors makes a good starting point. In addition, this chapter provides examples for the students. The example presented here can be worked through by staff at a partner institution with students. Without helping the staff that supervise projects to convey British cultural expectations and the objectives of final year study, the student will be operating in an environment that is as different from the UK as a photograph is different to a painting. We want our students to be creative rather than reproductive. We want our students to create an original painting not a copy of a photograph. Once partner staff understand what they are trying to convey, they are more likely to be successful in getting the students to be reflective and independent.

As one reads this chapter, those staff that are close to retirement might reflect on the reduced capability of current UK students to operate according to the expectations of a final year graduate. This is not surprising, especially in science, engineering and technology, subjects where it is increasingly difficult to find UK educated staff. What is happening is that many staff are coming to, and teaching in the UK with, quite different cultural backgrounds and expectations. This staff development is therefore not just useful to partner organisations but also to any independent study supervisor. Indeed, the work here has emerged from the author's role, for 13 years as Head of Operations for the Joint Honours Scheme at the University of Derby. When head of the final year of the Joint Honours Scheme, it was observed that students across many of the subjects across the university achieved grades substantially lower in their independent studies module than in their final stage grade average. Having assessed hundreds of IS dissertations, heard many students exclaiming how much time they had spent, how many words they had written, and how many references they had provided, it was clear that the students needed more constructive guidance on how to approach their independent studies. A good example, consisting of what academic staff expect, and highlighting to students some of the more common misconceptions, would be of tremendous help.

The example that was developed is very general because the Joint Honours Scheme at the University of Derby covered such a wide range of subjects. It was tailored more specifically to meet the needs of non-EU transnational education partners. The challenge with a technical discipline was to retain accessibility whilst developing more insightful research skills without confusing or even losing the students. The example worked well on the Joint Honours Scheme achieving an 8% increase in "good honours" 1st and 2:1 degrees in 2012–2013. It was found to be accessible for all students and for all subject areas. The feedback from the UK, EU and students from South Asia, as well as staff supervising the students, was extremely positive. Results improved the year the staff development was given. However, as a consequence of the relatively high rate of turnover, within a few years without further staff development, supervision reverts to cultural norm. TNE requires constant development. Watching

a video is not as effective as face-to-face engagement is the most valuable element. It is important to be able to have the opportunity to interact and ask questions of UK staff directly as hearing this from tutors that may only have studied in the UK is not as convincing.

9.2 Staff Development

What development should we give to partner institutions engaged in supervision and assessment of independent studies?

The topics that need to be addressed with partner academics are:

Partnership,
Culture,
Standards,
Levels,
Independent Study—Socratic Methods and
Equivalent guidance.

9.3 Partnership

Education, at all levels, is a partnership between teachers and learners. To a large extent, learning reflects teaching. This is particularly so with independent study. On the whole, students that engage most with their supervisors achieve better marks. Supervisors that provide insights, motivation, feedback and guidance, are often rewarded with high achieving students. The staff development therefore provided to supervisors is critical to the success of the students. Similarly, staff need to fully understand the basis of what constitutes a good dissertation and pass this understanding on to their students. IS supervision should be a collaborative partnership between the student and the supervisor. Supervisors need to recognise the need to build a mutually respectful relationship with students. This can challenge cultural norms in some communities. Staff development reinforces both the need for this relationship and the acceptability of it.

9.4 Culture

There are many cultures in which students dare not challenge their elders, let alone their professors. In such environments, challenging ideas, research and published results from highly regarded individuals is discouraged.

This runs counter to the principle of a UK university independent study and research practice, although we are aware that the don't-challenge-me culture also occurs, albeit less commonly these days, in the UK.

It is surprising how few people are aware of the extent to which, and importance of, challenging researchers in vibrant research environments in order to improve the quality of research output. Given that billions of pounds globally is allocated to research it is surprising the amount of funding that results in erroneous, fraudulent outputs, or no outputs at all. It is accepted that contemporary groundbreaking research will often render historical theories, techniques and technology obsolete. This introduction to the bad and the ugly of research conveys the importance of discursive environments, where ideas, professors, postdocs and personalities may be challenged. We must welcome questions, and the more challenging the question the better. The result of which will be that the questioner learns a perhaps subtle application of the findings, or discovers that the theory, technique or technology is not, or no longer, universally applicable.

9.5 Standards

There is a perception among students that the independent study should only include the things that went according to plan on the project. However, what we really want from the independent study is for learning to take place which can be shared. It is not unusual for experiments to be carried out and the results are not those that were expected, or not significant. These results should be disseminated so that others thinking of doing similar research will be able to read what the outcome was. No result, as well as insignificant results, are valuable findings of a research project.

9.6 Supervision

The Independent Study/Final year Project (IS/FYP) is the culmination of a number of years of study, it is not always appreciated what the levels actually mean. Even when the international partners have been educated in the UK it is rarely made explicit what is expected of a student in the final year. The induction of students at UK universities, in the author's view, should be made explicit at the start of every new academic year. An induction along the lines of: "How to Guarantee 1st class marks on all your assessments" can help. Although, in general, attendance during induction

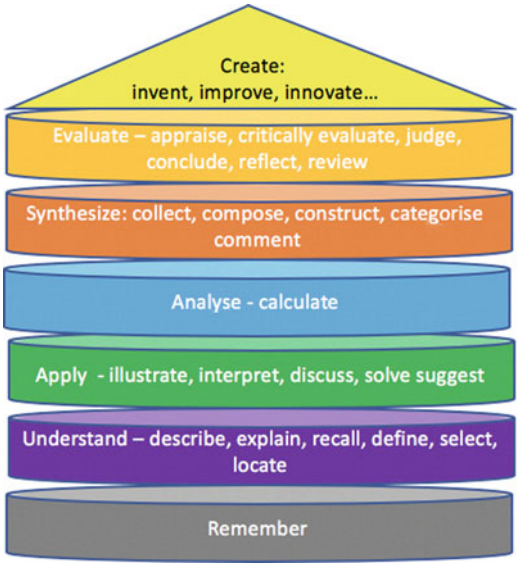

Fig. 9.1 Colour coded blooms taxonomy types of verbs for each level

periods in recent years has been a challenge at UK universities, induction sessions are often extremely well attended by final year students.

In order to understand how to get a 1st class Honours degree, staff in partner institutions should provide an induction to the students on level 6 study by comparing it with level 4 study. Bloom's taxonomy was used to suggest reforms in the teaching-learning process in Karachi, Pakistan (Chandio et al. 2017), and is essential for academics to understand what is required from final year IS.

In Computing, and technical degrees, references to Bloom's taxonomy might inspire a small percentage of the students to research further into higher order functionality. However, Bloom should be left as recommended directed study, except for AI researchers for whom it should be essential reading. Nevertheless, for academic staff, it is essential staff development.

9.7 Levels

Level of study is the single most significant concept in the design of a course of study. It is the level of study that is used to judge the quality of the design of the assignment brief, and the quality of a student's assignment submission. The appreciation of what is expected at each level is critical and yet, certainly in the author's case, it was only after designing programmes of study that the author recognised what HE was all about. This **emphasis** on levels of study is often not stressed sufficiently in preparing staff for lecturing in HE. Designing lectures, laboratory sessions and

seminars is certainly very important. Theories of teaching and learning are helpful. However, understanding the concept of level of study, and being able to convey that understanding to students, along with the expectations that accompany each level, is essential for good practice. The correct level of study is integral to course design. Assessments must incorporate and reflect the appropriate level. Students need to be reminded of the expectations at their level of study at the beginning of each semester, if not at the beginning of each module. This would have a major impact on the quality of graduates and promote their ability for independent, critical thinking as well as their preparation for lifelong learning. Students' capability as self-reflective individuals would naturally be enhanced by such reminders of our expectations.

From the experience of delivering staff development to new members of staff for three years, the author came to consider two subjects as being of particular importance for new lecturers:

(a) Teaching and learning styles and
(b) Assessment strategies and techniques.

Teaching and learning styles are too large a subject to cover here; however, in designing assessments, as mentioned earlier, the starting point should be the level of study at which the assignments are pitched. What are the expectations of the students in completing the assignment? In order to convey the importance of levels of study, the approach used was to investigate the typical verbs used to describe activities in an assessment at levels 4, 5 and 6 in the UK. If staff are not just designing assignments at a particular level but encouraged to explain to students the expectation of the level at which they are currently studying, the students are more likely to perform at the level expected.

Based on the types of verbs in Fig. 9.1 [and there are many other synonymous verbs conveying similar expectations at each level (https://www.teachthought.com/critical-thinking/126-blooms-taxonomy-verbs-digital-learning/, https://www.teachthought.com/critical-thinking/249-blooms-taxonomy-verbs-for-critical-thinking/)]. Assessment is often designed at level 4 at the level of **remembering** and **understanding**. In the first year of a UK degree (level 4), it is not unreasonable to see a lot of recall of facts **as an introduction to the topic**. Depending on the assignment, students can do very well recalling information. However, the expectation at level 5 is much more demanding as we expect the students to demonstrate higher order skills, specifically **analysis** and **application**. Level 6, traditionally in the UK, is characterised by independent study or final year projects; however, the expectations of all the modules are that students are expected to demonstrate higher level skills characterised by the level of evaluation in Fig. 9.1. The expression used typically in the UK is *critical* evaluation. The "critical" here is akin to a literary critic, someone who analyses the merits or work of literature. In that, the essential component of a final year project or independent study is the literature review. Rather than teaching partners the theories of good literary criticism, the approach the author uses is to illustrate the development of a skeleton dissertation. These examples are shared with the staff that will be supervising the independent studies and final year projects.

9.8 Sample Skeletal Project

As an example for level 6 writing the research question used is one that many people globally may have thought about: Why are Jamaicans world class sprinters? As a little flipped classroom exercise, the audience (staff to deliver the same thing to their students) are asked to watch two from four exciting races:

Jamaican women winning Gold, Silver and Bronze in 100 m (Beijing 2008) (Youtube Video 2008)

Jamaican men winning Gold, Silver and Bronze in the 200 m (London 2012) (Youtube Video 2012a)

Jamaican men 4 × 100 m world record (London 2012) (Youtube Video 2012b)

Jamaican women 4 × 400 m win (2015) (Youtube Video 2015)

The videos are designed to excite and motivate the audience, to pique interest in the subject and be eager to learn the answers to the question. This motivation is what we want the students to gain from the objectives of their research proposal. The staff development programme has the following structure:

- Title: How to Get a 1st.
- General Principles of Good Academic Writing.
- The Project Proposal.
- Research Question: Why do Jamaicans excel at sprinting?
- **Sample Answer 1**: Maximum mark 49%.
- **Sample Answer 2**: 40–49%.
- **Sample Answer 3**: 50–59%.
- **Sample Answer 4**: 70% and above.
- Levels of Assessment.
- Supervision Meetings and Feedback.

The staff development session is in the form of a presentation that the course leader or independent studies module leader should give to the students at the start of each academic year but is specifically aimed at the final year project as the epitome of independence, research and reflection at undergraduate level.

9.9 The List of Projects

Ideally, students will select their own topics. However, they don't always have the ability to frame research questions therefore often, staff will suggest research questions and project titles that students may take and tweak to suit their own interests. This list of potential projects provides ideas for students to research and projects to develop. Some projects may be in areas that provide the inspiration to spend time wanting to find the answers to the research questions or application of their research towards a new application, prototype or product. Inspiration and motivation to complete the journey are more likely to keep students persevering even when the road is

long, rough, uphill or even close to a cliff edge! The determination to complete the journey will ensure they, with guidance from a supervisor, take care and focus on the final objectives.

The supervision team has to understand what is expected of the students and why it is expected of the students. The slides presented below are meant to provide discussion opportunities in order to convey the principles while allowing the staff to provide many of the answers themselves in a similar way that when we meet students we want to get the students to identify issues and questions and attempt to solve the problems by themselves.

1. Title: How to Get a 1st
   This title is meant to motivate students to attend, pay attention and understand how to achieve the best grades. Students participate in assessment activities at much higher rates than any other activities because they, more than ever before, are interested in the grades rather than the learning, the certificate rather than the knowledge: i.e. qualifications more than the education associated with the qualification.

2. The Project Proposal
   An introduction or background to the project—see Appendix 1
   Objectives,
   Methodology and
   Deliverables.

3. General Principles of Good Academic Writing
   Read the Specification!
   Structure the answer:
   Tell ‘em what yer gonna tell ‘em—
   Tell ‘em
   Tell ‘em what you told ‘em.

   The difference between an abstract and introduction.

   Students must ensure they are addressing the assignment from time to time. It is not uncommon that a student invests time doing lots of research, writing thousands of words which do not address the assignment. In the case of the independent study, the assignment (i.e. project) specification is the project proposal, this is where the objectives of the project are specified. Students need to keep the objectives in mind, and not forget about them after the project is approved.

4. General Principles of Good Writing
   Tip 1: Use headings and subheadings:
   Why: They help your reader to find and contextualise content.
   Result: It’s easier to find one’s way around the report and know what is contained in each section.
   Automatic generation of contents pages is then straightforward with Word’s style formatting.

Tip 2: Professional presentation:
Use colours, fonts, full justification.

5. Citations
   Why have citations?
   When authors are cited your readers can also quickly see what the report is about, and where to go to find out more.

   Fully document references!
   Why?
   How?
   IEEE or Harvard?

Notes:
Why? So that readers may choose to follow the original article, or research source.

How? By citing author(s) and date and in a list of references providing the details of author, date, title and conference or publication where the source appeared.

Depending on the departmental or institutional practice the format of the citations and references is not important, it is the principle of documenting research that is the primary purpose of providing references. The ease with which references can be found requires sources to be ordered either in order of occurrence in the report or in alphabetical order of author's name (and date order if there is more than one source from the author(s).

6. Make your writing clear!
   Use simple sentences.
   Each sentence should make a single point.
   The longer the sentence the harder it is to understand because models of short term memory are said to be 7 ± 2 items (Miller 1956).
   Do longer words have greater value than shorter words?
   There is a misconception that in the final year one is expected to use multisyllable words rather than monosyllable or two-syllable words.

Notes:
This means the average reader will store 5–9 items in their memory as a set of related concepts before moving on to the next sentence or phrase. Once there are more than 9 entities in a sentence most readers will be struggling to construct a mental model of what is being conveyed in the sentence. These readers may have to read the sentence again, and again, or simply move on, not fully understanding what is being conveyed in the writing. One would expect most academics to be operating at the higher end of the scale but this is not necessarily the case. Further discussion is beyond the scope of this chapter, nevertheless for greater readability, try to construct shorter sentences rather than long and complicated ones.

7. Target Audience
   Do not write for your supervisor.
   Abbreviations and TLAs (three-letter acronyms) need to be written in full on the first occurrence.

Notes:
Write for the academic community at large in your subject area. Supervisors are often experts in the subject matter of the project, but a wider readership will not be. For example, writing should be aimed at network managers and engineers when talking about network security.

The supervisor will know what they mean but the wider readership will need full details to enable them to follow the research.

8. Research Question
   Framing the research question:
   Why do Jamaican athletes excel at sprinting?

9. Bad Start
   Here is a poor introduction:
   Sprinting is like running but it is when an athlete runs a race. Amateur races often start: "ready-set-go", competitive games begin:
   On your marks, pause;
   Set, pause;
   A gun is fired.
   Then the athletes run as fast as they can through a number of phases of the race. The first person to the winning line is the winner. The winner gets a Gold medal.

Notes:
This is an example of what is often seen in introductions: an introduction that is at such a low level that the reader feels patronised because every 7- or 8-year-old child knows what sprinting is.

10. Mad Start
    That is, an example of an illogical introduction:
    Sprinting is "running at full speed over a short distance" (Mac, online dictionary, 2017). Jamaicans are very good at this. They race all the time and have Usain Bolt in their team. He is very fast….
    The reason this is illogical is that some students think that what they need to do is include 35 references. Whatever the references.
    The reference, in this extreme example, is a reference to a dictionary definition.

Notes:
This is aimed at the level of a child rather than a dissertation reader because this reference is a definition. Definitions and facts that English readers know and understand are not what is expected of academic research. There is no need to cite a dictionary

definition, or something like the fact that the Queen lives in Buckingham Palace, unless:

(a) the word or phrase is unfamiliar to most of the expected readers of the dissertation;

(b) the definition is for one of the less popular or obscure meaning of a word or phrase as a means of illustrating an alternative view of a subject;

(c) stating the Queen's Palace address does not require a citation whoever the intended reader is.

11. Sad Start

    That is, an introduction from someone that is not aware of operating at levels 4, 5 and 6.

    Sprinting is like running putting one foot in front of another as fast as you can. People first learn to sprint when they are two or three years old. They sometimes fall over. The best sprinters never fall over.

    The primary person to traverse the end point is the successor, if controversial completions occur, where a closed set of contestants are visualised to complete in approximately the identical instant in time, such events are feasible for consideration of adjudication with the utility of slow-motion tracking software.

    Once every two or three years, a submission full of sentences like this will be seen by a supervisor.

    When they achieve a low mark, such students are quite upset.

Notes:

It tends to be from a student that has not engaged with their supervisor other than perhaps having their proposal approved. These students think that all that is required is to have multisyllable words as it sounds academic.

…All they are trying to say is if it is difficult to determine the winner, slow-motion replays can be used.

The next few very brief sections of a report are to illustrate how to address research questions in the way in which one writes. Answers 1 and 2 are examples of what is little more than introductions. No matter how much one writes, if the content is lots of similar statements all we have are statements and no answers to the question:

12. Why do Jamaicans excel at sprinting?

    Answer 1.

    Answer

    The Jamaican athletics team won more medals than Team GB at the 2012 Olympics. At the Beijing Olympics in 2008, the Jamaican women won Gold, Silver and Bronze in the 100 m. The Jamaican men won Gold, Silver and Bronze in the 200 m at the London 2012 Olympics.

    Marks

    40—if you're lucky! These are just facts. If all you do is mention facts you will not do very well at all, even if you had 200 references. This is not research; this is the kind of thing we expect at school.

13. Answer 2.
    Jamaicans have a history of sprint successes at the Olympics. Jamaica, 8th in the table of all time athletics wins per country,[1] has more Olympic athletics medals than both France (15th) and China (24th) despite having a population of only 2.7 million (China 1.35 Billion, France 65 million).[2]

    Marks (less than 50)
    Although a bit better because there has been some historical research, we still only have facts and certainly no answers to the question.
    Depending on the accompanying discussion, e.g. China first competed in 1984, we are still stating facts with low level comparison, i.e. just comparing entries in a table—this is rudimentary research.

14. Answer 3
    The reason Jamaicans are generally good sprinters is because of their genes.[3]
    Marks (50–59)
    Now we have an analysis!—provided there is the associated discussion of *Unnatural Selection* due to the nature of the transatlantic slave trade, where millions were thrown overboard because they were either weak, damaged or sick and insurance "covered slaves lost at sea, not those who perished as a result of unhealthy conditions on board".[4]

Notes:
As a result, those that made it to the North and Central Americas were the strongest, fittest and most athletic. These were the most likely to raise the highest price at the slave market. This gene pool has resulted in twentieth century sprinting being dominated largely by descendants of those from the Americas. Their genes result from the inadvertent and unnatural selection of slaves by the slave traders.

15. Discussion:
    Why wouldn't the discussion of the genetics of athletes get a mark of 70+?

    Answer: What we really want in the final year is comparative analysis.
    Nothing is straightforward; you will always find different opinions. We expect you to dig deeper, and research more widely.
    Therefore for top marks, you should do something similar to this:

16. Answer 4

[1] http://en.wikipedia.org/wiki/Athletics_at_the_Summer_Olympics - [Accessed 14th May, 2019].

[2] Medal Table, https://en.wikipedia.org/wiki/Athletics_at_the_Summer_Olympics - [Accessed 14th May, 2019].

[3] Jon Entine (2012) The DNA Olympics -- Jamaicans Win Sprinting 'Genetic Lottery' -- and Why We Should All Care http://www.forbes.com/sites/jonentine/2012/08/12/the-dna-olympics-jamaicans-win-sprinting-genetic-lottery-and-why-we-should-all-care/ - [Accessed 14th May, 2019].

[4] Colley, Linda (1992) Britons, Forging the Nation 1707–1837, Pimlico.

Toussaint[5] challenges this view and states "there is no such thing as a sprint gene". He cites a number of other factors which must be taken into account: height, culture, drugs.
Prof. Morrison[6] cites diet and training programmes as being the main factors….

Discussion and Analysis
The final thread of ideas completes a comprehensive discussion of the assignment question.

If you explore and discuss the main themes, in sufficient detail, you are guaranteed to get a good grade.

17. Quality of the References
    Oh, don't forget the quality of the reference!
    Here we have used Wikipedia and online newspapers and YouTube, which is okay but you have to use peer-reviewed journals, and books as well!!

18. Marks 80+
    Someone who stops at the genetic argument has not done comprehensive research, clearly height, culture and the use of drugs, has had an effect, but that is not the complete story either…

Comprehensive Research
…Two more concepts to discuss making six in total from, e.g.

- environment, e.g. altitude
- fresh air,
- average temperature in relation to the likelihood of muscle tears in colder climates,
- personal confidence and its relation to national pride,
- the relaxed and efficient Jamaican style of running and
- the motivation of financial rewards and national hero status for success, in comparison to just achieving a Gold medal, ….

19. Levels of Assessment
    What words are used to specify tasks at the following levels?
    Level 4—Describe, explain lists of advantages/disadvantages.
    Level 5—Discuss, compare each dis/advantage discussed.
    Level 6—Analyse, contrast, critically evaluate and improve.

Notes:
These words and their synonyms are used to design assessments at each level.

One can always accomplish top grades by always operating at level 6.

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[5]Toussaint, Jean-François (2012) Why Jamaicans Are The Sprint Kings: A Scientific and Historical Explanation, http://worldcrunch.com/tech-science/why-jamaicans-are-the-sprint-kings-a-scientific-and-historical-explanation/c4s9302/#.UJe6BLTpacA- [Accessed 14th May, 2019].

[6]Morrison, http://www.utech.edu.jm/news/articles/genetics.html - [Accessed April 2015] no longer available.

Even in the first year of your course.

Operate at the lower levels as part of the introduction to each topic or section of the report.

Too many TNE students are operating at level 4: describing and explaining. The easiest way to make the transition is to answer questions, particularly why questions. Which, what, where, when, and how, are questions but do not provide insight as do answers to the question why.

20. Developing a 1st Class IS
    Fail features—Is a, definitions, well-presented school projects, 20 million words: Encyclopaedic descriptions, barely English.
    3rd Class features—Descriptions, well-structured little or no analysis; little or no issues raised or addressed.
    2nd Class features: Discussions, pros and cons.
    2:1 Features: Comparisons and Conclusions.
    1st Class features: Critical, Reflective, Analytical, Innovative and Novel.

9.10 Equivalent UK Guidance to Students

There are two types of independent study: A dissertation or a project. The difference between the two is that a dissertation tends to be primarily research with a literature review, data collection, analysis, conclusion and further work to enhance the research. A project will also have a literature review; in place of the data collection, there will be a software (occasionally hardware) design and development component. The results are analysed, with a conclusion indicating further work to enhance the artefact.

9.11 What Is the Process?

Choosing a Project—It is important that students know what they are good at. Some students like to read and write, some like to build and create. Students should select a dissertation or project depending on what their strengths are.

Finding a supervisor—If the project title that you have selected is associated with a member of staff or a member of staff's subject area that is the best person to be your supervisor. Although in reality the best supervisors are those that are experienced supervisors that understand the UK system well and will effectively be project managers and not necessarily subject experts. It is crucial to recognise that many supervisors may not have any supervisory experience (McMichael 1993, p. 15).

Drafting Proposals—(See Appendix 1). Identify no more than four objectives, devise corresponding methodologies to accomplish the objectives, and identify the deliverables for each objective.

Ethical Approval—Complete the ethical approval form in consultation with your supervisor.

9.12 Structuring the Report

What is the Abstract? The abstract is effectively a summary of the report. This can be done by providing two or three sentence summaries of each major chapter.

Literature Review—What is the **current** state of the art? What does the literature say not just as an introduction but also what are the issues? Which of those issues will be addressed in the report and where, i.e. refer forward to where in the report issues are discussed and addressed.

Methodology—Don't reproduce the chapters from research methods books. Provide details of the way in which the project or dissertation is going to achieve its objectives. This may be survey, interview or programme design methods.

Analysis—A reflective account of the process, methods, and results—all of the results not just those that succeeded or were expected. All results are important to other considering building on your research.

Conclusions and Further work—What conclusions did you arrive at? A good way of doing this is to summarise each chapter with the main outcomes and repeat those summaries in the conclusion. Repetition deepens impression!

Reference versus Bibliography—Bibliographies are an unnecessary luxury. Although they may be useful, in the days of Google searches, it is the author's opinion that finding sources in the twenty-first century is not as it was when it was difficult to find sources. A quick Internet search will generate more sources than can be read in a lifetime. Focus solely on the reference list and **ensure that all citations appear in the reference list**.

9.13 Planning

Arrange weekly meetings in the early stages and let the students know that the more they accomplish agreed goals, the less frequently they will need to meet with their supervisor. We want to develop independence. This requires discipline on the part of the students to plan, complete agreed tasks on time. In fact, although planning does not guarantee project success, lack of planning will probably guarantee failure (Dvir et al. 2003). A professional approach to the project is likely to unconsciously affect the supervisor's perception of the quality of the work.

Supervisors should insist on the student providing a monthly graphical plan as early as possible, so that the students are thinking about what is required to complete the major sections of the project from the outset. The lack of planning, after the levels at which the research and writing are completed, is the second most important feature of lower levels of achievement. Early in the project, the students should refine

the monthly plan to a weekly plan. This weekly plan requires detailed thought as to what is required throughout the project. It reveals areas that will be challenging and will therefore require more time, or may need to be completed earlier in the process. The plan may be changed as things succeed or fail as one goes along. It results in reduced expectations if something fails and opportunities for more insight when things succeed early.

9.14 More Detailed Feedback on Progress Meetings

Each meeting with the students should be recorded with a completed Project Progress Form completed by the supervisor, detailing: Student's full name, Project title, email address, date of meeting.

Student's name:	email address:
Project title:	The date of the meeting:

Work accomplished: since the last meeting.

Comments on the work: and discussions of what has been accomplished, issues that have been addressed and need to be addressed.

A list of things that need to be done: by the next meeting. The students should be suggesting what they intend to do, the supervisor should be guiding the students in relation to the plans that the student has provided and the issues raised in the discussions on what has been accomplished since the last meeting.

Comments on progress:—Use words to motivate; where something significant has been achieved celebrate it to make the student feel good about it, and look forward to receiving more praise when you next meet. If necessary, gently raise concerns re progress, including how far behind the student is on their detailed weekly plans. Keep indicating how far behind they are in order to let them realise that they are falling behind.

Unfortunately, some students do not respond to these warnings, they stop attending meetings and try to avoid their supervisor. When they do come it is important to understand why they are failing to engage. This is where personal problems and alternative priorities emerge. Almost all students that fail to engage do so for one of three reasons:

1. Personal, family health, relationship or social issues.
2. Financial issues—Requiring them to spend time earning money. More students are working nights and coming to university tired than ever before.
3. Attendance, usually to do with motivation but increasingly because they are travelling for more than an hour, sometimes as high as two and a half hours, one way, to get to classes and meetings. Skype may be an occasional alternative possibility, but it is essential that the students attend, unless they are enrolled in a distance learning course. For example, looking through a programme together

in order to understand what is going on yields a greater understanding of the interest a staff member has in working with, and for, the student. In the final year of a course, or on a top-up award, students often think that attending two half days allows them to have a full-time job (40 hours per week) not realising that the 8 h per week of face-to-face teaching is expected to be supplemented by approx. 30 h per week, and more if the student is not a native English speaker!

All students can operate independently and analytically if they have genuinely progressed through levels 4 and 5. It is therefore the lack of time applied to their studies that is the main reason for failing to complete or achieve their expected project objectives.

9.15 The Complete Draft

Some students' English is very good; however, some seem to have difficulty writing English! This is usually because they have not had an opportunity to be immersed in English with native English speakers outside of their formal education. As a result, it is absolutely essential that other than the first couple of things they are required to write, the students are encouraged to write independently. However, it is essential that they must be able to submit a final complete draft which is checked by the supervisor at least a week before the deadline. This final check adds a lot of value (if the students respond to the feedback) to the final grade.

Structure and layouts on a whole are quite good but not always. The students must be reminded of the importance of structure and layout.

Many students approach each section as a separate project; they fail to make connections between sections of the report. The literature review is to inform the research methodology and activities. Issues raised in the literature review should be addressed later in the report.

9.16 For *Independent* Studies

Independent study requires students to be developed into thinkers. The best method of achieving this is through Socratic methods. "The oldest, and still the most powerful, teaching tactic for fostering critical thinking is Socratic teaching" (Paul and Elder 1997).

Don't provide answers directly; provide questions that lead to the answers. Some students don't like this interactive method, they only want the answer. Nevertheless, in order to become independent, the Socratic method gets the students thinking. With the appropriate commendations when they get things right, some students are more emboldened to proffer answers and ideas. Too many students try to hide the fact that they are not able to answer a question. It is the students that admit they don't know

that will learn more quickly than those that attempt to hide the fact that they don't know. The Socratic method does require patient interaction with students.

9.17 Failure Features

There are some common features of IS TNE dissertations that result in fail. Supervisors must check for the following as early as possible:

Topic: "Renewable Technologies" is not IT, Computing or Data Analytics. A student had submitted the dissertation and should never have been allowed to commence on such a topic.

Lack of Engagement: Students that do not engage with their supervisors are unlikely to benefit from the experience of the supervisor in imparting UK guidance and expectations. These are easily spotted: little or no completed project progress reports**!**

Incoherent: The English is so poor that it seems like a poor translation of a dissertation into English. It is not possible to take a dissertation in one language and attempt to translate it into English using software, or even someone who speaks both languages well but is not a subject expert. These dissertations are easily spotted because they come from students that have little or no completed project progress reports.

Out of Date: The reference list includes not a single entry from the last decade! It seems like a translation of a dissertation from more than ten years ago. There is no reason for a research project in Computing to have more than 20% of the references more than a decade old. Students should be using current research. Ten years is a very long time in computing terms such out of date research is often superceded or no longer true.

Inadequate Referencing: Less than 50% of citations appear in the reference list.

Bibliography without a list of references. A Bibliography gives students a false sense of security, just because the Bibliography contains 60 sources doesn't mean that they have all been cited in the report. A report without the cited sources is destined to fail, no matter how long the Bibliography.

9.18 Conclusion

The cultural differences of TNE are not unique to international partners. Many international students and staff study and supervise independent studies in the UK. The development to staff, and associated induction for students, enables all students regardless of cultural or geographical contexts to understand the expectations of level 6 assessment. When staff and students know clearly what is required, the result is that students produce better research, present themselves more confidently and have a clear understanding of how they are being assessed, and why it should be

different to previous levels of study. This can be quite stark when the study has been entirely in a different country and/or culture. It is not unusual for staff to be supervising IS and not know explicitly what is expected. This is more of a problem abroad but as researchers are securing HEA qualifications to enable them to teach, the courses will not necessarily include insight into dissertation supervision.

Appendix 1: Project Proposal Template

A brief introduction or background to the project

Objectives (what and why you are going to do these activities)

1. Research topic—about three or four sentences description.
2. Activity 2.
3. Activity 3.
4. Optional—not required three is sufficient.

Methodology (how you are going to do the three or four activities)

1. Primary and secondary research into Android and Apple iOS security.
2. Survey students at the university and colleagues from work ….
3. Analyse the survey.
4. Develop solutions or software to….

Deliverables (what you will submit)

1. Literature review into security of mobile devices.
2. Data analysis of my questionnaires.
3. Comparison report between current virus detection software and a selection of top detection apps.
4. Complete software testing, results discussion and recommendations.

Along with your proposal provide a monthly pictorial project plan.

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Chapter 10
Supporting Students to Be Global Graduates: Opportunities and Challenges in Providing an International Work-Based Learning Experience

Fran Rimmer, Dan Everson and Andrew Crampton

Abstract In this chapter, we explore the meaning of the term "global graduate" and discuss the multifaceted approach taken by the School of Computing and Engineering at the University of Huddersfield, UK, to expose students to a range of experiences and opportunities in order to facilitate their development. Specifically, we focus on both the opportunities available and the challenges faced by examining the different ways that the School works with its students. We highlight some of the key areas in which students are exposed to globalisation, through its award-winning placements unit, and cross-curriculum team challenges led by global organisations. Our discussion draws on current literature and the experience and expertise of academic and professional services staff working with the students. In order to capture the students' voice, we have undertaken a focus group of both national and international students. The approach taken in gathering student opinion on how well the University encourages and supports students to be global graduates is presented together with a summary of its findings.

Keywords Global graduates · Problem-based learning · Employability · Sandwich placements · Employer partnerships · Work-integrated learning

10.1 Introduction: Why Do We Need Global Graduates?

The demand for the technical skills, personal competences, creativity and energy of new graduates is still forming a vital part of the recruitment picture for large and small organisations based in the UK. The Confederation for British Industry (CBI 2018) have stated that they still greatly value Higher Education Institution (HEI) graduates with 87% of their employers either sustaining or increasing levels of graduate recruitment when compared with the previous year. A substantial rise in

F. Rimmer · D. Everson · A. Crampton (✉)
University of Huddersfield, Huddersfield, UK
e-mail: a.crampton@hud.ac.uk

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the number of graduates recruited to UK companies is expected during 2019 (High Fliers 2018).

New graduates entering the workforce bring new ideas, assist with succession management and help companies prepare for future advances. However, the CBI have a clear message for HEIs and students. The technical competences that students gain from their courses are of value but student aptitudes and attitudes are valued more highly than the subject of their degree, or their final classification (CBI 2018). Personality traits such as positive attitude, communication skills and problem-solving (QS Intelligence Unit 2018) are warmly welcomed and highly prized. Although the term is a complex one, these and manifold other character traits are commonly termed "employability skills". For simplicity, when we refer to employability, we will use the definition proposed by Yorke (2006):

> a set of achievements — skills, understandings and personal attributes — that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy.

It is our experience that employers are confident that they can train students with the requisite employability skills in the required technical competences, but would be hesitant to recruit someone who was technically capable but lacked employability skills. The feedback from employer organisations in the UK to home HEIs has been consistent for some years—prepare more employable graduates (CBI 2018).

More broadly than the UK picture, we are living in a time where large organisations are embracing the influences of internationalisation and globalisation (Jones 2013). Companies who have the required financial and structural heft to do so, are taking advantage of worldwide opportunities to build their business, market their products and increase income and profit.

These companies recruit staff from across the world and expect their employees to successfully cooperate with colleagues from different cultures and who speak different languages (Crossman and Clarke 2010; Bridgstock 2009). Additionally, companies are utilising technology to provide innovative ways for co-workers and teams from across the world to engage with one another and successfully collaborate on projects in real time.

Globalisation is not a new phenomenon, and companies' interest in being able to recruit international staff is not new either. In 2007, Laszlo Bock, the Vice President of People Operations for Google, testified before congress that the ability to recruit the most skilled employees from around the world was essential to Google's continued success. He said:

> Within Google, there are countless examples of immigrants and nonimmigrant foreign workers playing a vital role in our company, it is no stretch to say that without these employees, we might not be able to develop future revolutionary products like the next Gmail or the next Google Earth. (C|NET 2007)

He then went on to call on the US government to increase the number of visas available for foreign skilled workers to apply to work in the United States. In the same hearings on American Competitiveness, Bill Gates of Microsoft said that, in

his opinion, the continuing success and prosperity of the USA relied on three tenets: improved Schooling for American students, greater investment in science and technology and, finally, no ceiling on the amount of skilled scientists and engineers to be allowed to bring their skills to the USA and, of course, to Microsoft (C-SPAN 2007).

The messages from employers are clear; they want the freedom and opportunity to recruit the best talent globally. They also need more of that talent to be globally aware and prepared. The British Council report that businesses who trade globally find it significantly more difficult to recruit staff with the requisite skills than businesses whose trade is in home markets (British Council 2011). There is now a growing recognition in UK HEIs that students need to be better prepared for the world of work as it specifically pertains to international employment markets (Hermans 2007). The University of Huddersfield also acknowledges that there is an immediate need to consider how it prepares students who can compete, not just locally, but in the global marketplace (Green 2012).

The University of Huddersfield clearly sets out a strategy for engaging in globalisation. The International strand of the Strategy Map focuses on its desire to be a world-class academic institution providing a world-class student experience. The University is currently rated Gold in the Teaching Excellence Framework and aspires to be in the top 300 Times and QS World Rankings and to be top 25% in the UK International Student Barometer for "integration" measures and top 10% overall. Added to this is a desire to improve on differential achievement with the aim of having no statistical difference in achievement for retention, highly skilled employment and degree classifications once benchmarked.

10.2 What Is a Global Graduate?

We have considered the call from employers to HEIs to prepare more employable students. The literature and research defining what constitutes employability is wide, varied and prone to regional variations as well as variation of definition from one researcher to another, one HEI to another and one employer to another. Add to this that different organisations will idealise different mixes of skills from the available smorgasbord of personal strengths and we end up with a very complex picture.

However, as we come to study and understand the work on employability skills, it quickly becomes apparent that there is a core set of skills that are universally required by employers (Saunders and Zuzel 2010). These are skills that, global or otherwise, graduate employers value and take into consideration at the point of recruitment. We shall examine what these are in a little more detail and we will take a closer look at what skills are demanded by companies with a global outlook, and who are looking to recruit graduates with the strengths, capabilities and desire to take their own skills and aptitudes internationally.

10.2.1 Broad Employability Skills

Across the available literature, it is clear that there are a group of employability skills that are valued in common across many employers. The volume of gathered research in this area is significant (Jones 2013). Such is the depth of knowledge across diverse industries, and appropriate to diverse courses and HEIs, that it would be imprudent to attempt to cover it here except to present a summarised list as follows, in no specific order:

- Teamwork,
- Communication skills,
- Problem-solving,
- Working under pressure,
- Attention to detail,
- Working independently,
- Leadership,
- Time management,
- Adaptability and
- Planning and organisational skills.

It is common for graduate employers to test and filter for several of these skills at the point of recruitment. It is expected that applicants could evidence possession of these skills by giving detailed examples of how they have in actuality delivered them via jobs, University projects, placements or internships, voluntary work or by some other means.

10.2.2 Global Employability Skills

It is no surprise to note that across the narrower field of research and literature which investigates the character traits and personal make-up of a global graduate, that many of the qualities mentioned above are also valued by international employers. However, there are the additions of some new competences that are worthy of consideration. We shall discuss three of them here. It is also notable that gathering these competences while gaining international work experience is respected and valued by global graduate employers (Hermans 2007; Crossman and Clarke 2010).

10.2.3 Intercultural Competence

Employers who recruit staff to work internationally with their own colleagues and with clients and customers are expected to demonstrate:

> attitudes, skills and knowledge for effective and appropriate communication across cultures (Ridings et al. 2009 cited in Jones 2013).

Ridings and colleagues term this "intercultural competence". The term "cultural intelligence" is also in use (Crossman and Clarke 2010). Both terms refer to much more than merely being able to speak or learn a foreign language, or the adaptability to adjust to different countries. They describe the capacity to work with colleagues from different cultures, being mindful of their approaches and adapting their own accordingly. They are about being able to learn, adjust and be respectful of difference and to be able to conduct business successfully in that environment. Although not the same as intercultural competence or cultural intelligence, the British Council, who serve the UK's business interests abroad, add to the research with a cry from companies for employees with the ability to work with customers, clients and businesses from a range of countries and cultures (British Council 2011).

10.2.4 Integrity

The findings of a survey undertaken by Archer and Davison (2008) for the Council for Industrial and Higher Education (now NCUB) found that international companies valued many of the most commonly expected employability skills previously mentioned, but with the addition of integrity.

It is becoming common practice for companies to form mission statements, codes of ethics or to otherwise declare their values as an organisation. These statements are a fundamental influence on the way that companies operate because they influence planning, public standing and organisational culture (KPMG 2014), they establish ethical and management frameworks for staff (Frankel 1989) and provide a way for companies to be held in positive regard by stakeholders. It is possible that companies are seeking a personality match between their declared values and ethics statements, and the integrity of the graduate.

In their survey of 233 employers, Archer and Davidson (2008) found that integrity was more highly valued than planning and organisational skills or decision-making. Although not gathered with an international perspective, in research presented by the Institute of Directors (IoD), honesty and integrity were rated as the most important attributes in graduates (IoD 2007).

10.2.5 Resilience

> Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress — such as family and relationship problems, serious health problems or workplace and financial stressors. It means "bouncing back" from difficult experiences – American Psychological Association 2019.

Resilience is a key competence required of global graduates (AGR/CIHE 2011) but research demonstrates that there is a mismatch between the levels of resilience required by global companies and new graduates with the evidence or history that they possess it (QS Intelligence Unit 2018). Graduates often face trials and difficulties both when they start new roles, and as they progress through their companies. This is also true when working outside their own countries and cultures. It can be stressful when coming to understand new ways of working that graduates are unfamiliar with, as well as dealing with the uncertainties and setbacks that sometimes come while working internationally. In the recruitment phase where students have been able to provide examples of resilience, these have most commonly come via placement experience, volunteering projects, charity work and entrepreneurial pursuits (AGR/CIHE 2011).

10.3 How Do Universities Prepare Global Graduates?

The University expects that all students should have an opportunity for meaningful industry engagement during the course of their studies. Developing graduates to be equipped with the capabilities, competencies and traits discussed above is achieved in a number of ways within the School; for example, through professional body membership, managed work placements, working with industry in the classroom, final year projects, competitions and other external engagement. Below, we focus in more detail on what we believe are two of the most important ways in which students are supported and encouraged to develop these skills—1. *work-based learning*, delivered through its managed work placements programme and 2. *problem-based learning* delivered through the Design and Enterprise Challenge.

1. *Work-based learning—managed work placements*

A significant contribution to the wider part of the global student experience within the School is the managed work placement. Every undergraduate student who has successfully completed their first two years of study is eligible to undertake a supervised work placement in industry and is strongly encouraged and supported to do so. We place a great emphasis on placements as we know that a successful placement equips students with the global skills needed to be more successful in their final year, produce better final year projects and improve their prospects for UK and international employment. Successful completion of the placement results in the student being awarded a sandwich degree. For students in the Department of Computer Science, the sandwich year is an assessed year and so contributes one-quarter of the marks towards the calculation of their degree classification. Award-winning colleagues within the unit guide the students through the whole process; they were awarded Best UK Placement Service from "RateMyPlacement.co.uk" in 2011, showing what the judges described as "*an outstanding example of localised best practice. The range of flexibility and support for their students is exceptional, and this was shown in the extensive student recommendations that supported the nomination*", and

were finalists in 2012, 2013, 2014 and 2015. Further endorsements were provided from our international placement providers:

> … I have been collaborating with you now for around 20 years and, although for many years I was unable to evaluate the services in comparison with other Universities, now, in recent times, I have had this opportunity and can safely state that the services your Placement Unit gives, not only to company partners, but distinctively also to the students, is of a very high standard. I have followed your students also as placement supervisor for many years and the attention they are given during their period "away from home" is excellent. The organization of my yearly interviewing visit is impeccable and makes the journey a real pleasure. Eric P. Gallo, Computing Service: European University Institute, Florence, Italy.

10.3.1 Structure of Placement Support

An experienced team of five staff run the "Subject Specific" Placement Unit located within a dedicated space in the School of Computing and Engineering. The team comprises a Placement Unit Manager, a Placement Advisor, a Placement Officer and two Placement Secretaries who job share. The Placement Unit has been running for over 20 years. Its core focus is working primarily within the areas of Engineering and Computing, offering a specialised, industry-specific, experienced level of support to both students and industry. The team is responsible for supporting all placement-related activity for both the Department of Computer Science and the Department of Engineering and Technology. This covers courses under three main subject areas, Informatics (including Computing, Software Engineering, Computing Science, ICT and Games), Mechanical and Electrical Engineering, and Music Technology. The Placement Unit offers support to academic colleagues, pre-placement students and on-placement students, as well as to recruiting organisations. The Unit is open all year for such support, not just during term-time hours. The support offered to all involved in the placement process is extensive, some of which we describe below.

Student support—pre-placement: The Placement Team deliver a series of lectures to students which are embedded into their second year timetable to encourage engagement. Three 1-hour lectures are delivered each week to over five hundred students. Lectures include: "How to Create a CV", "How to Write a Covering Letter", "Application Form Completion", "Interview and Assessment Centre Preparation", "Sourcing Opportunities/Approaching Industry" and "Running Your Own Business". A key factor in encouraging student engagement in the placement process is that students are required to *opt out* of doing a placement, rather than *opt in*. By including the lectures in the student timetable, we aim to inspire those students who previously may not have seriously considered undertaking industry experience in their third year of study. As part of the lecture programme, we organise a series of employer talks presented by industry professionals coming to speak about their placement schemes.

To further motivate students we coordinate a Q&A panel session with year four students (from the same subject area), who have just returned from completing a placement year, to share their experiences. By actively generating open lines of

communication between current students and placement students (of which some have had experience working overseas), we both inspire students to consider this option and also build on the commitment and interest of perspective applicants, not least of all by addressing concerns that may have posed as a barrier to them applying—particularly where travel overseas is concerned. Based on feedback from students, this peer-led session is one that has a significant impact on year two students who remain doubtful about undertaking a placement year and encourages their engagement in the process.

In addition to the timetabled lectures, we provide two and a half hour drop-in sessions, for 4 days per week, in our Placement Resource Area based within the School. Here we work on a one-to-one personalised support basis, helping students with their placement search and building confidence for applications. Alongside this, we offer individual, pre-bookable appointments on each weekday providing more in-depth support; an option to contact the team for an online appointment via Skype is also available. We work with the year two students continually throughout their entire placement search through to the end of August.

We source and advertise placement opportunities each year, on a weekly basis and begin advertising on our bespoke online placements system from September to the following August. In 2017–2018, we advertised approximately 900 placement opportunities. In addition to advertising the standard Blue Chip companies with online applications, we have companies of all sizes that return to us every year, some of which exclusively advertise their role with our University alone. In many cases, we work as a link between employer and student to make the recruitment process as straightforward as possible for both stakeholders. The Placement Unit schedules student interviews with the placement provider, making all company details and information available through the online placement portal. All students are offered a role-specific mock interview delivered in professional interview facilities to support their preparation.

Support to companies: We actively develop and maintain long-standing relationships with placement providers (some for over 20 years). This has helped in securing repeat business annually by taking the time to understand the specific business' needs and requirements, ensuring open communication systems at every stage of the process. To support this, feedback is gathered throughout the year via a range of sources; direct communication between the company and the Placement Unit, through academic staff visits to the student on-site at the company, and also from direct student feedback gathered at a *Debrief Lecture* held with students who have returned from placement. All of this feedback results in the development of a positive relationship with companies; as we better understand their needs, their specific placement roles and company culture, enabling a more successful *fit* with our students.

The placement team offers significant individual support to companies with their recruitment process. We advise on optimum dates to advertise and we support them in raising their profile with our student body to attract more applicants to their roles. The team helps with producing detailed job descriptions, and in particular, where overseas recruiters are involved, we support the company on how the job description *sells itself to a UK applicant* when translated into English—ensuring it has the

correct *reach* for the target student body. We save time and resources for companies by providing a streamlined process from CV submission to arranging interviews.

Student support—in-placement: Each year the School helps approximately two hundred students into 12-month industry placements, both nationally and internationally. Students who secure a placement opportunity usually take up their position with the placement provider during July and August. At the start of the student's placement, they are assigned a Visiting Tutor (VT), drawn from the academic staff. The VT has the responsibility of visiting the student in their place of work on two occasions during the year. The role of the VT is to ensure that the workload of the placed student is meaningful and contributing to the development of new skills and abilities. This helps to ensure a productive, positive and successful experience for both parties. The VT will generally meet with the student and the student's supervisor to discuss progress. Any issues or problems can then be sorted out quickly.

The Visiting Tutor marks all academic placement assignments submitted throughout the year and is responsible for providing summative feedback on a range of personal, professional and technical competencies, detailed in the learning outcomes of the assessment specification. The quality of this overall support means the VT develops further understanding of both the company's current needs, along with an understanding of their plans and challenges for the future, creating opportunities for further placements.

The Placement Unit offers a high level of pastoral care during the placement year and provides continual support to all students on placement, managing problems that arise. These can vary from a student struggling financially, to a student underperforming, or students dealing with personal problems. Each query is dealt with on a case by case basis by a Placement Advisor, in conjunction with the academic Visiting Tutor, with support given to both the student and the company.

The Placement Unit manages the entire process of the placement year, which includes coordinating the visit process, managing placement submissions, grading, appraisals and coordinating the Placement Assessment Board. Incredibly, the Placement Unit can boast that each year approximately 30% of students on placement are offered graduate positions by the placement provider.

The choice of placement opportunities is extremely diverse, with students taking up positions in recent years at a number of Blue Chip companies, globally renowned computing companies and at prestigious locations such as Appcelerator in California, Quality Task Force in Zurich, Buckingham Palace, The European University Institute in Florence, Science and Technology Facilities Council, Microsoft, Telefonica, ARM Cambridge and also more locally and more community based such as Kirklees Council. All feedback, from both employers and from students, shows that, without a doubt, the student experience is enriched through their placement experience. Students clearly recognise that they are developing the transferable skills required by potential future employers. This is evidenced year on year through the verbatim feedback received through the National Student Survey (NSS).

2. *Problem-based learning—Computing and Engineering Design and Enterprise Challenge*

Problem-based learning provides students with an opportunity to contextualise and apply their theoretical understanding to a practical "real-world" application. Student engagement is known to increase when learning is developed through practical activities (Heaviside et al. 2017) and linking this to assessment ensures that assessment both supports learning and encourages student engagement.

In our School, we are constantly receiving feedback from our placement providers and from the School's Industry Advisory Panel of the need to develop students with transferrable skills that equip them with the ability to work and collaborate in multinational, multidisciplinary teams, think and act proactively, self-manage and organise, and be able to communicate and relate complex information in various ways and using a range of media. In response to this, in 2016, the School, working with industrial partners created the Design and Enterprise Challenge (Fleming 2018). The aim of the event was to enable undergraduate year two students, from across the subject areas of Mechanical Engineering, Electrical Engineering, Computer Science and Software Engineering, to work collaboratively in mixed disciplinary groups, to solve real problems set by industry. The Challenge was linked to their second year team project module and so contributed towards their summative assessment. The original aims were to:

- Give students the opportunity to work in multidisciplinary teams.
- Help students to develop transferable employability skills.
- Provide a practical problem-solving element to the student output.
- Take an innovate approach to assessment and feedback.
- Involve industrial collaborators in designing and delivering the activity.
- Bring together students and staff from across the disciplines to work together.
- Provide an exciting event for students to showcase their work.

A key factor in this innovative approach to teaching and learning, is that students are not able to select their own working partners. By enforcing random groups, students are required to develop relationships with peers that they did not know and indeed very likely not even on their course of study. The short timeframe in which groups move through the activity, from initial problem definition to proposed solution and prototype, means students must quickly determine each other's strengths and qualities, both personally and technically. This then allows them to assign roles and responsibilities appropriately in order to meet the "client" requirements.

At the start of the spring term, the University designates the first week after the winter break as a "Consolidation Week". This is an opportunity to engage with students in innovative ways to expand their teaching and learning experience. As there are no lectures during Consolidation Week, this was chosen for the Design and Enterprise Challenge.

The event begins on the Monday morning with an introduction to the tasks and the benefits of involvement in a multinational, multidisciplinary project working on a real-life problem. Industrial collaborators deliver an overview of their company and

set a challenge for the students to work on. The academic team leading the Challenge work with the industrial collaborators to ensure that the problems presented to the students are meaningful, engaging all disciplines in the group and which provide tangible benefits to the company. The academic team also work with the industry collaborators to ensure correct scope and depth for the assessment level of the students and to ensure that learning outcomes are met. In the latest Challenge (2018/19), a truly international flavour was evident with global industry collaborators including Pasquill Saint-Gobain, BAE Systems and MiTek UK & Ireland as well as a local UK-based company Elder Studios.

Students are assigned to multidisciplinary groups of approximately six members, with at least one student from each discipline. Approximately, 90% of all undergraduates on the Electrical Engineering course are international students. Therefore, ensuring that each team has an international makeup is not difficult. Each group selects one of the challenges, set by the industrial partners, having just 1 week to design and develop a solution. Each day there is an opportunity for students to access an hour-long drop-in session. This is a great opportunity to have conversations with students about their ideas, to give guidance where needed and to ensure that all team members are contributing to the development of the solution. Teams are required to submit a poster "pitching" their idea, which is then printed and displayed at a showcase event on the Friday. In addition to the poster, the other key requirement is to manufacture a prototype of the designed artefact. To facilitate this, the students have access to build kits such as Raspberry Pi's, Arduinos, sensors, 3D printing and general manufacturing tools.

At the showcase event, each member of the team is required to participate in presenting their designs back to their peers, academics and the industry representatives. To help improve communications skills, immediate feedback and marks are given to the teams. This means that team members can learn from their feedback and use this knowledge to improve their next pitch. All teams are required to undertake a minimum of three pitches in order to obtain their final mark.

The students engage well with the whole process and the projects are innovative, well researched and well presented. Feedback from the industry collaborators is excellent, with many offering placement opportunities as a result of their involvement. Key successes, in terms of impact on the student experience were:

- Overall improvements in student satisfaction.
- The conversations which developed between the collaborative team and also with the student body.
- All key stakeholders noted the benefits to the students with development of employability skills, and the ability to evidence them.
- Feedback which showed that students felt that they had developed key attributes that could be easily transferred into the international marketplace.
- The engagement from students and colleagues which fostered a positive atmosphere that lasted beyond the duration of the project.
- Dissemination across the University resulting in increased collaborative working and multidisciplinary working within the curriculum.

– A new collaborative approach in development and delivery of teaching and learning activities.
– Industry engagement in the curriculum providing realistic insight into the challenge of live projects.

10.4 Focus Group

Against a background of employers that require global graduates, and the expectation that Universities will educate and prepare them, a small research project was undertaken with University of Huddersfield students to ascertain how well they perceive that they are being prepared for the international employment market.

10.4.1 Methodology

Significant consideration was given to the methodology of the research. Factors considered included time constraints and the availability of appropriate subjects, considering the correct method to gather the most useful and honest feedback and finally the method that was the right fit for the research being undertaken.

We gave some consideration to using semi-structured interviews utilising a combination of open and closed questions to gather views and feedback on how effectively the University equipped the students to be global graduates. This method would have been appropriate because the responses that were required were to be spoken opinion and experience. Despite favouring this method, we decided there was a slight risk of bias because the questions were to be asked by a representative of the University asking questions about how effective the University is in delivering its responsibilities. The risk of bias is twofold: firstly, that the students may not feel that they can be perfectly open for fear of causing offence and, secondly, that the researcher may subconsciously influence the respondents through verbal and visual cues—causing a skew in the results.

To attempt to counter the risk of bias and in the hope that it would inspire more detailed and more useful responses, it was decided to run a focus group. By using a focus group, it was felt that participants could talk, be open to other opinions and be inspired to think more deeply and speak about their experiences at a different level. It was also felt that there would be a level of protection for the participant who may be a dissenting voice and that the dissenter could act as a catalyst for other quieter students to share concerns that they may not share if they were in a one-to-one semi-structured interview, or if they were completing a questionnaire online with the rigidity that format provides.

210 final year students from the School of Computing and Engineering were contacted with a request to join a focus group. We heard back from 12 students

(response rate of <6%), seven of whom said they would attend. This was a disappointing response.

We hoped to gain a mix of gender, ethnicity and course groups and this was achieved. We also hoped that some students who did not undertake a placement year would attend but, unfortunately, we did not achieve that. The mix of participants included those who had undertaken placement years overseas and those had undertaken a placement year in the UK.

We gave the students an introductory piece of text designed to help them understand the context and content of the discussion which explained the findings of research on employability skills, global employability skills and the meaning of each skill. They kept this with them for reference throughout the discussion. We prepared several open questions as conversation starters and proceeded with the conversation, which was recorded for accuracy.

10.4.2 Research Findings

We listened back to the recordings several times, made notes and also studied the minutes that were taken by a colleague. We have used quotes occasionally, not as a one-off expression by the contributor to support arguments, but as a useful way to summarise the findings of the discussion and the feelings of the group.

During the course of the open discussion, four main themes emerged regarding the University's approach to preparing global graduates—we will look at each in more depth.

10.4.2.1 Limited Focus from the University on Being a Global Graduate

The view of the students was that there was a limited focus from the University on encouraging graduates to try life and work overseas. They reported that there is the occasional activity that might help, such as the language classes mentioned in the focus group, and occasional mentions from international academics about their work overseas, but the overriding feeling is that there are no consistent messages, encouragement or push to look at life overseas following University. The group felt that the major international emphasis was on international recruitment rather than on getting graduates into international employment.

10.4.2.2 Peer Advice on Working Overseas

When they were asked what would help them to focus on becoming global graduates two interesting elements were noted. The first of these was that it would be useful to hear from students that had gained international experience. They thought that it would be a positive and useful experience to hear from someone "just like them"

who are giving it a try and maybe finding that it isn't as challenging as it might first appear. It was also interesting to observe the interaction between the two students in the group who had worked overseas on placement and the others that hadn't. It felt like they were giving the other participants real food for thought as they reflected so positively on their experience overseas.

10.4.2.3 Working in Multicultural Teams

The third point of interest was the group work element to the student's courses; the students had mixed views on the benefits of assessed group work in randomly assigned groups. Such are the numbers of international students in the School that, when random groups are assigned, international groups are always formed. One student said:

> Group work is the only time you work with people from a different culture but you try and avoid it and go with your friends because you know they are going to work hard.

We could take this to mean that in self-selected groups students know one another and are friends—therefore potentially more respectful and supportive of each other's goals. The perception is that this is less likely in randomly assigned groups. Others in the group concurred. The consensus was that their grades were safer if they worked with their friends, rather than with randomly assigned (and therefore international) groups, and that grades were the priority. When challenged, they expressed a feeling that group work wasn't a strong simulation of working life, but that it provided a good opportunity to build skills with one student noting:

> All groups should be assigned randomly. You have to communicate better, allocate work better, ensuring people are on top of things… It pushes you to talk to people, to network and build relationships quickly. You can use the experience at interviews.

10.4.2.4 Sandwich Placements

The final major theme of the discussion was on how useful sandwich placements were in developing the employability skills that home and international companies value. This was an uncomfortable part of the discussion because, as researchers, we were mindful that all participants were returned placement students, the focus group was being conducted by their placement advisor and that the research was being held in the Placement Unit. We had a strong concern that the research was skewed towards placement year so tried to balance that by attempting to move the discussion away from it if we could. However, the group themselves kept coming back to this so, for balance, we had to relent.

The questions had moved away from whether they were encouraged to think globally, towards the core employability skills mentioned previously. They were asked whether the University does a good job of helping them to build traits such

as teamwork, communication skills, problem-solving, leadership, etc., as well as some of the skills required specifically in a global context such as resilience and intercultural competence. The group reported that the placement year was the single most important thing that the University offers to help them build those skills. It was suggested that placements didn't help them to think globally but for skills building, including the globally required skills, it was essential.

> You feel like you would be a year ahead of other graduates in interviews. It bumps you up a level, immediately. Plus, you come into your final year a lot more confident and you're going to get a better grade.

Two of the students stated that their technical skills as Mechanical Engineers were barely tested during the placement year, but their employability skills flourished as they worked around others who already possessed those skills and attempted to model their behaviour.

10.4.3 How Do the Research Findings Relate to the Literature?

It is important to consider the findings of the primary research undertaken here and measure them against what can be found in the literature. The students report that their sandwich placement was the most valuable opportunity they had in their education to build soft skills for the world of work. This is also reflected in the literature where Harvey et al. (1997) reported that managers of graduates indicated that work placements were a vital way to develop work-related skills. The value of work placements was also highlighted by Crebert et al. (2004), also, Cooper and Hills (2003) report that support for placements as a means of soft skills building is relatively universal in the literature. It is also notable that gathering work-related competences while gaining international work experience is respected and valued by global graduate employers (Hermans 2007; Crossman and Clarke 2010).

10.4.4 Implications of the Research Findings and Feeding Back to the University

As we consider the feedback from the students, there are some research implications to consider.

The focus group feedback has highlighted that there are no strong messages from the University to the students to take their talent overseas. The University will need to carefully consider how it changes the feel and culture of the institution to become a place that is more internationally focused. These messages will need to come from all corners of the student experience; from the lecturers, the marketing and social

media, the employability-focused teams, the web presence and the events arranged for students. It will require a structural and cultural change.

The students had mixed views on group work in randomly selected groups. They understood the potential benefits, in terms of skills building, but perceive that there was a risk to their grades if the groups were not self-selected. The University will need to carefully consider the pros and cons of graded group work in non-self-selecting groups in terms of student satisfaction. Academics may need to work harder to help the students recognise and value the skills gains that can be made via such teaching and assessment methods.

10.4.5 How Well Do Huddersfield University Prepare Students to Be Global Graduates?

- The perception of the focus group was that there was little emphasis from the University on encouraging graduates to try life and work overseas.
- The group reported that the placement year was the single most important thing that the University offers to help them build global employability skills. It was suggested that placements did not help them to think globally, whereas for skills building, including the globally required skills, it was essential.

10.4.6 Recommendations

- The sample used to gather the research was small and hastily gathered. More effective and thorough research should be undertaken before actions are undertaken.
- The focus group thought that it would be a positive and useful experience to hear from alumni who were working globally. Listening to talks or workshops from someone "just like them" who is succeeding in the global job market would be welcomed.

The University should continue to promote and encourage the placement year. In the students' opinion, this was the most effective tool the University has in helping them develop the employability skills required by home and global companies.

10.5 Conclusions

In this chapter, we have explored the term global graduate in detail. We have developed an understanding of resilience, intercultural awareness, integrity and globalisation, within the context of developing graduates equipped with the skills needed

to succeed in the global marketplace. We have explained in detail how students are exposed to environments where collaborative working, in multidisciplined, multicultural teams provide opportunities to develop highly sort after transferrable skills, whilst at the same time, helping to develop intrinsic motivations, a contextual appreciation of how their learning can be applied to the real-world, and raise aspirations. We have discussed the work of the Placement Unit in ensuring that students have an opportunity to undertake high-quality, national and internationally sourced, managed work experience. We have explained how students are fully supported throughout the process, from when they join the second year to rejoining their final year following their employment year.

It is clear, from the literature search carried out for this chapter, and from the experience of the staff involved, that delivering problem-based and work-based learning experiences to the students, brings significant benefits in preparing them and equipping them with the necessary skills to succeed globally. However, it is also clear from the focus group that we are not getting this message across to students in a clear enough way. Though the focus group was small, there was a clear message that we, as educators, need to do more in ensuring that students are able to appreciate and value the experiences that they are exposed to through their University journey.

Finally, we have deliberately limited our focus to the types of opportunity already discussed. There is clearly scope to investigate the merits of teaching and learning undertaken by international academics and of the benefits of collaborative, international research informing teaching and learning. There are also exogenous events, student engagement issues and the availability of suitable opportunities that ought to be taken into consideration alongside the discussions above.

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Part III
Curriculum

Chapter 11
Internationalising the Postgraduate Curriculum: A Ten Year Case Study

Dharmendra Shadija and Richard Hill

Abstract We describe the experience of creating and developing a postgraduate computing provision, in response to a set of different learning needs from large cohorts of students recruited from the Indian Sub-continent. Amongst a number of changes to the curriculum and delivery, two particular aspects of the teaching stand-out in terms of their contribution to enhancement. First, a shift in emphasis to teach software design over implementation. Second, a delivery ethos was modified to encourage professional development through the facilitation of student-led curricula, leading to a considerable improvement in student participation. Over the course of a ten-year period, student attainment and engagement increased significantly.

Keywords Postgraduate computing · Large cohorts · Student-led curricula · Engagement

11.1 Introduction

The development of the internet and associated technologies has created a demand for highly-skilled computing professionals to be able to design and implement software applications that are resilient, responsive, interactive and can reliably exploit the scalability requirements of distributed computing infrastructure. Software Engineering is a mature domain, and the methods and approached that have evolved through its study have addressed many of the challenges of creating large-scale software applications, especially amongst teams of software developers, with all of the associated challenges that group working can present.

Nonetheless, there are three forces evident that share a similar outcome. First, the computing industry wants to recruit software developers that require minimal training

D. Shadija
Sheffield Hallam University, Sheffield, UK
e-mail: d.shadija@shu.ac.uk

R. Hill (✉)
University of Huddersfield, Huddersfield, UK
e-mail: r.hill@hud.ac.uk

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in the practice of software engineering. Second, aspiring software developers want to minimise the time spent studying in order to gain employed experience.

Finally, the pervasive adoption of distributed computing and all of the opportunities that it offers, means that technology companies want to employ computing professionals who can understand the design and application of web-oriented software engineering. These professionals will use the knowledge to advocate, consult and sell technology, with no obvious emphasis upon the acquisition of programming skills.

All of these scenarios mean that there is a significant demand for optimised educational paths that offer the fastest possible route to employment in a field of computing.

Alongside this, there was an emerging market for UK Universities, for international students, who already held undergraduate degrees, to seek out postgraduate programmes in order that they could develop deeper knowledge. In 2008, the inclusion of a two-year post-study work visa meant that the UK was an attractive proposition for international students as they could study an award at level 7 and then acquire work experience over a concentrated period of time, before either returning to their home country, or securing further employment in the UK or elsewhere.

This chapter focuses on the development of a specific module that was designed as part of a postgraduate computing programme. The influx of large, recurrent cohorts of international students from the Indian Sub-continent presented new challenges for the module, that are explained and discussed as a result of ten years of delivery.

11.2 Web Application Curriculum

Web Application Design and Modelling (WADM) was originally developed for a technical postgraduate degree with the title "MSc Multimedia Technologies for E-Commerce". The module was conceived in 2003 and was one of a collection of modules that were primarily focused on the teaching of advanced technical skills for either organisations who desired "back-room" staff, or for entrepreneurial individuals who expressed a need to learn specific expertise in order to support their business aspirations. The aim of the module was to deepen the knowledge and insight into the whole life cycle of an internet development project using Object Oriented techniques.

The module had been delivered for a number of years to small cohorts of students with diverse demographics, and through the annual process of module evaluation and review, had undergone a series of enhancements that resulted in students' performance on the module being consistent with their attainment on other modules.

One particular area of the module that appeared to be more challenging was the students' acquisition of design knowledge. They consistently struggled with managing the uncertainty of requirements specifications, and there was a tendency to 'hack' together a solution, that whilst might have been functional, was not sufficiently robust enough to be scalable. Students always required more support to be able to build their design skills and although they met the learning outcomes, it was rare to see any excellent examples of design within the submissions.

A portfolio review that included an evaluation of emerging international markets, resulted in the introduction of a suite of postgraduate 'professional' courses. These courses were designed to offer an increased appeal to overseas applicants, and used a modular structure to combine efficiencies in delivery, with specialist pathways—IT Professional; Database Professional; Computer Networking Professional—so that students could align with a route that matched their interests.

WADM was selected as a core module that all of the learners would experience as part of their respective MSc programme.

In anticipation of the new international cohort, which differed both in demographic and volume, the teaching team concentrated upon planning for the changes in delivery such as the use of a large lecture theatre, managing many tutorial groups, and providing transitional support for the added challenge of learners studying within an educational culture that was new to them.

11.3 Module Design

The academic aim of the module is to develop knowledge and provide insight into the whole life cycle of a computer system development project using Object Oriented (OO) techniques.

By the end of the module, learners are expected to achieve the following learning outcomes:

- Formulate a 'whole system' view;
- Appraise and model user requirements;
- Explain Object Oriented principles (such as encapsulation, inheritance and polymorphism) and apply software reuse techniques (including the use of libraries);
- Identify and explain the main aspects of suitable design notations such as UML and use them to model systems;
- Implement a software system using the Object Oriented features of a suitable programming language such as Java;

Initially, the intention was to simulate an experience of delivering a software project in industry. Students were expected to design their applications using OO concepts, and then implement a working prototype. The module started with the delivery of OO concepts via lectures and tutorials, based on pre-written requirements. During the very first tutorial session, learners were required to identify use cases and producing sequence diagrams based on their use case models.

The second session (week three) was focused on the production of class diagrams, and was supported by lecture materials describing OO concepts and the discovery of classes from requirements documentation.

After the initial sessions on design, the focus then shifted towards web development, starting with HTML pages and then progressing to using Java to automate the creation of HTML.

Table 11.1 Initial schedule for web application design and modelling module

Week	Lecture	Tutorial	Assessment
1	Module Introduction	Introduction to case study	
2	Use case diagram and Sequence diagrams	Designing Use case and Sequence diagrams	
3	OO Concepts	Designing Class diagrams	
4	Introduction to HTML	Designing Web pages using HTML	
5	Introduction to Java programming	Writing "Hello World" program in Java	
6	Input and Output in Java	Write a program which accepts input from console and displays out put on console	
7	Introduction to collections framework	Writing Java programs using collection framework classes	
8	Developing JSP pages	Developing JSP pages	
9	Building 2-tier apps with Javabeans and JSPs	Building 2-tier apps with Javabeans and JSPs	
10	Connecting JSP pages to database using JDBC	Connecting JSP pages to database using JDBC	
11			Final team assignment submission and online test

Java teaching commenced with the writing of console-based applications ("Hello World" programs), then input and output on console using core Java constructs, and finally the collection framework. The remaining three weeks of the module were focused on developing web applications using JSP, Servlets and JDBC (Table 11.1).

11.4 Motivations for Change

As expected, the first cohort demonstrated a marked increase in student numbers. This was compounded by a shift from one intake per year, to two, which made further demands upon the teaching team to rationalise and optimise delivery to suit the increasing scale of operations.

Several intakes during the first year enabled a more comprehensive evaluation to be conducted across two cohorts. The compression of multiple instances of delivery permitted a greater deal of flexibility to experiment with different aspects of the delivery, as feedback was more prompt.

After two years of delivery, a considerable number of minor changes had occurred that were attributed mostly to dealing with the large volume of learners. What persisted were the following themes:

- The quality of the design work that was produced was at best basic, and this re-emphasised the challenge that had been experienced on the module in prior years prior to the increased cohort sizes. Since the recruitment was at scale, so were any problems, and it became an area of significant concern as it was not possible to provide the same amount of support for the sheer numbers of learners with difficulties;
- Plagiarism on team assignments was prevalent. From the perspective of university regulations, the plagiarism was categorised as collusion, which incurs the most severe sanctions. From a staff perspective this was somewhat demoralising, and as additional staff were added to the original teaching team to cope with increased recruitment, there was an emerging perspective that the cohorts had a predisposition to cheat;
- Students were finding it challenging to interpret the requirements of the assignment case study. As part of the coursework, students were provided with a pre-written case study, and the tutors played the role of the 'client' who wanted the eventual web application. Case studies were contemporary and deliberately kept current with popular web applications so that all students would have some experience of using such an application. However, the students brought their own experience to bear in such a way that they imposed the requirements of web applications that they had used onto their submissions, rather than using their experience to interpret the case study that had been provided for them. As a result, some students did not fully account for the requirements that were expressed in the assignment case study. A professional software engineer or business analyst would ask a range of questions of the client to ensure that they had understood the requirements properly, and the validation of the client's needs and wants was not occurring;
- Student engagement was noticeably poorer with the international cohorts. More students found it challenging to arrive to taught sessions on time, often missing valuable instructions that were delivered in the first fifteen minutes of class. Additionally, the majority of students were also undertaking employed work outside of the university, involving significant quantities of hours that were often un-social, which impacted upon their ability to study independently or meet with team members outside of formal scheduled classes. Students would usually turn up for first couple of sessions but the attendance at lectures would usually drop to less than 50%.

One of the aims of the module was for learners to be able to produce design documentation such as UML use case, class and sequence diagrams. We observed that consistently, the student's design documentation lacked detail and coherence.

A perennial challenge with technical computing curriculum design is balancing the technical content delivery against the time available to practice application of the knowledge. There is the additional tension between what students expect, versus what industry wants and academia provides.

Employers consistently ask for students who have the skills to be able to design software, and they are less concerned with particular programming languages have been learned. Industrial employers argue that once the core skills have been established, a change in programming syntax can be taught on the job quickly. Academia supports this by focusing on the teaching of design, documentation and refactoring skills, which can apply to any programming syntax.

However, smaller employers may have a specific need for an employee with specific experience in a programming language, and coupled with students who want to maximise "value for money" by studying as much as possible on their programme, both sets of stakeholders often want to see lots of content.

This is a perennial challenge for academia and it is a difficult balancing act to satisfy multiple, conflicting objectives. In this particular case the students that were being recruited did present a more focused ambition.

Many of the international students had a common motivation for overseas postgraduate study. The attainment of an award from the UK enhanced their opportunities for highly-skilled employment in their home countries. In addition, there was a perception that their profile was enhanced further if they successfully gained employment within the UK, prior to returning home.

At the time, there were schemes such as 'post study work visas' that facilitated overseas students to solicit UK work experience that was related to their course of study.

11.5 Back to Basics

University annual monitoring and review processes inevitably reported the issues that the teaching team had already identified (and described in the previous section). The teaching team felt that there was a risk that if the individual items of concern were dealt with, as might normally be the case as a result of a module review, the desired improvements would not materialise.

Using an Appreciative Inquiry approach (Cooperrider and Srivastva 1987), a series of discussions were held, first amongst academic staff, and then subsequently by drawing in contribution from students, staff involved in international recruitment, student support staff and also course alumni. What emerged was a wealth of insight into the issues that affect international students who have chosen to study in the UK.

One aspect that was significant was the almost universal need for such students to be employed during their studies so that they could afford to live. From a pedagogic standpoint there can be a difficult tension between the need to devote time to full-time study, as opposed to time spent in employment during the course of study itself. Many of the students were obtaining work that occupied anti-social hours, which created an additional strain for those that were scheduled to attend lectures and classes early the next morning, after a late night shift.

Pressures such as these inevitably draw out strategic behaviours in learners, who are having to balance competing priorities. Such behaviours can then manifest them-

selves in groups of students cooperating to complete assignments, which runs the risk of accusations of collusion.

An additional effect of social collaboration was the temptation for groups to organize for representatives to attend classes and retrieve notes and handouts; this was frustrating for staff who for sound pedagogic practice had designed interactive, collaborative learning experiences that at least required the learners to attend each class. Such learning could only be experienced, and not passed on through printed notes (Cowan 1998).

One other significant issue was that the students were also hampered by the fact that they were seeking to learn about professional practices in a working and educational culture that was fundamentally different from that what they had experienced in their prior experiences. For example, students were reluctant to express an opinion in class, and were accepting of the tutor's views, almost in deference to the teaching team, which was difficult for the staff who at times were looking to provoke challenge and debate for the good of the learning experience in general (Elton 2008).

After considerable discussion and consultation with a variety of stakeholders, the teaching team concluded that a more holistic response to the needs of the students was required to address the shortcomings identified to date.

11.6 Employability

Through examining the desires of the learners, we established that the primary, overwhelming motivation was for the students to obtain at least graduate-level employment in the UK, in a field that was directly related to the programme of study they had chosen. Our responsibility therefore was to ensure that the students were prepared for such employment whilst also demonstrating that they were meeting UK Level 7 learning outcomes (Bloom 1956).

The teaching team re-visited the module content with a focus on employability skills; however, this was not so much in relation to some of the more generic skills such as preparation for interviews and employer assessment exercises, as these aspects would be taught elsewhere in more general-purpose module content. The focus on employability was related to the skills that an employer might expect from a computing professional, and in the case of this particular module, the skills and knowledge that a professional software designer might have.

This exercise resulted in changes to the proportion of technical content, which was reduced in favour of more experiential learning. For instance, it was felt that sessions that required students to write program code under time constraints, that was then to be passed to different students (acting the role of a client), would help them experience some of the challenges of producing technical work in a pressured environment (Schon 1983).

Since previous students had found issues around the gathering of client's requirements and generating application designs particularly difficult, the teaching team

reasoned that this approach would also begin to address this challenging aspect of the curriculum also.

An additional issue for students was around the QA documentation for the module, which used academic language that was difficult for them to understand and 'constructively align', particularly around 'learning outcome' descriptions (Biggs 1996).

Continuing with the employability ethos, the teaching team decided to re-write the learning outcomes to make them easier to relate to the story of employability overall. An example of the 'student-friendly' intended learning outcomes are as follows (Brice-Heath 1983):

> During this module you will have the opportunity to:
>
> - Classify the requirements of a web application by identifying functional and non-functional requirements
> - Apply the principles of object orientation to design a scalable web application
> - Analyse the requirements of a system and apply the UML to create a design model of the application
> - Construct a scalable web application using Object Orientation.

The content was then arranged in a way that emphasized practice, in an attempt to replicate how a software application designer would learn their craft by actually building the software and testing it.

Three case studies were developed for the module in total. The first was used for a running example in the lectures and workshops. A second case study was used for tutorial work. Finally, a separate case study was used for assessment purposes.

The case studies were intended to scaffold student learning so that they could see what aspects of their experience could be transferrable, and what elements would need to be developed for a specific purpose or application (Piaget 1978). The intention of this was for students to be able to produce designs and working prototypes of the applications, but not a production-level implementation, as this was beyond the scope of a one semester module.

Students were expected to use these designs and implement applications based on these designs. In practice, students were able to produce working applications that fell short of a fully robust implementation of the design. However, we were preparing students to graduate as programmers rather than as developers.

11.7 Module Evolution

The first incarnation of the module was delivered as a one hour lecture together with a two hour tutorial, each week for a twelve week semester. As discussed earlier, the emphasis was upon the delivery of technical content; two weeks spent on Object Orientation, with the remaining ten weeks being learning a new programming language and building a working prototype application.

The first change to the delivery was by the conversion of the weekly lecture slot into a workshop session, to allow discussions to be shared amongst students. The tutorials remained an opportunity to cement the foundation concepts discussed in the workshops.

Overall, the balance of the content has changed from an initial two weeks of OO work, to a total of six weeks now. This reflected the need to spend more time supporting the students' acquisition of technical and professional skills, as opposed to concentrating on the delivery of a larger volume of content. The remaining six weeks of the semester is used to focus the students on the processes and experience of implementing a program design.

As the years passed, it became more commonplace for students to arrive with a greater exposure to programming, and the support materials for the module were also refined to reflect this.

11.8 Enhancing Assessment

Module assessment is comprehensive and has evolved to accommodate both the needs of learners, as well as the demands of employers.

Students must be able to design, document and build a prototype application, and this is served through some coursework that includes the production of design documents (use case diagram, class diagram and sequence diagrams), together with program code.

In addition, many employers expect to see potential employees to hold, or be prepared to sit, a vendor-certified examination that demonstrates detailed knowledge of a programming language. Such exams are online, and the teaching team took the opportunity to replicate such an exam by creating smaller online tests that are completed throughout the module delivery. This helps build confidence in the learners, and gives them repeated practice in an online, time-constrained setting. In the case of this module, the online tests were aligned with the Sun Java Programmer Certification test.

The first few cohorts made a distinctive impression upon the teaching team in terms of their assessment attempts. First, the learners had been educated in a culture where examinations were normal and frequent. However, they were not familiar with the style of quesrioning and examination performance was depressed across the board in almost every case. Second, the learners had no experience of working in groups on summative assessment tasks. The learners made little attempt to differentiate their submissions, leading to large numbers of collusion allegations.

It was clear that the cohort was both bringing new aptitudes to the teaching experience through different educational experiences, but they were also presenting new issues for an assessment method that was tried and tested with Home/EU student cohorts.

This prompted the teaching team to reflect upon the appropriateness of the assessment methods, and a re-think about how the assessment should be designed to assist learning, rather than just attempting to measure and report learning.

While discussing the 'employability' ethos, the teaching team concluded that the students' number one desire—to get a job—should be tackled head-on throughout the module. The students should feel as if they are preparing for a technical job interview, and this would help provide the motivation and engagement that such a scenario brings.

The work that an employer would typically ask to have sight of, usually constitutes a collection of different pieces of evidence that illustrate the capabilities and experience of an interviewee. This collection is a portfolio, and it was decided that this would be the container for a set of assessment activities throughout the module.

Each learner would be required to construct a portfolio that contains the following:

- Project Plan—to help students plan the design and implementation tasks;
- Functional and non-functional requirements;
- User requirement specification;
- Further requirement specification;
- Class diagram;
- Skeleton code.

Each of the students produced a series of incremental artefacts throughout the module, upon which they were given feedback after each submission. The small submissions led to a rapid turnaround of marking, ensuring that students were able to take feedback into account before they work on a subsequent submission.

Maintaining the simulation of a work environment, each submission had to be delivered to an industrial stakeholder, a role that was played by a member of the teaching team. This was to make sure students were not just focusing on grades but actually delivering high quality work (Table 11.2).

The first submission was focused towards a project manager; the second submission was directed towards an end-user; the third and fourth submissions for a team lead; the fifth and last submission was aimed at a development team. Marking schemes contained pertinent reflection questions such as "Is the submission industry ready?", prompting learners to think more deeply and beyond the assessment task itself. In a number of cases they were encouraged to engage in research outside the module to make sure quality of the work was professional.

11.9 Soft Skills

Developing 'soft' skills is often a challenge for teaching teams involved in the delivery of technical curricula. A particular feature of the 'professional' MSc courses was the inclusion of specific content, delivered via bespoke modules, that exposed students to experiences that they were likely to benefit from.

Table 11.2 Current schedule for web application design and modelling module

Week	Lecture	Tutorial	Assessment
1	Module introduction	Introduction to case study	
2	Design 1 (Functional and Non-functional requirements)	Design 1 (Functional and Non-functional requirements)	Submission 1 (Project Plan)
3	Design 2 (Use case diagrams)	Design 2 (Use case diagrams)	
4	Design 3 (Classes and objects)	Design 3 (Classes and objects)	Submission 2 (Functional requirements)
5	Design 4 (Class diagrams)	Design 4 (Class diagrams)	Submission 3 (Requirement Specification)
6	OO development using Java 1	OO development using Java 1	Submission 4 (Further requirement specification)
7	OO development using Java 2	OO development using Java 2	
8	Developing JSP pages	Developing JSP pages	Submission 5 (Model Design)
9	Building 2-tier apps with Javabeans and JSPs	Building 2-tier apps with Javabeans and JSPs	
10	Connecting JSP pages to database using JDBC	Connecting JSP pages to database using JDBC	Submission 6 (Skeleton code)
11			Final team assignment submission and online test

However, it was noted that student engagement on the professional skills module was low, with learners stating that they "don't see the point of a professional skills module".

Clearly, this perception was at odds with employers who were adamant, and unanimous that soft (professional) skills were equally as important as technical abilities.

The need to experience and practice soft skills fitted the re-think of the module, and was a driving force behind selling the ideal of being industry-ready, and using this as a lever to make the content seem more relevant. Sessions that required students to interview a client, or make a case to a team leader, were obvious opportunities to practice group work, communication, negotiation, persuasion and presentation skills.

Some of the tutorial sessions were treated as a miniature project. Learners would be allocated a task and informed as to what outcome was expected of them. Students would then negotiate and agree the time required for the task with their tutor. A designated team leader would then take control of the class. The tutor would leave the classroom at this point after ensuring the students were working together.

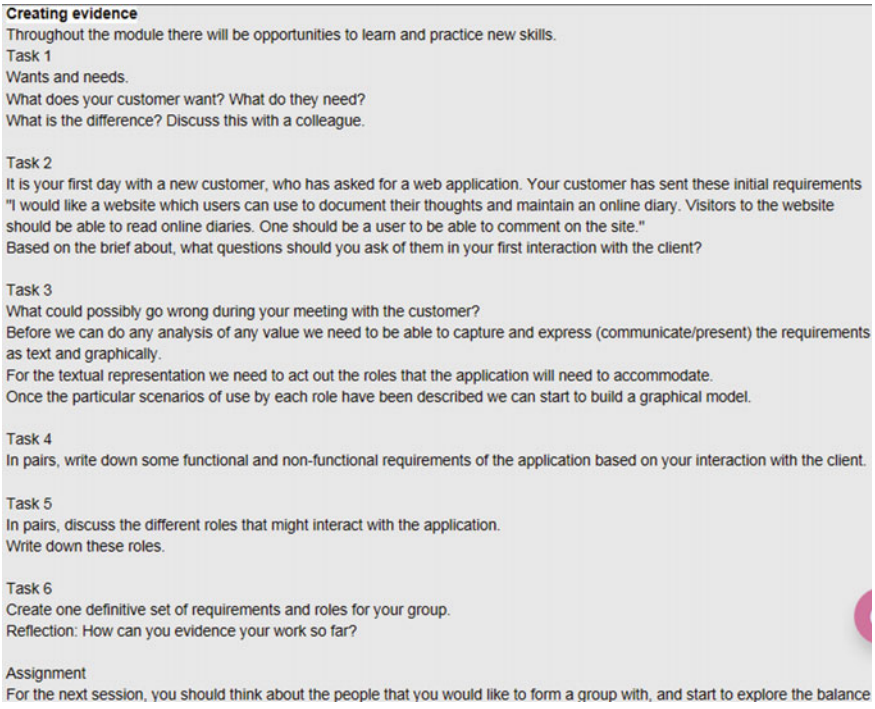
At the end of the allocated time the tutor would return to the classroom to check the output delivered from the session. This activity allowed all students on the module

to be a team lead at some point. Earlier in the module students would be reluctant to be the 'team lead'; as the weeks passed, they would gain confidence and students would be more forthright in volunteering to take charge (Fig. 11.1).

To cement the ethos of employability (and the associated soft skills practice), the teaching team became more bold in their ideas for innovation within the delivery. Frequent discussions about methods and approaches for embedding employability skills practice into the module led to the use of technology to enhance learning, such as reflective blogs, video diaries, online formative testing, peer marking and feedback delivered through online discussion fora, automated marking rubrics for self-assessment to name but a few (Haigh 2005).

The content change that had the greatest impact upon students was a decision by the teaching team to use the weekly slot where the entire cohort was addressed, to role play different aspects of a technical job interview. Two members of staff conducted the interview between themselves, while the audience of learners observed. The interview was halted at strategic points to enable questions to be asked, ideas to be explored, and discussions in pairs to be initiated.

The topics that were role-played in the interview then became the mandate for the tutorial session, in which the students were then motivated to engage in the subject


Creating evidence
Throughout the module there will be opportunities to learn and practice new skills.
Task 1
Wants and needs.
What does your customer want? What do they need?
What is the difference? Discuss this with a colleague.

Task 2
It is your first day with a new customer, who has asked for a web application. Your customer has sent these initial requirements
"I would like a website which users can use to document their thoughts and maintain an online diary. Visitors to the website should be able to read online diaries. One should be a user to be able to comment on the site."
Based on the brief about, what questions should you ask of them in your first interaction with the client?

Task 3
What could possibly go wrong during your meeting with the customer?
Before we can do any analysis of any value we need to be able to capture and express (communicate/present) the requirements as text and graphically.
For the textual representation we need to act out the roles that the application will need to accommodate.
Once the particular scenarios of use by each role have been described we can start to build a graphical model.

Task 4
In pairs, write down some functional and non-functional requirements of the application based on your interaction with the client.

Task 5
In pairs, discuss the different roles that might interact with the application.
Write down these roles.

Task 6
Create one definitive set of requirements and roles for your group.
Reflection: How can you evidence your work so far?

Assignment
For the next session, you should think about the people that you would like to form a group with, and start to explore the balance

Fig. 11.1 Extract from tutorial notes on university virtual learning environment

material that they had witnessed being discussed and debated in the group setting (Hill 2011; Tosey 2002).

Undoubtedly, there was an element of novelty in terms of the style of module delivery, but there was a significant increase in student attendance and engagement after the introduction of this approach. Student feedback was enthusiastically positive, and the module quickly became known for its distinctive delivery.

11.10 Results

Twenty separate cohorts have completed this module as part of the professional postgraduate programme over a ten-year period. Whilst not every cohort is comparable in terms of ability at the point of entry onto the course, there is a general trend of improved attainment.

There is also a general downward trend in recruitment, and smaller cohort sizes can benefit from an increased proportion of contact from tutors.

Marks for both the small submissions and the online test show the greatest increase overall. The online test is interesting in that when a test is created, there is a considerable effort to establish sufficient questions to populate the bank of questions, upon which random selections are made for the tests at run-time. Over the years, more questions are added which leads to a considerable resource where it is unlikely that there can be any knowledge exchange between prior and present students, as the bank of questions is so vast. Nonetheless, student performance has improved.

While the module has been delivered for some time, the core teaching team has remained the same throughout, with additional staff being drafted in when the cohorts were larger. This has led to a significant amount of specific experience being retained within the module, with significant benefits being that this module has been an exemplar for the creation of other modules, as well as being a resource for consultation when issues have required diagnosing and resolving (Table 11.3).

11.11 Reflection

Using an appreciative inquiry approach to evaluating the module, we observe the following positive outcomes:

- Student engagement with the module improved considerably. Initial delivery of the module reported less than 50% attendance from the third session onwards. Subsequently, this improved considerably with student attendance close to 90% throughout the module.
- Students report (favourably) that the module delivery is structured such that they can incrementally apply their learning as their skills develop, to their coursework assessment. This leads to better distribution of workload across the semester,

Table 11.3 Summary of module marks from 2008–2018

Year	Cohort no.	Mean mark group work	Mean small submission marks	Mean mark test	No of students	Mean mark overall
2008	1	50	–	53	47	51
2009	1	52	55	61	141	56
2010	1	53	50	61	68	53
2010	2	62	67	57	86	61
2011	1	57	60	57	54	57
2012	1	63	64	45	20	56
2013	1	60	70	48	23	58
2013	2	64	72	51	11	61
2014	1	64	66	51	21	57
2014	2	59	73	48	29	58
2015	1	62	70	59	27	60
2015	2	62	90	60	17	70
2016	1	66	73	57	11	65
2016	2	61	80	63	11	67
2017	1	62	78	65	18	68
2018	1	62	83	79	12	72

reduced bunching of assessments, and a better experience for students who have employment alongside their studies.

- The disruptive nature of the module made for an environment where it became easier to introduce teaching innovations. In many cases, the innovations were suggested by the students, which meant that they were accepted if they improved the learning.
- Summative assessment marks have increased over the last four years, and this has been as a result of a steady increase in the quality of the application designs that were submitted. This is likely to have been influenced by the teaching team arriving at a more optimum balance of content versus experience, though as observed earlier, the cohort size has reduced also.
- A minority of students bring prior experience of programming and keeping these students challenged was an important factor of the module. The range of roles that the module offers in terms of practicing professional skills while doing technical work has meant that more able students are being stretched so, the curriculum was able to cater for differentiated learning better.
- Frequent submissions, whilst they were summative, still provided feed-forward for learning. For instance, the construction of use case models in class enabled peer marking to take place. This promoted better conversations around design issues, as the diagram itself does not explain the process too well. As a result, students could learn from others, and apply more advanced topics such as design

patterns for example. This facilitated deeper learning to take place in the classroom as students explained their work, enhancing their understanding of the processes (Vygotsky 1978).

- Personal development planning improved, with much more substantive evidence of soft skills. Frequent opportunities to discuss learning, and the explicit gathering of evidence—"where is the evidence for your statement?"—fostered an environment where students were actively building their personal portfolios and using this process to self-diagnose gaps in their own learning. Furthermore, they could evidence team working skills in a way that they could not previously (Schon 1983).
- Alumni reported an appreciation of the role of project management, and how this can, if absent, compromise the quality of design. This is a significant outcome for a module where learners expect to become expert programmers, and has proved important in their ability to perform quickly when they do secure employment.
- Reflective blogging was an opportunity for the students to explore their learning in a way that they were not used to. The result is that they took away considerably enhanced softer skills as well as being more self-aware.
- Reported plagiarism disappeared. The incremental approach to assessment meant that the work had to be developed, and was quality assured checked during the module. A ready-made solution could not be purchased off the shelf.
- Students role-played different occupations—software designer, project manager, business analyst, etc.—and had experience, which helped them decide which job they would like to seek employment in. This gave them an appreciation of the customer supplier relationships that exist within technical environments.
- Students ability to evaluate—the bane of level 7—was improved also. Regular debates were useful at developing argumentation skills, and the incessant use of public speaking in class, together with relentless prompts to write down and gather evidence, established good study and critical thinking habits within the cohorts.
- The inclusion of a roleplay to set the scene provided some novelty and contributed to an increase in student engagement. It also provided the learners with some experience of what a technical job interview would be like.
- The style of delivery made students pose questions in relation to what they needed to learn as an individual, rather than being directed by a pre-determined curriculum (Tosey 2002).
- The Intended Learning Outcomes made it clear the relevance of the content to the eventual aim of becoming employable.
- It was an opportunity to introduce questions on a need-to-know basis, without disrupting a more formal schedule of teaching—"I have a question, and get the answer now".
- The ethos was that we shall find out together—so appreciative enquiry was not just for the delivery team, it was a universal approach to learning and teaching (Seel 2010).

Whilst the departure from traditional delivery into a more flexible, improvised role play of a technical job interview has yielded positive results, the ability to make the change was underpinned by considerable development work on the module before-

hand. The experience of developing a module over an extended period is not always common in the computing domain, where new modules and programmes are being continuously developed. This has a restraining effect upon module development, as there is such an emphasis upon keeping materials current.

However, there were several key factors that enabled the positive results to be achieved.

First, the decision to adopt the ethos of employability was essential, as this enabled the teaching team to coalesce their thoughts around a theme that resonated positively with the students.

Second, the re-writing of learning outcomes, into student-friendly *intended* learning outcomes, was complementary when staff were 'selling' the concept of employability and content relevance.

Third, the designing-out of plagiarism from the summative assessment served to prevent academic misconduct from occurring in the first place, but also provided a platform upon which the teaching team could discuss the matter with students.

Finally, the concept of evidence gathering, for the purposes of obtaining a technical job interview, provided an essential scaffold for personal learning and development that was both new and of direct benefit to the students. As such, the introduction of role play rather depends upon the necessary ingredients in place; the prospect of the tutors undergoing a mock interview might be entertaining, but without the support of materials and experiential professional skills of evidence gathering, its potential benefit would be limited.

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Chapter 12
Strategies for Facilitating Learning in Multinational Groups Studying Information Systems Design

Steve Wade and Mohammed Salahat

Abstract This chapter discusses strategies we have developed for teaching information systems design to multinational groups of students. The focus is on a particular branch of information systems development—database design—which the authors had been teaching for a number of years in their respective institutions. We discuss the way in which we adapted the course content in response to the diverse experiences of a multinational group of students. Database design can be seen as an exercise in modelling a real-world situation. The structure of a database therefore represents the knowledge acquired by its designers through their discussions with various stakeholders. Importantly, the situation under investigation might be perceived differently by individual stakeholders particularly if these have different cultural backgrounds and expectations. The cultural background of the designers themselves may also be of great significance. For these reasons, we take the view that culture is an asset which should be utilised in our teaching. This has led us to an approach based on guided learning within a simulation of a real-world development project. This involves organising students into diverse groups and using a case study that places database design into a sociological and multicultural context. The case study we have developed is based on the services offered by an academic library. There is a great deal of room for discussion in a diverse group about precisely what services students feel an academic library should offer and what their individual experiences have been of libraries they have used prior to joining our course. Some of these discussions relate to the role the library has in the type of teaching and learning strategies employed in the UK which may be different from strategies that the students have encountered before. We report on the way we have used the library case study with a number of multinational groups of students to explore the way in which systems development is a social exercise as well as a technical one.

Keywords Multinational teaching · Multicultural teaching · Information systems design · Database design · Guided learning

S. Wade (✉)
School of Computing and Engineering, University of Huddersfield, Huddersfield, UK
e-mail: s.j.wade@hud.ac.uk

M. Salahat
College of Engineering and Technology, Ajman University, Ajman, United Arab Emirates

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12.1 Background

This chapter discusses strategies we have developed for teaching information systems design to multinational groups of students. The focus is on a particular branch of information systems development—database design—which the authors had been teaching for a number of years in their respective institutions. We discuss the way in which we adapted the course content in response to the diverse experiences of a multinational group of students.

Database design can be seen as an exercise in modelling a real-world situation. The structure of a database therefore represents the knowledge acquired by its designers through their discussions with various stakeholders. Importantly, the situation under investigation might be perceived differently by individual stakeholders particularly if these have different cultural backgrounds and expectations. The cultural background of the designers themselves may also be of great significance.

For these reasons, we take the view that culture is an asset which should be utilised in our teaching. This has led us to an approach based on guided learning within a simulation of a real-world development project. This involves organising students into diverse groups and using a case study that places database design into a sociological and multicultural context.

The case study we have developed is based on the services offered by an academic library. There is a great deal of room for discussion in a diverse group about precisely what services students feel an academic library should offer and what their individual experiences have been of libraries they have used prior to joining our course. Some of these discussions relate to the role the library has in the type of teaching and learning strategies employed in the UK which may be different from strategies that the students have encountered before.

We report on the way we have used the library case study with a number of multinational groups of students to explore the way in which systems development is a social exercise as well as a technical one.

12.2 Introduction

Prior to the work described in this chapter, we had been responsible for teaching information systems design to undergraduate students of computer science in the UK. We had adopted a guided discovery approach based on a real-world simulation of an academic library. This approach emphasises group work and independent learning and requires learners to interview teaching staff playing the role of key library staff. On the basis of these interviews, learners were required to capture the semantics of a real-world situation and then translate these into a database design. In order to do this, students had to decide what data items would be used by the new information system, and precisely define the meaning of those data items. This is done through the

development of a conceptual data model, which is translated into a physical design at a later stage.

When we began to use this case study with a multinational group of students on a postgraduate course in the UK, we encountered some difficulties with students who were accustomed to a more formal approach to teaching with an emphasis on acquiring essential knowledge from a teacher presenting facts drawn from their detailed knowledge of the subject. Instead, we were encouraging the students to see us as facilitators helping them to build their knowledge through the analysis of requirements and design of a software system.

The original version of the case study focussed on clearly defined library functions that could be clearly understood and documented. These functions included check out a book, return a book, add a book to the library, remove a book from the library, get a list of books by author or subject area, get a list of books checked out by a particular borrower and so on. In designing a database to support these functions, the designer would first identify the key entities about which data will be stored (e.g. Borrowers, Books, Authors) and the relationships between them.

In the process of database design, the identified entities, the data stored about them and relationships between them are initially represented in a high-level Conceptual Data Model (CDM). Later on, the entities will typically be mapped to tables in a relational database with relationships being implemented using foreign keys. Importantly, these implementation details are not considered in the initial CDM.

CDMs are routinely used in the earliest stage of information systems design work such as business analysis. The value of early-stage models is that they describe data requirements at a high level of abstraction, independently of any considerations of how the model might be reflected in physical data storage mechanisms or what use individual applications may make of the data stored within those mechanisms; they therefore provide a basis for planning that is relatively stable and robust with respect to change. This makes it essential that any semantic ambiguities are resolved during their creation. For this reason, the earliest stages of analysis encompass fewer defined technical problems and many more social and political issues. The focus is on questions of what it is that the organisation wishes to achieve and how a balance may be achieved between the interests of different involved parties.

In the remainder of this chapter, we discuss the way in which we developed our library case study to guide the students through a more sophisticated data analysis infused with their subjective interpretations of the scope and focus of library activities based on their different backgrounds and expectations.

12.3 Identifying Entities

In guiding our students through the process of systems development, we must first ask them to consider the question of how they will identify ‘relevant’ entities within the problem domain. Academic libraries offer a wide variety of services in a complex domain. There is therefore a very large set of candidate entities to consider. The

question of how students decide which of these candidates should be included in the CDM raises interesting issues. The simple instruction to focus on the things that are "relevant" poses a few problems: How should students decide what is or is not 'relevant'? What do we mean by 'relevant'? To whom are they relevant and in what context?

We have repeatedly found that students have great difficulty in identifying a 'complete' set of 'relevant' entities. Textbooks generally provide only generalised suggestions for how this should be done. These include talking to users, considering what data is held by existing information systems, selecting all the nouns in written problem statements or other documentation and then relying on intuition and previous experience to filter these. Guided by such strategies the student is then expected to make the choice of relevant entities through a subjective process.

In our original library case study, the approach taken to identify entities was relatively straightforward. We simply asked students to identify things which exist in the library and the relationships between them. We explain that some entities may physically exist, such as Borrowers, they may be transient such as Loans or even represent aspirations such as Reservations. There are however a range of issues surrounding the students' perceptions of what services a library should offer that are less well defined with considerable room for discussion about what is and is not an appropriate entity. In this type of discussion, the CDM is being used as an epistemological device, a coherent means of investigating the problem domain rather than an ontological description of the real world. The process of creating a CDM is therefore very subjective and the resulting data model is not 'neutral'; it will be infused by the values, beliefs and expectations of those creating it.

12.4 Developing the Case Study

Over time we realised that the focus on a real-world view of library operations exposed a range of issues related to the students' expectations of what an academic library should offer. Some of these were relatively minor issues about the classification system used and specific terminology employed. As a simple example of the latter, the term "reservation" was unfamiliar to many students who would instead have used the term "hold" or "request". Simple confusions like this have to be cleared up during database design where a single, unambiguous name has to be applied to each important concept.

In addition to specific issues with terminology, there were other deeper confusions related to international students' prior experience of academic libraries. Some of our students were accustomed to closed access libraries where materials were retrieved and brought to them by library staff. For these students, our emphasis on developing students as independent learners, finding information for themselves and using self-service systems proved unsettling. It became apparent that the UK-centric perspective we adopted in our case study made it confusing for some of our international students.

The diverse background of our students makes for interesting discussion about the ways in which academic libraries are challenged by the rapid developments in technology. These developments have created channels for information sources that can be accessed easily through the Internet. Because of these alternate sources, many of our UK students rarely physically visit the library. Instead, they depend on the library's website to obtain information online, or they use Internet searches to obtain the information they require. This gives rise to the following question: How should academic libraries support students in their search for information to support their learning? A question like this gives rise to further questions about the other types of support that students might expect for their learning and what support they have received in the past.

Over a period of time, we developed the case study to place increasing importance on the design of a library information system focussed on the diverse needs of students from a wide range of cultural backgrounds. We preserved the idea of students identifying requirements by interviewing role-playing members of staff but fleshed out the roles in greater detail, providing opportunities for students to express their own views of what services the library system should offer. To stimulate discussion about these views and how they might differ from one student to another, we asked students to consider a number of personas developed to stimulate discussion about student expectations.

12.5 Using Personas

During the last decade, information system designers have made increasing use of the persona technique to put user needs at the centre of development decisions (Mesgari et al. 2018). A persona, as used in information systems design, defines an archetypical user of a system, an example of the kind of person who would interact with it. In the case of our library system the eventual users would be the students themselves. The idea is that if you want to design effective software, then it needs to be designed for a specific person. For our library system, we developed a number of personas including three named Chéng Lóng, Sofia Adamescu and Stella Gosney. These are fictitious people based on our knowledge of real users.

It is quite common to see a page or two of documentation written for each persona. The goal is to bring your users to life by developing personas with real names, personalities, motivations and often even a photo. In other words, a good persona is highly personalised. The following three persona extracts are presented as examples—they are quite brief but sufficient to start a discussion about the different ways in which individual students might view the library.

12.5.1 User Role 1—Chéng Lóng—Student of M.Sc. Computer Science

Cheng studied for a first degree in computing in China. During his first degree, he was expected to acquire a single textbook for each module he studied. He never had to search for additional books or journals in the university library or online. He did not therefore see the library primarily as a source of information. He says the best thing about the university library in China was that it provided a comfortable, quiet study space. He believes that spending time working in the library shows that he is committed to his studies and that there is an expectation that students should treat the library respectfully as their place of work.

12.5.2 User Role 2—Sofia Adamescu—Student of M.Sc. Information Systems

Sofia is a Romanian student with a first degree in computing. For her first degree, she was given a single textbook for each module and assessed on the basis of that. She says that her lecturers in Romania were always available and that she would often ask them questions instead of using reference sources. She did not make much use of the library but did on a few occasions visit with a specific request. This involved completing a request form and then waiting for library staff to retrieve the book. This would often take a long time so she only used the service when absolutely necessary.

12.5.3 User Role 3—Stella Gosney—Student of M.Sc. Information Technology

Stella is a UK student with a first degree in Business Studies. During her first degree Stella did not attend many lectures but actively participated in seminar and practical classes. Her tutors encouraged students to actively explore real-world problems and challenges and propose solutions. There was an emphasis on acquiring knowledge through exploration of real-world problems as a member of a team with tutors acting as facilitators rather than teachers. Stella does not recall ever visiting the university library but has researched many topics online and regards herself as an expert user of internet search engines.

These personas are used to stimulate discussion about the different perspectives that each of these students would bring to the question raised earlier: How should academic libraries support students in their search for information to support their learning?

Having spent some time discussing these personas, we move on to the question of how staff view the role of the library. Two short descriptions of roles played by staff are presented below.

12.5.4 Role One—George Thomas—Senior Academic Librarian

George has been an academic librarian since 1984. He is able to talk about the way the library has changed with developing technology and increased demands from a widening variety of students. George has a generally positive attitude to work and is enthusiastic about the opportunities that increased funding from international students provides for investment in the latest technology. He is particularly interested in the way that the library has moved from being a repository of books to an organisation offering active support to student learning. He is concerned that the library website uses too many incomprehensible terms and that the content organisation is complicated. He feels that because of this, students rely too heavily on Google to find information.

12.5.5 Role Two—Holly Thomas—Senior Learning Support Officer

Holly is a little more circumspect than George. She takes the view that students have high expectations regarding library resources and services but feels that library budgets are tight and that it is often difficult to provide the resources they would like. She has had a few experiences where students have complained about the quality of service. For example, a group of students wanted to gain access to theses originating from their own countries but the library was unable to access these. Another group of students expected the library to provide each of them with copies of all the textbooks that they needed but she had to explain that this was not library policy.

Having spent some time exposing different stakeholder perspectives, we encourage the students to reconcile these perspectives in a detailed data analysis. As stated, our original case study focussed on the technical issue of how to create a well-structured database. In presenting it at masters level, we wanted to broaden the scope to an international perspective of the role an academic library has in teaching and learning. We encouraged students to reflect on their own individual experiences of using libraries in different countries to develop a requirements specification based on a global perspective. Our challenge was to encourage students to envisage alternative cultural perspectives on the way in which university courses are structured and delivered and the role the library has in supporting this delivery.

12.6 Organising Students into Development Teams

We wanted students to work in groups of four, we wanted the groups to be as diverse as possible without students feeling that they were disadvantaged by being placed in a difficult group. We adopted a version of the mixed pair approach suggested by Mahenthiran and Rouse (2000). In this approach, students select a partner to form a pair and the tutor then combines pairs in a manner which meets diversity goals. This shared approach to creating work groups mitigates the risk associated with allocating students to teams without their consent namely that students may blame tutors for any difficulties they experience whilst working in the group.

At the beginning of the module, the cohort is divided into several smaller tutorial groups. We try to make each of these groups as heterogeneous as possible and 'spread' people uniformly according to their home country, gender and age. Our objective was, as far as possible to separate out students who are similar to each other according to these criteria and to distribute them into different tutorial groups with "home country" being taken as the most important criterion for measuring the heterogeneity of a group. At the first practical session, students are made aware of the guided development approach to teaching and how this relates to group work. During the first few weeks, students are allocated to randomly formed groups of four within each tutorial group; this is done to ensure that all students have some group work experience and knowledge of their peers. Around week 4 or 5, assessment groups are formed in accordance with the hybrid policy outlined above. The groups then work together, primarily on the assessed tasks, for the remainder of the semester. They analyse the library case study and deliver a group presentation as one assessed component and then create a group report which presents a database design for one key library activity along with some reflection on their experience of working in a group in this guided way. The group report accounts for 50% of the assessed work; the remaining 50% component is an individual piece of work focussed on building a prototype database application related to the selected library activity.

Over time the process of discussing what library activities needed to be supported, what services students had come to expect from a library and what support they felt they needed from the library to help with our assessment strategies became a very important part of the module. We made the decision to guide the students through a systematic way of discussing these issues which led to the identification of business activities that could be supported by software. We considered a number of business analysis techniques before deciding to use Soft Systems Methodology (SSM) as the basis for the requirements analysis stage of our assessment strategy.

12.7 Using Soft Systems Methodology

As discussed above, our original case study was intended to simulate a real-life development project but we had not placed much emphasis on the business analysis aspects of the case study. When we began working with multinational groups of

postgraduate students we decided to enhance the "business analysis" aspect of the module by introducing the students to Soft Systems Methodology (SSM) (Checkland 1999) as a precursor to database design. SSM encourages multiple stakeholder perspectives of a problem situation so seemed ideally suited to a situation in which we wanted to encourage the students to reflect on their different backgrounds and experience and how these had influenced their view of what a library system should offer.

As stated, the key reason for choosing SSM is that it explicitly considers multiple system viewpoints. The approach encourages the development and resolution of multiple viewpoints of why a system exists, acknowledging that, typically, most systems have more than one purpose. This, however, was not the only reason for choosing the approach. SSM is also strongly goal-oriented, ensuring that derived requirements are justified with respect to stated goals. This fits well with the Use Case Driven approach to development applied in most modern software development methods. Use Cases focus on goals that a user might have and how the software system could support them in this. There is therefore an opportunity to link the results of an SSM analysis to a use case model then move from there into a detailed database design.

There are four activities embodied in SSM. These are:

(1) Finding out about a problematical situation,
(2) Building purposeful activity models,
(3) Exploring the situation and
(4) Defining action to improve the situation.

In the following sections, we briefly explain how the students were guided through each of these activities. As explained above, the students were organised into multinational teams which typically comprised four students.

12.7.1 Activity 1: Finding Out About a Problematical Situation

Students discuss the personas provided as part of the case study brief and prepare to interview role-playing staff. In the first round of interviews, students are encouraged to ask about the stakeholders' perceptions of the library (including its purpose and any problems, improvements or issues). Students were also encouraged to discuss this amongst themselves, with reference to their different prior experiences, and then to present their perceptions to the interviewee for their comments.

12.7.2 Activity 2: Building Purposeful Activity Models

In SSM, there are different ways of viewing purposeful activity, which are based on declared worldviews; it is necessary to select some "relevant purposeful activities" to investigate. In our library example, the following examples might be identified:

- Activities relating to the role of the library as a repository of published information from which users can make loans.
- Activities relating to the role the library has in providing a reactive enquiry service for users. Typically, this will involve dispensing advice regarding research strategies and access to external resources.
- Activities related to providing proactive information services.
- Activities related to the management of internally generated information such as teaching materials and research documentation.

In SSM, once activities such as these have been selected, models are developed of them, which can be used as a device to explore the "problematical situation". Typically, a model will be produced based on a "Root Definition" of a relevant system. To introduce a little rigour into the specification of root definitions, some SSM practitioners encourage developers to describe them by applying the "CATWOE" mnemonic. Using this mnemonic students are asked to identify the Customers (C) who will benefit from the operation of the system, the Actors (A) who are the people responsible for carrying out the activities that make up the system, the Transformation (T) resulting from the activities of the system, the Worldview (W) that underpins assumptions made by those who have identified the need for the system, the Owners (O) who are the people who could stop or change the system's operation and Environmental (E) constraints which are the elements in the situation which are taken as given.

The following is an example of a root definition developed by students relating to the activity of maintaining internally generated information such as module specifications, assignment briefs and teaching resources such as lecture slides:

"A system, managed by Subject Librarians to organise internally generated information (i.e. non-published information), using appropriate software applications, to support the needs of teaching staff and students".

The CATWOE definition for this would be as follows:

C: The teaching staff and students.
A: The subject librarian.
T: The university's need to provide online access to teaching and learning materials for students and for external moderation.
W: It is important to develop consistently well-structured online teaching materials to support a variety of learning styles.
O: The university.
E: Pro formas and other quality assurance guidelines.

Having produced this definition, the students will continue to discuss their understanding of the requirements of this system by assembling the minimum activities

necessary to fulfil the root definition. Models developed in this way will contain two sets of activities: operational activities, and monitor and control activities.

It is beyond the scope of this chapter to discuss the development of activity models in SSM in any detail but in the example above, we might expect the following activities to be identified each of which refers to Internally Generated Material (IGM): Identify IGM to store; store IGM; enable retrieval of IGM; distribute IGM; maintain, update and delete IGM; promote use of IGM.

The focus of attention then shifts to each of these activities which are discussed within each group and with role-playing staff representing the stakeholders identified in the case study. During this exploration, the focus is made sharper as students hone in on one specific area of activity as the basis for a detailed database design.

12.7.3 Activity 3: Exploring the Situation

Typically, one or two of the models alluded to above will be discussed in depth with each interviewee. Prior to the interview, as much detail as possible is added to the documentation, for example, what was known about the existence of the activity in the "real world" in the various organisations with which the students are familiar. The interviews consisted of the provision of a summary of the research (to provide orientation) and an overview of the activities in the model. The interview then progressed by questioning related to each activity.

The interviewee would then be asked to comment on:

- Their perception and judgement of the activity: should the activity exist? and if the activity currently exists, how is it judged?
- Any changes to the activity: alternative ways of doing the activity (if it currently exists), or if it is not currently done, how could it be achieved?
- Any other activities they thought were necessary.

At the end of this process, students have a fairly detailed knowledge of the activity they have chosen. The shift is then made to how this activity might be supported by software. This involves developing a use case model, and this leads into the design of a conceptual data model and on into a detailed database design. We do not discuss use case modelling here but the technique is central to most modern software development methods and has been discussed in many textbooks and journal articles. See, for example, Armour and Miller (2001).

12.8 Conclusions and Reflection

We take the view that culture is an asset which can be utilised in the classroom. We have described ways in which we have attempted to guide ethnically diverse students through a development project in an effort to develop engagement, understanding

and a sense of community. The choice of case study and our emphasis on systems analysis as a social activity encourages students to share experiences of teaching and learning drawn from their background and culture. We found the emphasis on group work to be helpful. For example, many Chinese students are wary of answering questions or talking about themselves in tutorial sessions for fear of 'losing face' but within a smaller group of four students, this is less of an issue.

Initially, we allowed these groups to be self-forming but, unsurprisingly, this led to students forming niche groups comprising students with a similar background. As described above, we adopted a hybrid approach to creating more heterogeneous groups and then guided these groups through discussions amongst themselves and with stakeholders which specifically addressed differences in culture and background experiences. Turning this diversity in background into the stimulus for progress in the coursework. In guiding students through the development process, by structuring group meetings around techniques drawn from Soft Systems Methodology (SSM), we have been able to help students to identify and share their experience related to the concepts being discussed and open up the diversity of learning experiences and perspectives obtained from their different backgrounds. We would make the observation that this type of teamwork helped to build friendship amongst students from different backgrounds which had advantages beyond the scope of our module.

Our chosen case study allowed students to gain credit for including comparative perspectives in their own work. In discussing their background experiences of teaching and learning, the students would often visit the library website of their previous university and show other members of the team specific examples of features they appreciated and would like to include in their own design. The focus on this type of discussion enabled us to discuss the importance of cultural perspectives in information systems design and to encourage students to think of the discipline from a sociological perspective. This was a theme that we developed and stressed throughout the module and which was integrated and rewarded in our assessment strategy.

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Chapter 13
EU Students in HE: A Case Study of Games and Web Students

Michael O'Grady, Duke Gledhill and Daryl Marples

Abstract Having taught home, European Union (EU) and international students in Higher Education (HE) over a range of Games and Web courses for a combined total of 50 years, the authors have been consistently impressed with the ambition and achievements of their EU students. In this chapter, research relating to student relocation and internationalisation are assessed with reference to the EU and, in particular, former Eastern-bloc countries. Theoretical benefits of study in the UK are researched and indicate that EU students' home country's second language is English; that an English study language is preferred; UK universities are seen as world-competing institutions; software for this sector is largely produced by English-speaking nations (USA and UK); programming languages were developed in English; and finance implications (the rise of tuition fees) haven't put off the ambitious and high-attaining applicants. Graduate feedback confirms the desire to work in an English-speaking environment for maximum employability, the global stage being open to them via a UK degree. Our degrees are seen as commanding high value and respect worldwide and opening up employment opportunities by rising above any perceived home-country barriers. Our EU students report having researched the University and course extensively before choosing their study and many want to learn more and to be pushed harder and further. Negatively, they comment about the lack of ambition and motivation in some of their respective cohorts, many of which are home students. Their feedback confirms the authors' impression of EU students and provides many areas to improve the existing course offerings.

Keywords EU students · East European · Higher education · Web · Multimedia · Games design · Games programming · Games art · Pedagogy

M. O'Grady (✉) · D. Gledhill · D. Marples
Department of Computer Science, School of Computing and Engineering, The University of Huddersfield, Huddersfield, UK
e-mail: m.ogrady@hud.ac.uk

D. Gledhill
e-mail: d.gledhill@hud.ac.uk

D. Marples
e-mail: d.marples@hud.ac.uk

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13.1 Introduction

It has been a long-held belief of the authors that EU students, typically from Eastern European countries such as Romania, Bulgaria and Lithuania, have produced some high-performing graduates that have raised the level of performance and integration within their respective cohorts. Such students have been memorable in terms of personality, work ethic, attendance, consistency of effort through each year, attainment and classification. In the Computer Games area, they have been prominent in regional, national and European student competition wins. In short, these students are a credit to their home nations and enrich their cohorts and companies in which they attain placements and graduate jobs, both here in the UK, in their home countries and further afield.

Multimedia and Web—background. Michael O'Grady has been both teaching on and course leader for the web-related courses for over 18 years. They commenced as two streams—the art-based BA (Hons) Interactive Multimedia degree and the more technical B.Sc. (Hons) Multimedia Technology degree. Over the intervening years, many changes have occurred in the technology sector that have maintained the allure and challenge of teaching and learning in this vibrant sector:

- Some specialist "interactive" technology became ubiquitous and privately owned (e.g. Adobe's Flash), which allowed designers and developers to produce unrivalled digital creations and functionality;
- Such technology has since been replaced by freely available open-sourced HTML;
- Dial-up speeds of 24 Kbit/sec are now replaced by Broadband speeds in excess of 100 GBits/sec leading to CDs and DVDs becoming largely a thing of the past, streaming is the current norm;
- There are many programming languages and techniques to learn;
- Touch screens and devices are now part of everyday life, but this was not so only 10 years ago.

So, a lot of change and plenty of scope for students to grow and find their passion in an area where knowledge is power and knowing a little of some unusual technology can be very empowering, especially in the last 5 years where there are numerous free-to-use platforms to express oneself and publish helpful information. For students willing to engage on a semi-professional level, Facebook, Twitter, Instagram and many more, coupled with the search-engine power and reach, can put the humblest of students in a powerful position to learn and influence others. It is in this environment that the East European students on The University of Huddersfield Multimedia and Web courses have tended to shine in terms of creativity, command and experimentation with programming languages, and inevitably, careers.

Games Design and Games Art—background. Daryl Marples has been both teaching on and course leader for the BA (Hons) Computer Games Design course at Huddersfield for 15 years having previously worked in creative capacities in a variety of fields including commercial sculpture, graphic design and video games development. The video games sector has over the course those 15 years evolved dramatically hav-

ing seen tremendous growth to become the world's premier entertainment sector and with technical changes such as:

- Sector dominance in technologies focused around a handful of key engines such as Unreal Engine and Unity;
- Undreamt of processing power allowing for not only much greater polygon counts and associated reality and fidelity, but just as crucially the power of real-time lighting systems, advanced particle VFX techniques and full-screen post-processing;
- The exponential growth and speed increase of the Internet, allowing for games to be digitally distributed and more importantly played competitively and collaboratively by gamers across the globe;
- The maturing of a hobby industry into a global powerhouse that has become not only mainstream, but a major employment sector in its own right;
- Modern PC technologies and mobile technologies such as tablets and phones are now have ubiquitous in gaming, but moreover these devices have been competitively designed to be more powerful in a major part due to the processing requirements of modern games.

Games Programming—background. Duke Gledhill started out as a web programmer 25 years ago but shifted towards games-specific programming and eventually game scripting. Duke has 15 years teaching experience; as module leader, senior lecturer and course leader. He is also head of the external-facing internally staffed game development studio and directly involved in a myriad student-published game development projects. Two evolving aspects of games development stand out in that time, the accessibility of top tier engines for no initial cost and the frameworks and APIs that allow programmers to achieve more in less time, both of these providing more rapid prototyping and iteration of ideas. Today, anyone can download AAA game-production tools for free, allowing the curious to start developing games, thus opening up the process much wider than ever before with the potential for new and innovative ideas to reach a global player audience.

13.2 Home and EU Students in HE

In a wide-ranging review of quality issues in international higher education, Van Damme (2001) discusses the political and financial positioning of higher education, referring to it as an industry. Two decades ago, he reports that universities once responded to the political ambition and controls of their nation state, with some advanced trading countries having an influx of students from their former colonies and trading partners, connected by a shared language and world prospects. The Soviet Union had a large number of students from similar ideological (communist) countries in the Cold War, the USA has received many from Latin America and the UK has benefited from many students coming from former colonies such as Africa, Australia and New Zealand. Australia and Canada now attract international students to their own centres of excellence.

Noted by Altbach (2002) and Altbach and Knight (2007), the flow of students is generally South to North; from poorer countries with less developed education systems and/or trading positions to the more affluent and established countries with highly structured and active education facilities. A few countries dominate the HE market while also dominating the scientific/research centres and having multinational corporations owning technology and intellectual property. The common language is English, either as the natural language or as a country's primary foreign language in both education and industry. He highlights the advantages that English-based organisations have and the inequalities across the largely Northern (read also Western/developed) countries versus the large Southern continents such as Africa and South America. In recent years of HE nationalisation;

> …the developing countries find themselves dependent on the major academic superpowers. (Altbach 2002).

This view is reasserted by Atlbach et al. (2009), reporting to the UNESCO World Conference on Higher Education where they state:

> The rise of English as the dominant language of scientific communication is unprecedented since Latin dominated the academy in medieval Europe. Information and communications technologies have created a universal means of instantaneous contact and simplified scientific communication. At the same time, these changes have helped to concentrate ownership of publishers, databases, and other key resources in the hands of the strongest universities and some multinational companies, located almost exclusively in the developed world.

The change in international student domicile between 1980 and 2000 is reported by Donn (2001), noting that the proportion of students from Commonwealth countries was 54% and those from the EU of only 9%. In twenty years, this changed to 25% Commonwealth and 50% EU. This change was in part due to the promotion of HE provision in European member states. Van Damme (2001) comments that, whilst not having an educational remit, the European Commission (EC) created a market for student flow across its member borders. Starting in 1987, with the ERASMUS (**E**u**R**opean Community **A**ction **S**cheme for the **M**obility of **U**niversity **S**tudents) student mobility programme, the EC has been able to significantly alter and improve the access to higher education for newer EU member states by providing a no-borders and flat-cost opportunity for students to travel and study in any European country.

Altbach (2002) also comments that part of the ERASMUS strategy was to create a sense of European consciousness in the younger generation. Whilst De Wit (2010), in his review of the preceding 25 years, discusses issues around the EC's intended strategies of exchange and cooperation in both research and education and that the success of opening up such opportunities has created a market economy. Where originally HE was reactionary (to local state policies, politics and trade), it now has a more proactive market-led approach where HE is exported and promoted as being a marker of quality. De Wit starts to question the issue of quality in international HE, suggesting that the business of education export may compromise quality.

The Universities UK 2018 analysis and summary of higher education students (Universities UK 2018) gives a detailed review over the 10-year period, 2007–08 to 2016–17. Their report differentiates between entrants for undergraduate (UG) and

postgraduate as well as full-time and part-time courses. The discussion below is principally about the undergraduate full-time cohorts, in line with our Games and Web course students.

The total number of students in HE was around 2.3 million in 2016-17. Specifically, for first degree full-time students, the numbers have grown by 27.6% from 2007–08 to 503,720 entrants in 2016–17. Almost a quarter of these students (23.2%) across all forms of engagement were from non-UK countries, with 6.2% coming from EU countries and 17% being classed outside the EU as International. This demonstrates that EU students form almost a tenth of UK HE student population (as shown in Fig. 13.1).

Looking at overall UG numbers for all students taking their first degree, we see in Fig. 13.1 that the rise in tuition fees in 2012 impacted on enrolments negatively between 2012–13 and 2014–15, with steady growth since 2015. Some of this is explained by a reduction in part-time numbers over this period, which have fallen year on year since 2010.

There has been modest growth in EU student numbers, growing from 4.9% in 2007–08 to 5.9% in 2016–17 with the growth in International numbers rising around a third in the period, from 10 to 13.3%. This increase is largely due to entrants from China and, to a lesser extent, India. There were similar fluctuations in numbers over the period with reductions in EU numbers in 2012–13 due to funding changes. Numbers in Scotland grew at this time (6%) because EU students were treated the same as Scottish students and fees were not paid by them. However, the change in fees in England and Wales from £6,000 to a maximum of £9,000 caused a reduction in EU students this year. EU student enrolments have since recovered to be 12.3% higher than the low in 2012–13 (Fig. 13.2).

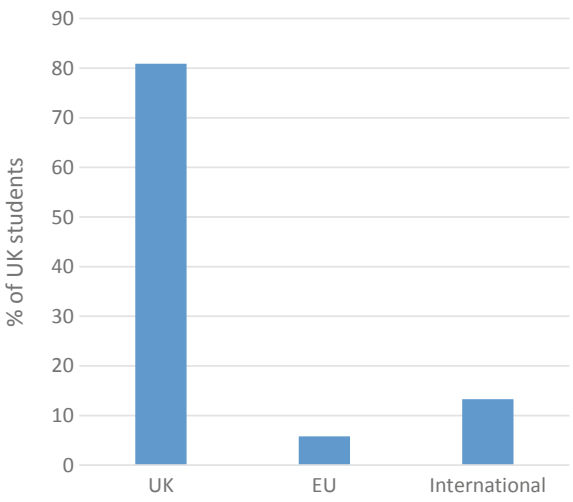

Fig. 13.1 Origin of students in HE in 2016–17

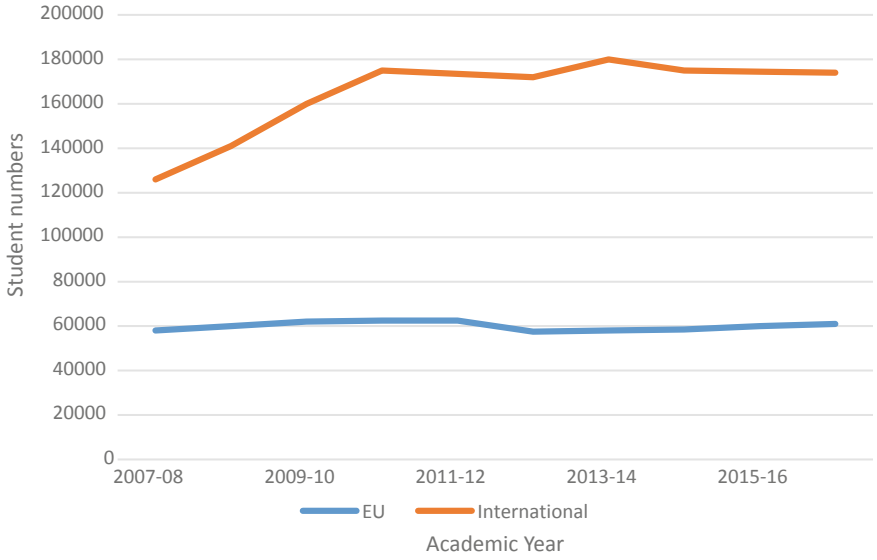

Fig. 13.2 Non-UK entrants into UK HE, 2007–08 to 2017–18

Considering combined EU enrolments as a single territory, it becomes clear from Fig. 13.3 that the EU is the largest non-UK feeder area (the International numbers cover the rest of the world).

However, being domiciled in Europe isn't as straightforward an assessment as it would first seem. For the purposes of the UK Government's Higher Education Statistics Agency (HESA 2019a), there are three categories of European domicile, covering everything inside the continent of Europe, minus the UK. They are:

- Other European Union;
- Other EEA countries; and
- Other Europe.

The majority of our students (bold, in the list below) come from the "**Other European Union**" countries of:

> Austria, Belgium, **Bulgaria**, **Cyprus**, Czech Republic, Denmark, Estonia, Finland, **France**, Germany, Gibraltar, **Greece**, Hungary, Ireland, Italy, Latvia, **Lithuania**, Luxembourg, Malta, Netherlands, **Poland**, Portugal, **Romania**, Slovakia, Slovenia, Spain and Sweden. Croatia is additionally included in this category from 2013/14 onwards, having acceded to the EU on 1 July 2013. (HESA 2019a)

The **Other EEA countries** (European Economic Area) comprise Iceland, Liechtenstein and Norway, whilst **Other Europe** includes:

> Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Cyprus (Non-European-Union), Faroe Islands, Georgia, Kosovo, Macedonia, Moldova, Monaco, Montenegro, Russia, San Marino, Serbia, Svalbard and Jan Mayen, Switzerland, Turkey, Ukraine,

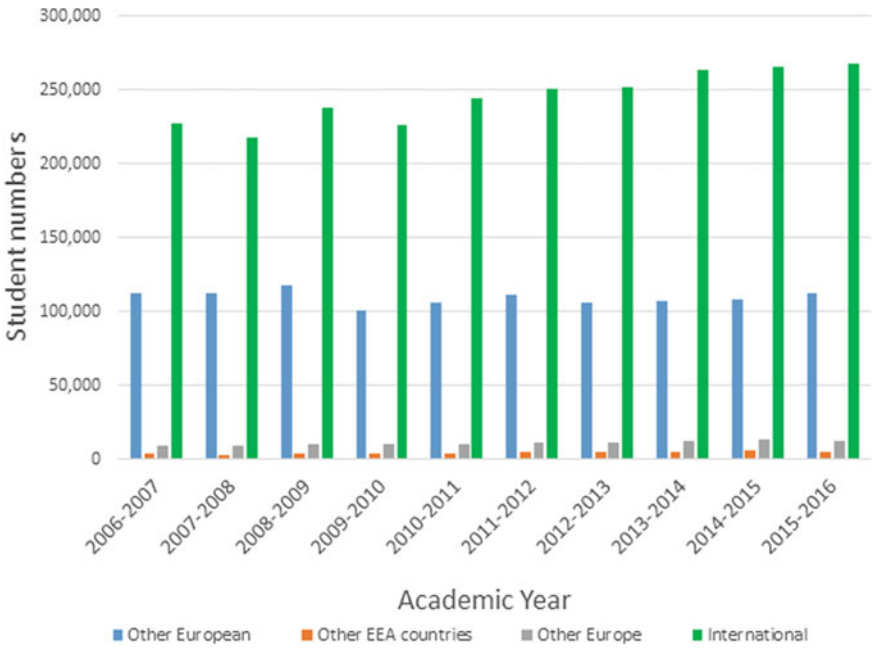

Fig. 13.3 Non-UK student numbers in UK HE, 2006–07 to 2015–16 (HESA 2019b)

Vatican City and Europe not otherwise specified. Croatia was included in this category prior to 2013/14. (HESA 2019a)

Being domiciled in an "Other European Union" country, students are offered the same HE tuition fee rates as students in that region. There is a variation in fees between England/Wales, Scotland and Northern Ireland and Table 13.1 shows current 2019 fees for different domiciles studying in each of the four UK regions (UCAS 2019).

Tuition fees have grown considerably in the last 20 years. The concept was introduced in 1998 of £1000 per year in the Teaching and Higher Education Act 1998. Fol-

Table 13.1 Tuition fees by UK regions for courses starting in 2019 (UCAS 2019)

Student's home region	Studying in England	Studying in Scotland	Studying in Wales	Studying in Northern Ireland
England	Up to £9,250	Up to £9,250	Up to £9,000	Up to £9,250
Scotland	Up to £9,250	No Fee	Up to £9,000	Up to £9,250
Wales	Up to £9,250	Up to £9,250	Up to £9,000	Up to £9,250
Northern Ireland	Up to £9,250	Up to £9,250	Up to £9,000	Up to £4,160
EU	Up to £9,250	No Fee	Up to £9,000	Up to £4,160
Other international	Variable	Variable	Variable	Variable

lowing devolution, English, Welsh and Northern Ireland's universities were allowed to charge a variable fee up to a cap of £3,000 under the Higher Education Act 2004 for students enrolling 2006–07. Scotland decided to have zero tuition fees for Scottish domiciled students. Where fees applied, the cap was increased to £3,225 in 2009–10 to allow for inflation.

Following the Browne Review (Browne 2010), which assessed the future of HE in the UK (except Scotland), it was proposed to raise tuition fees to £9,000. A failed attempt at overturning this via a judicial review in 2012 resulted in the delayed implementation to the start of the 2012–13 academic year. This rise had a marginal negative impact on enrolment numbers in non-Scottish UK universities from both home and EU students, as seen in Fig. 13.3 (HESA 2019b). Scottish universities benefited from this rise as a result of European students not being charged tuition fees. The rise to £9,000 per year was mitigated in the form of a long-term repayment scheme which commences once the graduate earns above a certain threshold, thereby minimising the immediate financial impact.

13.3 EU Students—Huddersfield Games and Web Courses

In researching our admissions and progression data for this chapter, the authors encountered the issue of data access and publishing restrictions from the recently introduced General Data Protection Regulations (European Commission 2018). We had hoped to reach back 15 years or more as the courses are all mature. Mandated by the European Commission in May 2018, the Act regulates access, use and publishing of personal data. The relatively small numbers of EU students on the respective courses allowed for potential identification restricting the use of the data to a very basic level: country of origin and course.

The available data provides a summarised view of EU domiciled students for Web, Games Design and Games Programming courses over the three academic years 15/16 to 17/18. Figure 13.4 shows students coming from Bulgaria, Cyprus, France, Greece, Lithuania, Poland and Romania. The large number of students from Bulgaria is unexplained and offers an opportunity for further research. The Web courses have a more even spread of students from Bulgaria, Lithuania and Poland, totalling 16. Very few International (Non-EU) students join the courses, and it is interesting to note that the Games Design course, being approximately twice the annual total cohort of Web courses, has fewer EU students; Games Design has 21 and Web has 27. The Games Programming course only has four students and they are from Lithuania, Poland and Romania.

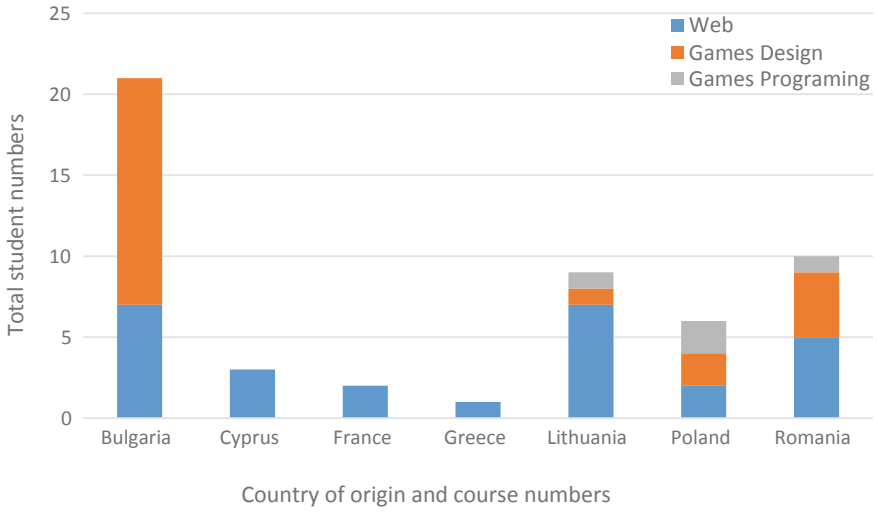

Fig. 13.4 EU entrants web and games courses (2015/16 to 2017/18)

13.4 Student Case Studies

We contacted graduate European students from the Games and Web courses and asked them to complete a survey to assess their planning, expectations, study and impact from their time on the courses. The questions were as follows:

- Please tell us something about your previous education before University and what grades you achieved?
- Why did you decide to study in an English language University?
- Why did you choose the UK to study?
- Why did you choose the University of Huddersfield?
- Please tell us something about why you decided on your course at Huddersfield
- What were your expectations before starting the course?
- Were there any pleasant surprises or disappointments with any element of your time with us?
- Did your time with us meet your expectations?
- Is there anything you wish you'd known before you started?
- Looking back, what was the main value in studying on the course? and
- How did the course shape your career (expectations, jobs, location, etc.)?

A total of 11 respondents originated from Bulgaria, Cyprus, Greece, Lithuania, Poland and Romania.

Previous education. Answering about previous education and grades, most were high-achieving students with good grades across a wide range of subjects; some including ethics, law and philosophy along with the more typical biology, history,

chemistry and physics. Most have taken their country's equivalent to A-Levels, perhaps via a baccalaureate. A Polish graduate reflected that they had largely mirrored the English system "*… although [the] English one seems to be more respected worldwide.*" One mature student, previously a registered nurse, joined one of our courses in a career change and had nursing experience allowing for part-time employment whilst studying.

Studying in the English language. Many respondents note that their English language skills were already good due to their country's secondary language at school being English. Several wanted to study in a language that they *"enjoyed speaking"*, recognising the reduction in integration barriers when communication is fluid. In this section, respondents mention the lack of study options in their country of origin ("*my native country did not have enticing study options*") as well as the perceived higher quality of education in the UK.

Studying in the UK. Many reasons are for studying in the UK were offered, some relate to a lack of choice in the home country, others relate to the wide variety of course options and the worldwide high reputation of UK degrees (often referred to as "diplomas"). Other reasons include:

- Wide range of courses;
- UK universities have a strong focus on employability;
- The "*tutor–student relationship is well established*";
- Significant support for finance, accommodation and ability to work in a part-time job;
- A UK degree is recognised worldwide;
- UK universities are very welcoming for international students;
- "*The recruiter suggested it*" (agents working on behalf of the University);
- An opening up of worldwide opportunities;
- An enjoyment of speaking English (liking the accent) and wanting to be fluent; and
- A chance for adventure in a familiar language.

A major factor quoted by one was the cost. Although high, the payment terms are most reasonable…

> Another big factor was availability in terms of cost - while price for studies in UK is massive, the leniency and availability of student loans was very attractive. The fact that at the time of study, university fee was practically free/non-existent made it a compelling choice, as I would not be able to afford studies otherwise. And if I ever do pass the repayment threshold - terms are friendly enough to not cause too much of a hindrance.

One graduate mentioned their experience before and after Brexit. At the time of writing, Brexit continues to divide communities and politics. A certain amount of anger would seem to have been expressed to some students, as tactfully explained by this graduate:

> Before Brexit, the education and student life, which England provided was ideal for me. I got to experience the both sides. The quality of the education did not decrease, but my interactions with people in general changed and I would not say that the change was positive.

Choosing Huddersfield for study. Several chose Huddersfield because of rankings and league table positions. Several mention recommendations from friends and recruiting agents. Having a high number of awards seemed to set Huddersfield apart from other universities. Some have researched well before starting and mentioned watching a specific video where students/graduates were interviewed, and that staff and teachers "*were great*". Others mention liking the courses offered, diversity in an institution that deliberately attracts students from a wide range of countries, and that we maintain our computer systems "*to a high standard*". Students related having undertaken serious research into the university itself, mentioning the Gold TEF (Teaching Excellence Framework) and how this narrowed the choices for their desired course.

Reasons for choosing the course. Many respondents refer to the respective breadth of module coverage, depth of work/learning and the suitability of the materials covered to what they saw themselves doing in industry. One respondent states "*following their passion*" as fundamental in choosing their course. Many reveal a depth of research into their future career path and how their course at Huddersfield would satisfy that goal. One mentions the friendly environment which… *"enables people to grow, not only in terms of their studies, but as human beings as well"*. A wide variety of subjects are also mentioned in relation to how practical the approach to learning is. One graduate put it quite succinctly:

> Overall better objective quality of education in Western Europe, higher prestige of graduating from a University in England, having a better and wider variety of options for courses and having a good grasp on the English language.

Expectations before starting the course. Most respondents reveal that they had few or no expectations about the course, with some expressing that they were open to the perceived high-quality experience enriching their lives in both the academic/technical subjects as well as personal growth. One main factor is the expectation that they would end up having the skills, knowledge and exposure to industry processes that would lead to an interesting and rewarding career. Their job search is now global as they would have a high-quality degree, with an attractive skill set and with any perceived home-country prejudice removed.

One respondent mentions their initial nervousness at not being able to keep pace with both studies and part-time work in order to still achieve good grades. In practice, their fears were unfounded.

Pleasant surprises and disappointments. Many referred to the practical nature of the work and the lack of exams, quoting the benefits of working on assignment work that was realistic, industry-sponsored or involved a real client brief. Many also liked the relaxed atmosphere in class and that *"…tutors were surprisingly friendly, supportive and helpful…"*, something that was uncommon in higher education in their home country. Access to a wide and deep range of electronic library resources was appreciated by one, referring to the instructional videos of Lynda.com and other digital video libraries for which our university has licenses.

Several respondents mentioned being disappointed with the less-motivated students in class, lacking a competitive attitude. This is particularly relevant in teamworking modules that are in most courses in most years. It affected their morale, one bemoaning the lack of challenge and pressure…

> At various moments I was disappointing because it wasn't challenging / competitive enough or lack of pressure/organisation.

Meeting expectations. Respondents were very praise-worthy and short with their answers in this section. Many didn't have detailed and specific expectations and we conclude that they generally expected a high-quality industry-focused education. They were prepared for the range of experiences on offer and committed to work hard. Many expressed satisfaction that their course met their expectations, or even exceeded them. A few snippets follow: *"… Met and exceeded, yes.", "It did, I learned many useful things."* and *"Yes, it was probably the best decision for my academic and professional career"*.

One did express the opinion that not everything in their educational experience met the same high standards;

> Overall, i was very happy with the course but I would have preferred more intense attention/feedback sessions. I think some lecturers could have been more devoted and inspiring.

Knowledge before starting the course. There were some honest and reflective comments and so a few are included verbatim. Many reflect that as they progressed through the course, they became increasingly aware of the advantages of refining a skill set that would lead to their specific career goals. Finding their passion earlier within the course would have inspired them and provided a more focused trajectory. We now aim to graduate individuals ready for employment with a wide range of skills but often with a focus on one specialised element…

> I'd probably would like someone to tell me 100x times every day that I should decide my career path now or at least think about it. Focus on one specified path and tailor all modules into this path.

Many students in the Games and Web area don't initially see that publishing a portfolio of their work will aid their employability, although it may indeed be the deciding point for an employer to hire a graduate. Soft skills such as publishing and opening themselves up to critical appraisal are empowering for those who engage, as this comment confirms;

> Making sure to by the end of every year or half a year I would have updated revised portfolio that I could use as an entry point.

Eager to become engaged with industry, we have student assignments closely aligned to national and international competitions in the Games sector and this is an area where students are critiqued by industry and judged against peers from other universities. We also invite industry speakers to talk to students although the following comment suggests we could do more;

> Last thing I would like to know is that passionate person should start reaching out for professionals as soon as possible. If someone would like to be an artist and work for a company It would be best to try and meet people that are currently working there. Asking for feedback and guidance might sometimes be priceless. Just making sure not to stalk anyone.

In a long and reflective comment, one respondent reflects upon their time management and how their course was too lenient by allowing long periods between hand-in deadlines. They also mention that a prior gap year would have been useful to them in gaining a better work ethic to take on their degree:

> I wish I knew many things before I started, but most of them are tied to my mentality and behaviour. University environment was completely different from any other prior education I had, and I was completely on my own the entire time on daily life basis, not to mention the major culture shock (which was pleasant, but very different regardless - I love UK culture). One thing in particular that stood out - course was very lenient and had very long deadlines for assignments. I had no self discipline, and was completely unprepared for this major environmental shift and newfound freedom. This combination of previously mentioned things resulted in a large chunk of wasted time, and ineffective studies. If I knew what I was getting into, I would probably have taken a one year break before starting my studies - to mentally prepare and research, as well as develop better work ethic. There were simply too many new things. Though, I think that much shorter and concentrated deadline milestones may help some students with low self-discipline, such as myself.

The main value of the course. Many respondents cite access to a wide range of equipment and software alongside the soft skills of learning the practicalities of problem-solving as positives. The ability to understand, undertake and value academic research was appreciated. Among other benefits mentioned are:

- Access to tutorials—both staff-generated and professionally provided video training;
- Working on industry projects with live clients and briefs;
- Working in team projects with others having different skill sets, ideas and ambitions;
- Excellent employment opportunities—full-year placements and graduate prospects;
- Discovery—the ability to find their niche in a broad industry; and
- Attaining the mindset, skills and ambition to find an appropriate job on graduation.

How the course shaped careers. Many comments related to how the course had improved the skill set and cemented the ambition for pursuing a career in their chosen field. One commented that the course provided a more realistic understanding of what a job in the industry entailed. Another stated that their expectations were exceeded and they achieved their ideal starting job whilst continuing to develop their skills. A further responded that they had attained a better job than they had expected before starting the course. Summing up the value of studying with us, this graduate comments:

> Definitely gave me a great opportunity and experience. Confidence, technical knowledge and preparation for the working environment. Needless to say, a diploma from a UK university definitely stands out and there is a reason for it!

13.5 Conclusion

Reflecting on the successes of our graduates, the authors have been consistently impressed with the diligence, ambition, conscientiousness and achievements of our international students, largely coming from Europe and the former Eastern-bloc countries in particular.

Generally, our European students performed strongly in their home countries in A-Level equivalents and Baccalaureates. They researched diligently the country, university and courses available before making their final decision. Reflecting on the decision process, it was clear that an English-speaking university was a priority, English universities are considered to have a positive reputation worldwide and therefore attaining a degree here provides excellent employability opportunities.

Many were pleasantly surprised by the informality of our student–staff relationships. There is a wide margin between the majority, who ambitiously want to be challenged further, having realised what is on offer, and a minority who found the less-regimented self-directed approach difficult in terms of time management. Although studying in a second language and in a different country, we see a wide range of confidence when speaking out and presenting in class.

Despite the change in tuition fees in 2012 (and the negative impact of its 2-year run-up to launch), the £9,000 tuition fee did not provide a significant barrier for students joining us, largely due to the help and support of both the recruiting partners, based in their home country, and our finance, accommodation and support systems in place locally. The access and ease with which EU students can attain part-time jobs, and the welcome they generally receive in the workplace has also been a positive influence.

From a purely subjective point of view, the authors believe that our EU students exceed expectations because of their mature and professional attitude; they are often exemplars of that which we would like to observe in our general cohort. It is evident that our university benefits enormously from the recruitment of students from the EU and further afield. Rising to the opportunities and challenges, learning new skills and utilising technologies, provides them with extensive opportunities to embark on a successful career journey.

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Chapter 14
Synergistic Constructive Alignment: A Mapping Toolkit for the Generation of TNE Dual Awards

David Cobham and Kevin Jacques

Abstract The authors, staff members of the School of Computer Science at the University of Lincoln, established a toolkit for the generation of dual awards in TNE which utilises the principles of Constructive Alignment to support a quality assurance process which clearly demonstrates equivalences in programmes of study at the home and partner institutions. Using the toolkit, which is based on what the authors refer to as Synergistic Constructive Alignment, the partner institutions retain the ability to deliver localised modules and assessments which maximise the potential for enhancing the student experience without impacting upon the coherence of the host programme or on the equivalence of standards across programmes and campuses. The assurance of standards based on Synergistic Constructive Alignment has since been utilised by five other subject areas, and the toolkit has been enhanced and enriched by subsequent advancements in softer quality-based practices and activities which have seen the TNE relationship flourish.

Keywords Constructive alignment · Synergistic Constructive Alignment · Student experience · Quality

14.1 Introduction

This chapter presents a summary of the processes adopted by the authors who work at the University of Lincoln in the School of Computer Science. It details how the authors developed, constructed, validated and operate dual awards in partnership with Kolej Damansara Utama (KDU) University College at their Penang campus in Malaysia. The authors developed a theoretical toolkit for the generation of dual degrees in three Computer Science programmes at KDU which attempted to address the issues with cultural differences in higher education provision that were

D. Cobham (✉) · K. Jacques (✉)
University of Lincoln, Lincoln, UK
e-mail: dcobham@lincoln.ac.uk

K. Jacques
e-mail: kjacques@lincoln.ac.uk

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seen as limitations in other models of Transnational Education (TNE) partnerships. The theoretical approach was founded on Constructive Alignment principles that have provided a well-established foundation for the construction and management of institutional-wide degree programmes at the University of Lincoln, and have been used to construct and deliver programmes that meet the Quality Assurance (QA) requirements of the partner institutions, the national QA agencies (the Quality Assurance Agency (QAA) in the UK and the Malaysian Qualifications Agency (MQA) in Malaysia) which oversee them, and professional accrediting bodies (in particular the British Computer Society in the UK). The adoption of this toolkit has allowed for the localisation of curricula and assessment processes to maximise the pedagogic relevance of local delivery in pursuit of an improved student experience, whilst simultaneously providing a rigorous framework to underpin the implementation, management and evaluation of the programmes of study.

The chapter will provide a summary of the approach to TNE adopted by the authors and how Constructive Alignment principles have been used to construct programmes and inform the implementation of delivery at KDU. It will additionally present an overview of the implications for standards and quality management and how the constructive approach has influenced operational practices at both partner institutions. In doing so, a new term—Synergistic Constructive Alignment was coined to capture the process undertaken and to thereby provide a toolkit to facilitate the future production of dual awards.

14.2 Transnational Education and the University of Lincoln

Across the UK, many Universities engage in TNE with large numbers of programmes delivered at branch campuses in overseas countries, or through partnership arrangements with local higher education providers in those countries. TNE is defined by the Council of Europe as "all types of higher education study programs, or sets of courses of study, or educational services (including those of distance education) in which the learners are located in a country different from the one where the awarding institution is based" (Council of Europe 2002). The drivers for TNE are many and varied and include the internationalisation of the home curriculum and student experience; opportunities for student and staff mobility through exchange programmes or short study courses (Culver et al. 2012); building research or industrial networks; to help achieve institutional financial objectives; helping to build the University brand overseas (Wilkins and Huisman 2012); and in more recent times to overcome demographic and political factors which have seen a diminishing number of international students applying to study at UK home institutions (Corbet and Gordon 2018). The number of international students attending a UK-based programme in 2016–2017 was roughly 440,000, which is far less than the number of TNE students engaged in study for UK higher education qualifications at an institution outside of the UK

Table 14.1 Forms of TNE (UUKi 2018)

TNE mode	Type of provision	Mode of study
Studying for an award of the reporting provider	Students registered at the overseas partner organisation and studying for an award of the reporting provider	The majority of teaching is delivered in-country typically through franchise arrangements
Distance learning, distributed learning or flexible learning	Students are registered at the reporting provider and studying for a UK HEI award but where the study is engaged with overseas	The majority of teaching is delivered online
Branch campus	Students are registered at the reporting provider and studying for a UK HEI award at an overseas campus of the reporting provider	Overseas stand-alone provision or joint campus provision
Collaborative provision	Students are registered at the reporting provider and studying for a UK HEI award at an overseas campus not of the reporting provider	Joint and dual degrees
Other	Students engaged in overseas study not falling into categories above	Typically, multiple UK or international partners delivering a programme, or where the provision takes a combination of approaches

which for the same period exceeded 700,000 (HESA 2018).[1] It is currently estimated that approximately 84% of UK Universities operate TNE arrangements in 228 different countries worldwide (UUKi 2018), with Malaysia, Singapore and China cited as the countries most engaged in UK based TNE activity (Healy 2015). The form and nature of the TNE arrangements typically fall into five identifiable forms which are summarised in Table 14.1.

As with any provision that is not directly under the control of the hosting institution, there is an element of risk associated with each of these modes of TNE (Stafford and Taylor 2016) which has resulted in differing approaches and attitudes towards the management and quality assurance monitoring of TNE arrangements at UK institutions (Henderson et al. 2017). Often the stringent QA processes that are put in place to mitigate such risks are seen as 'a minefield' or to serve predominantly as 'blockers' to effective teaching and assessment processes that make for either less than ideal learning experiences or even make the provision pragmatically unworkable (Hughes and Thomas 2017).

[1]This figure includes the unique Oxford Brookes BSc in Applied Accounting which in isolation accounts for around 45% of all UK TNE students.

At the University of Lincoln, a strategic decision was taken to advance the institutional provision of TNE and to aim to work with a small number of high-quality, large sized key strategic partners to fulfil the internationalisation agenda of the University. Additionally, the strategic aim was to operate new partnerships under a facilitative and supportive QA regime that simultaneously allowed for clarity and consistency of management processes, whilst being founded upon principles of pedagogy that act as enablers of good teaching practice. The aim was to ensure that TNE practice in the institution would allow a flexible approach to partnerships whereby the exact form and nature of individual TNE arrangements could respond directly to the desired mode of operation that worked best for each partner. To date, the majority of the TNE students at the University are enrolled on dual award programmes.

The University of Lincoln has a long-standing history of constructing programmes through the principles of Constructive Alignment and operates a bespoke Academic Programme Management System (APMS) for the management and quality oversight of all its taught provision. The approach to TNE programme construction and management at the University is now founded upon the application of these principles and fully supported by systems and processes that have Constructive Alignment at their heart.

14.3 Constructive Alignment

Constructive Alignment is a mechanism used for developing the formal structure of a programme of study which has seen the acceptance of the need to specify and publish in advance what the learning aims of any given programme of study are, and to define how educators intend to deliver and assess the learning of students. These educational aims are typically articulated through the various specification documents in common use in UK HEIs which respond directly to the UK Quality Code for Higher Education (QAA 2014). Constructive Alignment is predicated upon the development process working in conjunction with, and being informed by, underpinning pedagogic principles which together ensure that learning that takes place through teaching and assessment tasks that are demonstrably informed by clear linkage to the nature and purpose of each programme of study. Devised by Biggs (2003, 2014), the principles of Constructive Alignment have largely been adopted by those responsible for creating, delivering, auditing and reviewing those processes, and in many institutions, these are supported and mediated through the use of bespoke information systems (Cobham and Jacques 2006).

Most higher education programmes are specified with a set of high-level (programme) learning outcomes. Programmes are usually created by combining a set of modules each of which are defined by a set of programme level learning outcomes which are informed by such external agency requirements as are specified for each cognate subject area. In the UK, the Quality Assurance Agency (QAA) produces and periodically updates Subject Benchmark Statements which give a high-level overview of the requirements of any programme within a subject area; many subject

areas in addition also respond to programme accreditation requirements presented by professional bodies (for example, the British Computer Society for computing programmes). At the University of Lincoln, it is a requirement that all programme specification documentation clearly demonstrates adherence to these external requirements by mapping programme learning outcomes against the high-level subject benchmark statements set by external agencies.

In addition, for each programme, the programme learning outcomes are mapped onto individual module learning outcomes, which must, in their totality, evidence that the modules of study taken by students demonstrably present learning opportunities which cover all aspects of the programme level learning outcomes. This again is supported at the University of Lincoln by the APMS system which requires a mapping of module learning outcomes against programme level learning outcomes. This systems-driven approach provides exception-based rule checking to ensure that there is complete coverage and helps to provide a visual interface to assist in the identification and elimination of such programme issues as lack of structural coherence, missing assessment coverage for learning outcomes and over-assessment.

The full alignment of the curriculum is finally completed by the creation of assessment strategies which are articulated through direct mapping to the module learning outcomes for each module, such that all students are assessed on their competence in all module learning outcomes through a variety of assessment opportunities that are thus aligned to the programme outcomes and the overarching learning requirements of all external agencies. The nature and form of assessment is additionally informed by academic principles and level descriptors which ensure that both the type and the complexity of learning and assessment are appropriate for the hierarchy of levels of academic stages of development as presented in Bloom's taxonomies (Bloom 1956) and supported by appropriately articulated assessment criteria which are defined by level-specific verb constructions (Adelman 2015). Constructive Alignment thereby uses a form of vertical close coupling to link the requirements of the programme directly to the requirements of individual modules of study and to both the teaching and assessment activities that form the basis of student learning in the programme. Programme managers and quality assurance agencies can therefore clearly evidence that the requirements of the programme overall are met. Through this process student learning thereby constructed. The Constructive Alignment principles are summarised in Fig. 14.1.

The QA principles in place at the University of Lincoln operate in such a way as to prescribe programme outcomes, module specifications and assessment strategy definitions which are formally defined and approved at a validation event and which, in the normal annual delivery schedule, are unchangeable (and hence bordered by solid lines in Fig. 14.1). Cognate subject areas are empowered to allow the nature and form of assessments to be locally managed and changed at module level each year through the application of less onerous QA processes (and hence are bordered by broken lines in Fig. 14.1). It is this acknowledgement that variations to the content of assessment opportunities at module level do not impinge upon the academic validity of the overall programme of study that, together with appropriate module learning outcome mapping, enabled the development of dual award programmes which satisfy

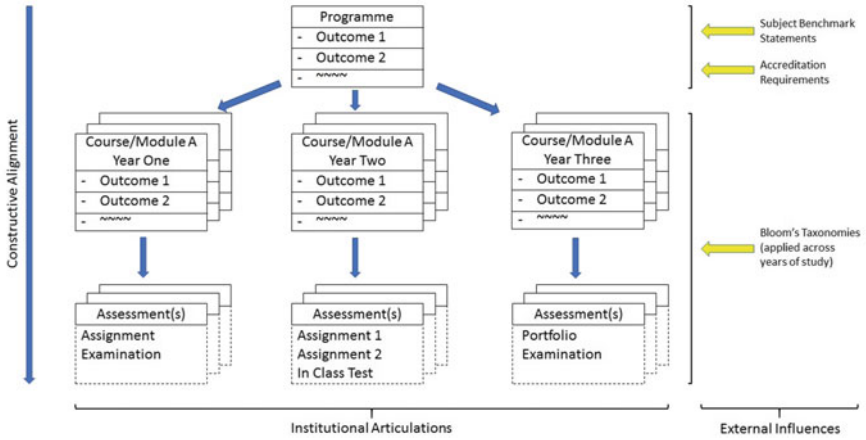

Fig. 14.1 Constructive alignment summary

QA and partner delivery requirements through the underpinning of a principle of curriculum alignment supported equivalency.

14.4 Dual Awards and Horizontal Coupling

By acknowledging the close vertical coupling of programme outcomes through to learning and assessment mechanisms through the process of Constructive Alignment, the authors established a toolkit whereby the mapping approach could be deconstructed to provide an alternative to the standard franchise model which still demonstrated compliance to academic quality of the home programme. The franchise model of TNE typically requires the partner institution to adopt the programme and module specifications of the home institution in their entirety, which would typically include a complete mirroring of the home institution assessment diet. Franchise delivery therefore ensures QA requirements are met through replication, or absolute equivalence of all aspects of the programme at each delivery institution (see Fig. 14.2).

The approach taken at the University of Lincoln was to formalise a process whereby programme equivalence could be established between programmes running at the home institution and those running at the partner institution through the mapping of programme level and module learning outcomes for each programme in the partnership arrangement, but which allow a de-coupling of the assessment regime that completes the Constructive Alignment of each programme. By utilising Constructive Alignment as the means for demonstrating vertical close coupling between programme outcomes, module learning outcomes and accumulative assessment setting at module level independently in either programme, it is argued that

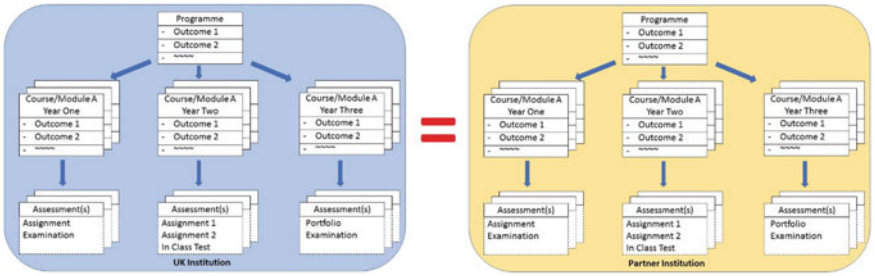

Fig. 14.2 Franchise delivery—absolute equivalence

by demonstrating a horizontal equivalence between module learning outcomes of the two programmes, that the principles of Constructive Alignment present evidence that the two programmes can be deemed to be equivalent. The foundation of the toolkit therefore relies on the identification of evidenced tight coupling between the module learning outcomes of both programmes through a clear mapping process. To further enhance the demonstration of equivalency in this process, the authors concluded that an additional mapping of programme outcomes between both programmes would add an extra level of confidence for both institutional QA and external agencies. Since this additional mapping was deemed to be an enhancement rather than a requirement for the demonstration of equivalence, the Programme Outcome mapping was done through a more general oversight, or loose coupling approach to mapping at this level. This process thereby demonstrates equivalence through the loose coupling of programme outcomes and tight coupling of module outcomes in an intellectual programme deconstruction exercise which utilises the previously validated vertical coupling processes of Constructive Alignment to ensure coherence of each programme. This is represented in Fig. 14.3.

At the conclusion of this mapping exercise, either the two mapping processes demonstrate that there is equivalency between institutional programmes, or there is a clear identification of where gaps in the learning outcome coverage need to be addressed for equivalency to be established.

The last stage in the toolkit is to formalise any changes to the delivery and coverage of teaching, learning and assessment at local module level that are needed to ensure Constructive Alignment principles of both programmes are still maintained.

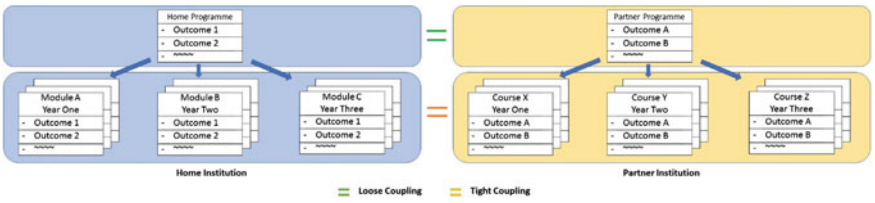

Fig. 14.3 Deconstructed equivalency and horizontal coupling

Both programmes therefore have a clearly mapped horizontal equivalence at both programme and module level, and the vertical close coupling of each provided by Constructive Alignment ensures that the delivery and assessment mechanisms can thus be organised locally at each institution without the need for wholesale duplication of delivery materials and assessment documentation. Essentially, programme outcome equivalence evidenced through loose coupled mapping, and module learning outcome equivalence evidenced through tight coupled mapping leads to an institutional acceptance that individual programme specifications, module specifications and localised assessment offerings are demonstrably equivalent *as a consequence* of the application of Synergistic Constructive Alignment.

This toolkit therefore presents an evidenced-based opportunity for offering dual awards whereby the achievement of an award from one institution can be deemed as being equivalent to an award from the other. A dual award is therefore theoretically authenticated and verified through horizontal coupling which does not require absolute equivalence and the imposition of the home institutions curriculum and programme structure (see Fig. 14.4).

This approach suggests that an award of one institution can be achieved by the completion of an award at another, albeit with some modifications to the teaching and assessment process. This presents an additional advantage as a consequence of demonstrating the equivalence of the learning outcomes of both programmes through a clear adherence to the principles of Constructive Alignment, in that it offers a fluidity in context underpinning local delivery, and also allows for the nature and form of assessment types offered at both institutions to be different without impacting upon the applicability of the need to demonstrate competence across all programme outcomes in both programmes. Oversight of the partner provision in quality assurance procedures can therefore be concentrated upon the application of standards since the underpinning mapping processes have assured equivalence of quality at the outset. Whilst it may be contentious to suggest that the educational experience in diverse locations can ever been seen as equivalent, the trend towards diverse new types of education providers, delivery modes and increasingly more complex forms of

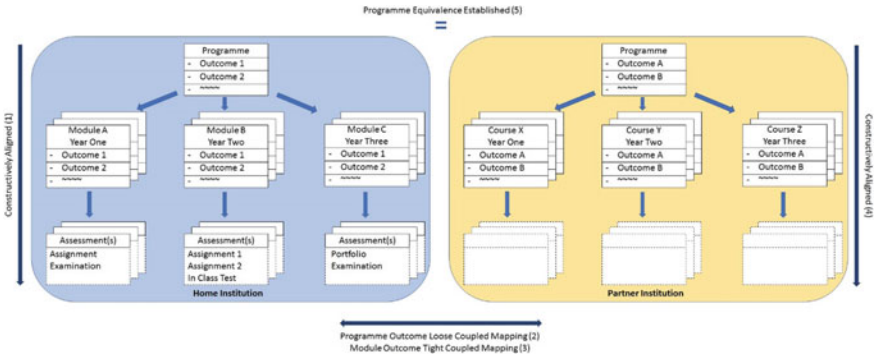

Fig. 14.4 Establishing equivalence through Synergistic Constructive Alignment

educational partnerships has served to hinder and complicate matters of educational equivalence (Knight 2015, Phan 2017) and has been cited as an area of concern in TNE partnership (Tan et al. 2017). The approach taken at the University of Lincoln suggests that the pedagogic constructivist principles of Constructive Alignment help to facilitate the removal of the need for homogeneity of assessment types within modules across academic institutions and which allow clearer definitions of academic equivalence to alleviate the concerns that Tan expresses. The validity of the dual award is thus dependent upon adherence to standards through quality assurance and moderation processes that do not require enforced justification for one particular assessment mode over another. The practical flexibility this offers both institutions in terms of assessment setting processes is seen as a considerable advantage in the management of TNE programmes and differential learning experience for students who are learning in different environments and contexts.

The levels of assurance that are provided by this toolkit to demonstrating equivalence in educational programmes ultimately rely upon appropriate mechanisms for the presentation of evidence to support the stated equivalence. At the University of Lincoln, this has been achieved through the formal presentation of curriculum mapping documentation as an adjunct to the formal programme specification documentation.

14.5 Curriculum Mapping

Curriculum mapping will be a familiar process to many programme leaders or admissions tutors as it is a process regularly employed to facilitate accelerated entry points to a programme of study where an applicant has a previous, typically sub-degree, qualification or has already engaged in the partial completion of a programme of study at another institution (Uchiyama and Radin 2009, Harden 2001). Typically, the process involves the evaluation of a previously obtained transcript which details module marks for the prior learning achieved by the student accompanied by the detail of the learning outcomes that characterise those modules, which are notionally mapped against modules contained within the programme applied to at the home institution. Where there is general coverage, students are typically admitted to an accelerated entry point in the home institution degree programme, and if appropriate gaps in the student prior learning are identified and additional modules of study can be added to the student portfolio to ensure full adherence to the requirements of the degree.

In formal articulation agreements at the University of Lincoln where part-completion of a specified programme of study at another institution, for example, for a sub-degree programme at a local Further Education College, has been mapped against a degree programme at the University, this has been done largely by mapping module against module. This ensures all required competencies are identified and the progression of the student is seen to be appropriate. For the award of a dual degree however, it is crucial that the learning outcomes of both the home and partner insti-

tution are clearly mapped to ensure the equivalency of the programmes. In line with the horizontal loose coupling process identified above, each of the programmes of study to be delivered at both the University of Lincoln and KDU University College were first matched at the Programme Outcome level to ensure a general fit between the two programmes existed. As part of the lead-into commencement of delivery, this process was conducted in the academic year prior to delivery, and where gaps in the programme mapping process were identified, Computer Science staff at KDU together with colleagues at the University of Lincoln worked on developing new modules, or adopted home modules into their provision to ensure that full mapping of programme outcomes was achieved. Once this process was completed a full module learning outcome mapping process was conducted for all programmes. An extract from a sample learning outcome mapping grid which formalises this mapping process can be seen in Fig. 14.5. The initial module mapping (shaded green) represents a general programme outcome equivalence between University of Lincoln modules (the top heading) and KDU courses (the side heading) which had been identified as representing a one-to-one relationship between the module and programme outcomes as articulated in the constructively aligned programme outcome mapping process of the home programme. In this way, Constructive Alignment mapping processes of both programmes are reinforced by the initial mappings. These initial mappings helped to inform where general equivalence had been identified, but these were ultimately supported by a deeper mapping of individual LOs (University of Lincoln module learning outcomes) and COs (KDU course learning outcomes) to solidify this initial equivalency process, and simultaneously to allow for mapping of LOs and COs

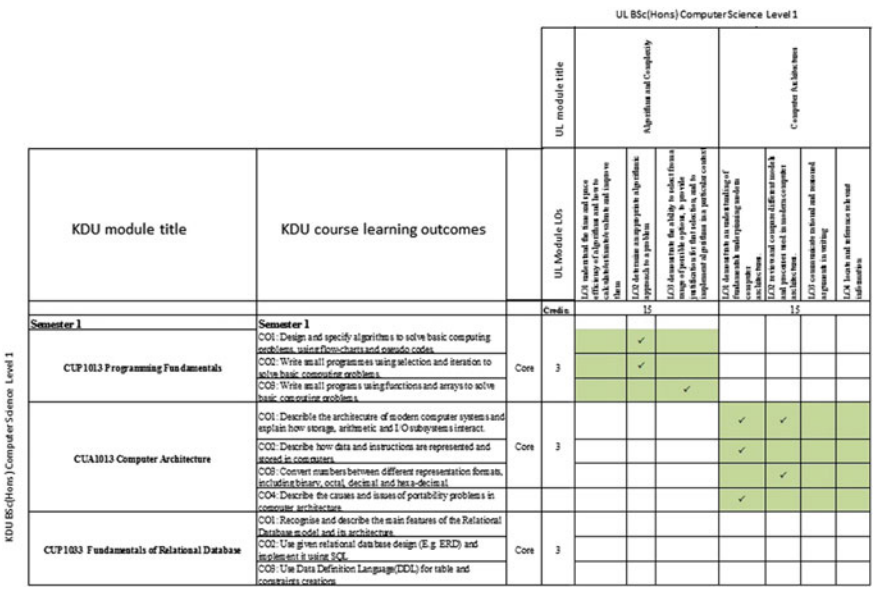

Fig. 14.5 Excerpt from a programme mapping grid

that fall outside of the higher level mapping process. In this way, the toolkit offers demonstrable assurance that the totality of the LOs of the home programme is met by the COs of the partner programme. The ultimate responsibility for this mapping rests with subject matter experts within the relevant Schools at the University of Lincoln and identifies through the placing of ticks, where each of the LOs in the home programme is covered, either in one-to-one; many-to-one or one-to-many mappings, by the COs inside KDU courses.

Totals at the foot of each column in the mapping grid formally identify the successful coverage of each of the University of Lincoln module learning outcomes and therefore evidences that a student has successfully satisfied all requirements of the home programme. In that way, a dual degree from both institutions can therefore be awarded.

14.6 Equivalence of Standards

In contrast to franchised partnership arrangements where the same modules and assessments are delivered at home as at the TNE partner institution, the horizontal coupling process outlined above has produced additional requirements for the completion of QA processes at both institutions. Whilst the underpinning pedagogic principles detailed above offer significant assurances that the degree programmes have been constructed with demonstrable equivalence, there is still a need to achieve equivalency in standards at the point of implementation if a dual degree is to be awarded.

To address this issue, assessment front sheets were adapted to show both the University of Lincoln AND the KDU learning outcomes that were expected to be assessed (see Fig. 14.6). In addition, to support this process and to ensure that full coverage

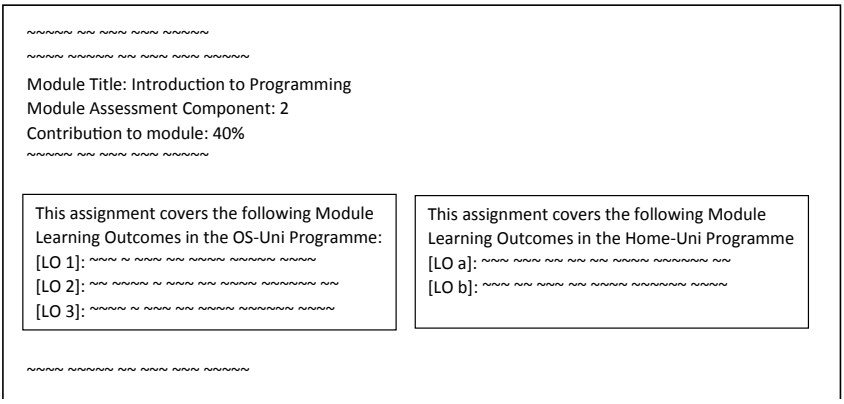

Fig. 14.6 Assessment front sheet (extract)

of learning outcomes is always achieved, a web-based system was implemented to allow all stakeholders (including home tutors, partner tutors and external examiners) to easily access and extract the home learning outcomes that were mapped against their modules of study at KDU.

This joint articulation of dual learning outcome coverage was necessary for three purposes/audiences:

- in devising the assessment appropriately (the tutor),
- in explaining the task's requirement (the student) and
- in guaranteeing that the set of assessments cover all the programme's learning outcomes (the external examiner).

In addition, an evaluation of the student experience at KDU after the first year of operation identified an additional advantage to the articulation of this equivalency in that it contributed significantly to the feeling of belonging to a University of Lincoln cohort for students at KDU, who were reminded at all points that the study they were undertaking was not just for a KDU degree but for a University of Lincoln degree at the same time.

Of particular significance in this dual degree partnership is the role of external examiners. As in many countries, in the UK the external examiner is invested with significant responsibilities relating to standards and they are annually required to confirm the equivalency of standards for institutions for which they are engaged as an external with those of their own institution. As an additional aspect to the toolkit which increases the level of confidence in the management of the quality of the provision, the decision was made to appoint the same external examiner across territories, so the same person reported on the equivalency of standards for both programmes in a dual award. That meant that they considered the appropriateness of the KDU assessment tasks and student submissions against the learning outcomes of both the KDU and the home learning outcomes. To triangulate the findings on standards, the external examiner also looked at tasks and student submissions on the home programme. By ensuring that the external examiners are presented with the learning outcome coverage for all assessments, irrespective of the nature or form of the assessment, there has been a clear acknowledgement that the standards across both programmes were appropriate and equivalent.

14.7 Towards Equivalence in the Learning Experience

The previous sections of this chapter have concentrated on the establishment of programme equivalence and the assurance of standards across programmes at the two institutions. The authors acknowledged that equivalence of standards only presents part of the requirements for the Synergistic Constructive Alignment toolkit, and to complete the process there needed to be work done towards creating an equivalence in the learning experience at the partner institution. The TNE partnership between

the University of Lincoln and KDU has therefore benefitted from a number of initiatives targeted at enhancing the quality aspects of the KDU programmes. It might be suggested that whilst the approach discussed here goes a long way to justify the equivalence of validity of the dual award process, it has to be acknowledged that the quality of the learning experience can never be identical between institutions, and the final part of the toolkit has been to establish procedures and practices which maximise the potential for KDU students to experience a Lincoln flavour to their Malaysian education.

Key in these practices was the appointment of a Link Tutors at both institutions who have a specific remit to work closely with delivery staff on both campuses to ensure that there is regular review of module content and approaches to delivering key Computer Science concepts and theories that underpin programmes at both institutions. The Link Tutor relationship relies on regular communication which is largely founded on the promotion of consistent processes and sharing of best pedagogic practice, and which is strengthened by an annual visit to Malaysia where moderation of student assessed work; guest lectures; counselling sessions; staff development sessions; and curriculum review activities help to promote the Lincoln flavour in the Malaysian delivery which is clearly supported by Lincoln staff. Additionally, professors and staff from the School of Computer Science have delivered keynote speeches at KDU hosted conferences and symposiums, and within each cycle of delivery key professional support staff from Lincoln work with their counterparts on campus in Malaysia to help establish comparability in all aspects of student administration as well as in teaching and learning. But it is not just staff mobility that has benefitted from the dual degree partnership, home students from Lincoln visit the KDU campus each year as an cultural internationalisation programme, and students from KDU are offered the opportunity to attend summer schools at Lincoln where they undertake up to two modules of study on the Lincoln campus as either a formal part of their degree programme or as additional credit opportunities.

One further addition to the partnership has seen the construction of the Lincoln Lounge at the KDU campus, a University of Lincoln-branded study and meeting venue, which presents a physical symbol of the partnership which further enhances the visibility of the University of Lincoln in Malaysia, but also serves as a reminder to all students on dual degree programmes at KDU that the students are working towards qualifications at two educational institutions.

14.8 Conclusion

The partnership between the University of Lincoln and KDU is now maturing and the first Computer Science graduates emerged during the academic year 2018/2019. Reports from the external examiners for all programmes show that KDU student achievement and progression for those on the dual award is comparable to that of home students on-campus taking the equivalent single degree programme.

The well-established Constructive Alignment principles that underpin curriculum construction and management at the University of Lincoln have offered a useful mechanism by which programmes that are intended to be offered in a dual award format can by appropriately designed and then successfully reviewed and audited. By defining a set of vertically close-coupled specifications the coherence of programmes is pedagogically assured within programmes in isolation. But when combined with a comprehensive curriculum mapping process supported with a horizontal loose coupling approach to curriculum equivalency, the Synergistic Constructive Alignment principles offer solid and justifiable programme definitions and pedagogic processes on which to base the conferment of dual awards that stand muster from evaluations of both quality and standards. The Synergistic Constructive Alignment toolkit can therefore help to ensure that programmes can be delivered to an equivalent standard whilst allowing for a level of fluidity in assessment types and that a horizontal tight coupling of programmes *at the module level* can provide confirmation of the required coverage of learning outcomes in each programme.

The independent scrutiny of standards by external examiners provides essential verification and reassurance. However, educators should also be aware that the toolkit presented here needs to be supplemented by additional practices and processes that support the quality of the provision and the effect that has on student experience. Quality is found more in the classroom experience, i.e. how the content is presented and delivered; how learning takes place; how interactions between learners and teachers take place and perhaps most importantly how students can be engaged in learning and assessment opportunities that are meaningful to them in a local context. Equivalence in quality is acknowledged to be a more slippery concept than equivalence in standards. Furthermore, in a TNE partnership, there are differences in experience between partners and campuses that should be celebrated and exploited for their potential in enriching the learning experience. Having said that there will inevitably be a threshold for quality, sometimes characterised as the minimum expectations in student performance, that need to be ensured. It is worth identifying that the success of the dual award partnership between these two institutions has proved possible because of considerable work done in supporting the enhancement of quality of the provision in numerous ways which have to date included identification of best practices through an annual monitoring process; running joint course committees; Lincoln-led programmes of staff development; collaborative activities and experiences for both staff and students; and financially supported student and staff mobility programmes that have seen multiple successful activities both in the UK and in Malaysia.

The toolkit developed by the School of Computer Science has subsequently been used to underpin the development of dual awards in five other subject areas at the University of Lincoln, all of which are growing in terms of cohort size and reputation such that students on dual degree programmes at KDU now outnumber cohort sizes on the single award equivalent programmes. The Synergistic Constructive Alignment toolkit has provided clarity to the design, implementation and ongoing maintenance of the dual award partnership and now has wide-ranging institutional support at both institutions. It is hoped that the approach could provide significant benefits in long-

term TNE engagement and offer opportunities for other providers to adopt in support of their own TNE partnerships.

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Chapter 15
The Importance of Transnational Education and International Engagement for Future Collaborations

Arjab Singh Khuman

Abstract Many universities and higher educational institutes throughout the world have had a long and distinguished history with the involvement of international students, and international collaboration efforts and partnerships. International student recruitment for UK-based institutes has now become, and continues to be, somewhat very competitive, as these students pay considerably more for their chosen programmes of study, when compared to their institute's native population. Therefore, international student recruitment is factored into the business models of many UK-based Higher Education (HE) institutions. Due to the competitive nature of student recruitment and the need to diversify income generation of universities from relying on native student populations, one should also consider more extensive recruiting of international students, and in doing so, establishing more international collaborations. This chapter will highlight the efforts adopted by De Montfort University (DMU) as its case study, in expanding its outreach into emerging and developing Asian markets, due to its recent (2018) Gold award in the Government's Teaching Excellence Framework (TEF). From this engagement, several opportunities have arisen in conjunction with Asia Pacific University (APU). The author's own experience in dealing with this particular tour of Malaysia is commented on, as too are the benefits of such engagements to that of Transnational Education (TNE) with regards to computing-related subjects.

Keywords International engagement · International student recruitment · International collaborations

15.1 Introduction

Higher Education (HE) institutes like that of universities have to consider income generation and possible avenues where non-traditional means can supplement surplus (Willmott 2010). There are many different metrics to measure the success of an institute, this may involve a multitude of different attributes, for example: *Entry*

A. S. Khuman (✉)
De Montfort University, Leicester, UK
e-mail: Arjab.Khuman@dmu.ac.uk

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Standards, which is associated to the average UCAS tariff score of new students entering the university. *Student Satisfaction*, which is with regards to how satisfied students are with the quality of the teaching they have received on their programmes. *Research Quality*, the measure of the quality of the research undertaken within the university. *Graduate Prospects*, which is linked to the employability of graduates on completion of their courses within the university. There are many more metrics which one could employ, but the aforementioned attributes are generally considered to be the basis from which a thorough list can be derived. Assuming this to be the case, De Montfort University (DMU) according to the Times Higher Education Guide (THEG), DMU ranks at joint 65th. Of the 17,131 students, 25% of the current cohort is international. In comparison, the London School of Economics and Political Science is ranked at 5th in the UK and 26th in the World University Ranking (WUR), with an international population of 70%, the largest international population of any UK-based university. In further comparison, the UK University with the lowest international population is that of Edge Hill University, with a total student count of 12,025, of which 5% are international. Edge Hill University ranks in at 83rd in the UK and between 801 and 1000 according to the WUR.[1] That is not to say that having more international students will improve upon a university's ranking, as it is the quality of the students and the university's success of producing continuing pedigree that dictates ranking progression. However, there does indeed seem to be a correlation of sorts that would imply having a larger international cohort will allow for institutes to cater for more advantageous curriculums. DMU's location in Leicester, England is significant, as Leicester was the first city in the UK whereby the minority became the majority. Leicester is a hive of culture with many different ethnic pockets existing, with over 70 languages being spoken. Leicester is heavily involved with integration, an ethos that is extended by DMU with its involvement in international student recruitment and international markets (Straker 2016). This plays dividends when recruiting international students as there will often already exist a local population, both in the university and the city to facilitate a more harmonic cultural transition for the students.

The author of this chapter is himself from Leicester, born and raised. It is noteworthy to extend a mention that the author received all his degrees from DMU. He obtained his BSc in Computer Science in 2009, his MSc in Intelligent Systems in 2011, and his PhD in Computer Science in 2017. This is a key point, being a student to transitioning to post graduate study, to then transition to academic staff member, all the while at the same HE institute, provides for a unique perspective. It is also noteworthy to mention that the author was a recipient of a 2018 and 2019 Vice Chancellor's Distinguished Teaching Award (VCDTAs). The VCDTAs were established in 2005 in order to recognise and celebrate the lecturers who have inspired and motivated their students to succeed. An award that played heavily in the reason why he was chosen to represent his faculty for international engagements.

[1] All statics correct at the time of printing and obtained from: https://www.timeshighereducation.com/.

As DMU was a recent recipient of a Gold TEF award, faculty heads and management felt that it was appropriate to embark on a tour to showcase the achievement to prospective collaborative institutes. Malaysia was chosen as the country of interest, as Malaysia was also identified as an emerging market, and one which DMU feels will be fruitful, both in terms of international recruitment and future institutional collaborations. Malaysia has been identified by many competing UK-based universities as a country of interest, and in doing so, have deployed their own emissaries to open up dialogue (Huang 2007). Some of these other interested universities were also issued a Gold status; however, many were not and received either a Silver or a Bronze.

15.2 What Is the Teaching Excellence Framework?

In this section, the remit of the government's Teaching Excellence Framework (TEF) is explored, and the benefits of being awarded Gold are also commented upon.

The framework itself is a government initiative introduced in 2017 to help provide students a resource that they could make use of to judge the teaching quality of many UK-based university institutions. It also increases the importance of teaching quality when considering the ranking of an institute (Hsieh et al. 2011). The TEF currently only takes into consideration undergraduate teaching. Institutes which are solely concerned with postgraduate study have not yet been included.

An institute can be classified as either being Gold, Silver or Bronze, with Gold being the highest award achievable. The classification is determined by six core metrics that were based on the following themes: *Teaching*, *Academic Support*, and *Progression to Employment*. In conjunction, every institute also submitted a 15-page document to the panel which comprised of educational experts and students, which was also used in determining the overall classification of the university.

DMU was one of 54 UK-based institutes to be awarded the Gold status, which is valid for 3 years. The achievement itself puts DMU in the top third of UK institutes and itself is a testament to DMU's ability to provide excellent teaching quality that encourages and inspires original, critical thinking. As part of the TEF process, DMU submitted comprehensive details of its teaching initiatives and evidence about how it works with the students in the pursuit of continued excellence. DMU was assessed against a set of criteria covering key attributes; *Teaching Quality*; *Learning Environment*; and *Students' Outcomes and Learning Gains*. The assessors were able to judge participating institutions by looking at data covering, among other things; student satisfaction; graduate outcomes and retention rates; alongside additional qualitative evidence detailed in each institutes submission documentation. The following factors were highlighted by the panel when issuing the Gold award to DMU:

- The way employability is embedded in the curriculum in every faculty.
- The way that real-world research feeds into students' learning.
- The support for students throughout their time at DMU.

- The outstanding personalised provision for the students.
- The outstanding student support on offer.
- The excellent physical and digital resources that enhance learning, retention and employability.
- A culture that encourages, recognises and rewards excellent teaching.

As was highlighted within the TEF metrics for DMU, the university performed above benchmark levels for Teaching Quality measures; significantly above for Assessment and Feedback. It also performed above benchmark thresholds for Learning Environment, with commendation being given to DMU's Disability Enhancement Programme (DEP). In relation to Student Outcomes and Learning Gain, DMU performed well above benchmark levels.

Having a Gold status symbolises the constant high-quality teaching that DMU is delivering continually. This makes it appealing to prospective students, those local, national and international. This appealing factor was the catalyst behind organising the TEF Gold Tour. A Gold status embodies the highest of quality teaching standards, it also implies that the institute provides for outstanding outcomes for students from all backgrounds, reducing the gap associated to Black, Asian and Minority Ethic (BAME) attainment. Gold also signifies outstanding use of resources, physical and digital, and also positive outcomes related to progression and retention. The results of the TEF are effectively another resource available to potential students, to assist them in their decision of where to apply for university. The TEF unlike other adopted metrics is a government endorsed indicator, it is believed this may possibly sway a student's opinion and ultimately their decision in favour for a higher tier institute. The TEF highlights institutes that have an outstanding track record on teacher quality, graduate prospects and student satisfaction. As the universities are classified according to a series of metrics focused on teaching quality, the TEF offers students a resource to see which institutions excel in this area, as well as determining which universities are good for graduate prospects and student satisfaction.

Table 15.1 presents all 54 UK-based Gold awarded institutes.[2]

With the affirmation of DMU being awarded Gold status, faculty heads and management decided this would be an opportune moment to showcase the university's credentials to potential, and prospective new international students and possible collaborators. Conferment of the award occurred as a new faculty directive was being issued, whereby the notion of *Global Graduate* was to be developed.

The TEF is important as this can be used as an additional beacon of integrity, especially for institutes that have been awarded Gold. Considering Asian markets, there is heavy trend on being associated to better performing institutes. As the author is also Asian, the cultural expectedness belonging to Asian communities and countries is to attend institutes that have high status associated to them. This was used to facilitate a lot of the proposed Transnational Education partnerships that were presented to potential collaborators.

[2] https://www.thecompleteuniversityguide.co.uk/universities/choosing-a-university/teaching-excellence-framework-(tef)/.

Table 15.1 UK gold status institutes

Arts University Bournemouth	Royal Academy of Music	Nottingham Trent University
Aberystwyth University	Royal Central School of Speech and Drama, University of London	University of Oxford
Aston University	Royal College of Music	Royal Northern College of Music
Bangor University	Guildhall School of Music and Drama	Royal Veterinary College
University of Bath	Harper Adams University	University of St Andrews
University of Birmingham	University of Hertfordshire	University of Surrey
Bishop Grosseteste University	University of Huddersfield	Swansea University
University of Buckingham	Imperial College London	University of the West of England
University of Cambridge	Kaplan Open Learning (Essex)	University of York
Coventry University	Keele University	
University of Derby	University of Kent	
De Montfort University	Lancaster University	
University of Dundee	University of Law	
Durham University	University of Leeds	
University of East Anglia	University of Lincoln	
Edge Hill University	Liverpool Hope University	
University of Essex	Liverpool Institute for Performing Arts	
University of Exeter	Loughborough University	
Falmouth University	Newcastle University	
University of Portsmouth	University of Northampton	
Robert Gordon University	Norwich University of the Arts	
Rose Bruford College	University of Nottingham	

15.3 The Importance of Transnational Education

While DMU was awaiting the results of the TEF findings, they also underwent an international strategy update, which has been structured for 2017–2020. As the author is associated to the Faculty of Computing, Engineering and Media (CEM) (née Faculty of Technology), this will be the faculty of concern for this chapter. Without providing internal details and specifics, what is to follow will be a generalisation of the actual strategy plan, one which highlights the key areas and vision for the future. One of the main visions is to develop DMU's Global Graduate through its range of

international activities, all the while delivering on an ambitious international agenda, which will have to be agile and responsive given the constant changing landscape of global HE institutes, where there is added emphasis on high academic values, educational innovation and scholarships.

Given that many UK-based institutes have to factor the uncertainty of Brexit into their forecasts, diversifying one's income from traditional sources, to incorporate more non-traditional means, the international market can be seen as a logical inclusion. This can be achieved by consolidating and growing the existing international student recruitment markets while investigating new emerging markets (Huisman 2011). Being aware of trends in academia and also industry, DMU believe that developing a specific range of high-quality, and in some cases niche, Transnational Educational (TNE) partnerships, will in themselves cater for medium and long-term benefits, resulting in high income diversification from non-traditional sources. The TNE attribute is one of the four major pillars in developing DMU's international strategy.

DMU already has a strong international population, which currently is at 25%, of which a large cohort is from two key markets; India and China. The emerging markets that have been identified by DMU and many other competitors, are namely; Nigeria, Thailand and Malaysia. Each of these identified key markets offer a benefit to the four pillars that DMU have defined in their international strategy. The agenda that has been proposed will make heavy use on developing TNE, in order achieve this, several key objectives have been set.

In order to increase international student numbers, one must first develop an understanding of what these international markets are expecting for their students. Understanding what *they* want for their students to be capable of will pay dividends in structuring a specifically defined TNE, one which will hold merit and prestige (Adick 2018). One of the main key benefits of the notion of TNE is the potential to develop dual/joint awards with international counterparts. Developing and delivering innovative and flexible new award products to new and existing customers will be at the forefront of developing these international markets. All the while facilitating better progression opportunities for students of DMU, by increasing partnerships, with advance standing, articulation arrangements and direct entry top-up routes.

Increasing external income generation through TNE provisions, including faculty franchises and satellite sites in these emerging markets has been a key directive for DMU. Using the established relationships that have already existed with the likes of China and India, DMU is able to showcase the benefits of these relations to potentially new international institutes. Forming strategic alliances, networks and partnerships by actively targeting the newly identified markets. There is also the possibility for international research collaboration, such engagements could allow for the identifying of additional funding sources to support more international and collaborative research such as bidding for country specific commonwealth scholarships. The uncertainty of Brexit will undoubtedly impact on UK-based institutes, to what extent, this has yet to be determined, so there is a vital need to investigate the merits of TNE to assist with sourcing new international income.

The aforementioned strategy is with regards to the CEM faculty, of which is the smallest faculty of DMU. In addition, DMU also has the faculties of; Business and Law (BAL), Health and Life Sciences (HLS) and Art, Design and Humanities (ADH). Even though CEM is the smallest faculty with regards to student numbers at DMU, the faculty has the highest publication output. The research group Institute of Artificial Intelligence (IAI), belonging to the School of Computer Science and Informatics has the single highest publication output for any research group within DMU, the author of this chapter is an active member of that research group. This is a key point as one particular focus for the more specialised TNE proposals is to encourage research collaborations. Having a TNE that entices potential students to then continue onto postgraduate degrees, whether a MSc or PhD, at DMU will further student retention and also enhance the outreach of future collaborations. Attracting international students will also attract an international mindset.

The TEF commendations highlighted a particular talking point; "*A culture that encourages, recognises and rewards excellent teaching*". This is an extension of the high level expertise of the faculty members, CEM is no different, as there is a large emphasis on incorporating research into teaching. The faculty are keen to develop new joint and dual awards. The research expertise of the faculty, particularly that of the IAI, which is a world leading research centre for Artificial Intelligence related topics, will be seen as very enticing to the more research orientated. With the author of this chapter being an active member of IAI, contributing to its publication output, and also a recipient of the 2018 and 2019 Vice Chancellor's Distinguished Teaching Award; having these strengths was why he was chosen in particular to represent the faculty while embarking on the TEF Gold Tour of Malaysia. As the tour would involve workshops and lectures, audience members would get a feel of what the teaching and learning style of a Gold awarded institute is like. In addition, showcasing DMU's world-class prestige and expertise on the subject matter at hand which would be presented by handpicked, appropriate academics.

The CEM faculty has a large computing-based prospectus, one which is appealing to students, both from home and away. The TEF Gold tour was spearhead by the CEM faculty as the institutes that were on the itinerary, were institutes that were heavily involved with catering for computing students. Computing is fundamentally the same no matter where it is undertaken; the difference is how it is presented. Confirmation of the Gold status plays hugely in conformation of the faculty's high-quality teaching and learning, which is what international institutes may find attract, ergo, TNE.

This was all undertaken with the main agenda being to promote possible TNE partnerships. By allowing international institutes to see a showcase of what *we* excel at; representatives from each of the faculties were able to demonstrate, first-hand the qualities of the teaching practices that DMU and the faculties adopt. Having these interactions with potential students while their institute heads were in attendance, paid dividends, as the heads also got to see the engagements themselves and in addition, see the benefits of an international partnership.

15.4 Putting the Gold Award into Action

The TEF Gold Tour of Malaysia identified several key universities and Higher Education (HE) institutes that were seen as potential future collaborators and for international student recruitment. The delegation that left DMU for Malaysia included key faculty representatives, the author of this chapter represented the Faculty CEM. The main aim of the academic-led trip was to increase De Montfort University's brand and reputation in Malaysia by trialling a week-long programme where academics would showcase DMU's TEF Gold teaching excellence to various colleges, universities and agents across the whole of Malaysia (Hill et al. 2014). This exercise would enable DMU to decide whether this concept could be expanded into other regions. The handpicked academic representatives from each of the four faculties would showcase their talents and in doing so, engage and entice potential audience members (Khuman 2018).

The main benefits of the initiative can be summarised as follows:

- Boosted long-term recruitment in all areas of Malaysia from an increased presence and brand.
- An increase in agent networks.
- More awareness from agents of what DMU has to offer when speaking to prospective students.
- Established high-quality partnerships with institutions.
- Signed Memorandum of Understanding (MOU)/Progression agreements at multiple institutions across Malaysia.
- The ability for academics to give spot offers.

After completion of the TEF Gold Tour, the suggested follow-up activities and the tracking of progress were given as follows:

- DMU representatives to visit all Colleges and Universities that have been involved to track response from students and university staff. Also, to discuss future collaboration opportunities and relationship agreements.
- A report from agents outlining the impact from the Tour.
- The reach of local media releases.
- A full analysis of whether the tour worked better for a particular faculty (For example was it very beneficial for the CEM academics to check portfolio applications and issue spot offers).
- To evaluate whether there is an increase in applications from visited institutions: A Return On Investment (ROI).
- The use of Tableau to track and monitor progression of students from the region.
- To manage institutional relationships closely.
- Impact on agent relationships/knowledge and commitment to DMU.

At the time of completing this chapter, almost 12 months have elapsed since the initial visitation to Malaysia, as such the respected data to determine some of the aforementioned metrics will have now been met. The author was able to use his skill

set to deliver a taster session of his teaching and learning style. The accompanying academics which comprised of the emissary were sent to specific institutes which would benefit from such an academic. It was not a case of having just someone talk about their chosen research and teaching to an uninterested audience. Each staff member was paired to an institute that specialised in that academic's background, teaching and research, that the talk, presentation, or workshop would have benefitted from.

This was a key aspect to the success of the entire initiative, as one of the main purposes DMU's faculty directive was to entice more international students, said students would need to see and experience a small sample of what foreign teaching styles are like. Speaking from the perspective of the CEM faculty, specially the School of Computer Science and Informatics, the teaching is with regards to *scientific* topics, with more emphasis on theory and application of paradigms and programming languages; a very technically driven ethos. With that being the case, the students in attendance for the CEM-based talks were already versed in foundational understandings, so whereas other talks would have to start from an absolute grounded perspective, the author's talk could utilise the prerequisite knowledge of the audience to engage more questions for those in attendance.

One can appreciate, when considering technology and artificial intelligence, there is indeed a lot associated to these terms, and as a result, one must be well versed and well read to handle any questions that an audience member may have. The author's talks were predominately structured to follow a dynamic delivery approach. Although we were given prior notification of the institutes that we would be visiting during the tour, the type of audience member would vary drastically, from current undergraduate students, postgraduate students, research students, academic staff, faculty personnel, recruiters and agents. The talks conducted by the author would often involve an introduction into the author's background, highlighting the important fact that he is himself a product of DMU, in every sense of the word. *This is what DMU has done for him; this is what DMU can do for you*.

This perspective of presenting, showcasing the benefit of attending DMU was very well received, the attendance to the first talk which occurred at Asian Pacific University (APU) was attended by close to 200 attendees. It was unfortunate that there was a power cut during the talk, rendering the entire university powerless, however, this did not diminish the room engagement with regards to asking questions. These questions varied significantly, from what the modules of a particular programme were like, to the campus, and day-to-day student life. Of course, there were questions specific to paradigms and theory, but the vast majority of questions were in relation to what would be the benefits of studying abroad for a degree. Herein lies a key point, Asian countries are culturally different to western countries, and as such, so too are the decisions one makes when considering higher education. When speaking with APU management before the talks began, we were informed that the majority of the students enrolled were there not purely because of their own ambitions, but rather the ambitions that have been bestowed onto them by parents and family (Hill et al. 2014). This was taken into consideration and by showcasing the benefits of doing a particular degree by explaining to them this is the types of job you could expect to do,

rather than a sweeping generalisation of this is the industry you can expect to work in, most definitely engaged the audience more so (Cranston 2009). The added prestige of attending a UK university also plays a role in securing potential recruitment from overseas, as UK institutes are often well accredited and offer high-quality teaching and research opportunities (Coleman 2003).

The Asia Pacific University (APU) of Malaysia (formerly Asia Pacific Institute of Information Technology (APIIT)) is well established as a centre of excellence for the education and development of Information Technology (IT), Engineering, Business, Finance and Accounting and Design professionals. Originally initiated by the Malaysian Government in collaboration with the IT industry, and supported by the Ministry of Science, Technology and the Environment, as a private college approved by the Ministry of Education. APIIT Malaysia was formally invited by the Ministry of Education to upgrade to a University College on 22 October 2004, and to a University in July 2012.

APIIT Malaysia is subject to the requirements of the Malaysian Qualification Agency (MQA). On behalf of the Malaysian Ministry of Education, MQA ensures that Malaysian private providers of HE institutes achieve minimum standards in relation to all HE programmes of study. All awards offered by APU/APIIT are fully accredited by MQA.

APU/APIIT has over 12,000 students from 127 countries (33% Malaysian and 67% international) and the portfolio of awards offered is currently as follows:

- **School of Computing and Technology**

  PG dual awards with Stafford University (SU)
  UG dual awards with SU
  UG franchised awards of SU

- **School of Engineering**

  Five UG degrees (APU award only due to Engineering Board of Malaysia restrictions)

- **School of Accounting, Finance and Quantitative Studies**

  Four PG dual awards with SU
  Eight UG dual awards with SU

- **School of Marketing and Media**

  Three UG dual awards with SU

- **School of Management**

  Four PG dual awards with SU
  Four UG dual awards with SU
  One UG franchised award of SU

- **School of Media and Design**

Six UG franchised awards of SU

APU already offers a range of undergraduate and postgraduate awards with Staffordshire University (SU). It should also be noted that APU were very keen to further expand on their internationalisation, making this very opportune when engaging with dialogue from DMU. SU have since decided not to further develop any future awards at this time, which has allowed for DMU to act as a replacement. It is noteworthy to mention that SU were awarded a Silver for their TEF evaluation, APU was very keen to see how a Gold status institute differs. This played dividends in the deciding factor for APU to decide with DMU for international collaborations. DMU was looking for possible international collaborators, while at the same time APU was looking to extend their international collaboration network; a very good and fortuitous combination.

In 2013, APU was granted approval to offer PhD programmes and currently provides opportunities in the areas of Computing, Finance, Management, Technology and Engineering.

The APIIT Education Group was founded in 2010 with investment by the National Equity Board, EKUINAS in 2010 and has emerged over the years as one of Malaysia's Largest Education Groups addressing all levels of Education covering:

- Asia Pacific University of Technology and Innovation (APU)
- Asia Pacific Institute of Information Technology (APIIT)
- Asia Pacific International School (APIS)
- Asia Pacific Smart School (APSS)
- Asia Pacific Language Centre (APLC)

The APIIT Brand of "Asia Pacific" has emerged as one of the strongest brands for education at all levels from School to Higher Education. Its brand identity is aptly represented in the use of the globe depicting APIIT's global outlook and philosophy in the development of internationally oriented curricula, as well as the infusion of international best practices in the delivery and quality assurance of its programmes. The swirls around the globe intersect with Malaysia at the core, reflecting how this global outlook has enabled APIIT to attract students and staff from all over the world to Malaysia, contributing to the development of an international community of professional scholars, as a model of education in the Asia Pacific region.

In March 2011, The APIIT Education Group received the prestigious Prime Minister's Industry Excellence Award from the Prime Minister of Malaysia, Dato' Seri Mohd Najib Tun Razak. Only one organisation was selected to receive the Prime Minister's Industry Excellence Award from among nearly 30 other award recipients in eight different categories. APIIT Education Group has also been awarded the Export Excellence Award (Services). Over the years, APIIT Education Group has secured more than 100 awards at local, regional and international level.

15.5 The Benefits of International Collaborations

While market research was being undertaken in Malaysia, the analysis of the results identified several key opportunities, which highlighted emerging economies and markets. After receiving extremely positive feedback from the initial visitation, the next thing on the agenda was to see how to best capitalise on this opportunity. The decided upon intention will be to develop a range of undergraduate and postgraduate dual awards in conjunction with Asia Pacific University (APU) over the next 5 years, to lead into 2022 after which a re-evaluation can be undertaken and the metrics investigated to determine if this should be continued and expanded. Several portfolio awards have been proposed, which have been omitted here. These proposed awards are the result of the market analysis and also the national and international demand, both current and potentially forecasted (Wang 2017). From September 2019, there will be four newly proposed dual awards: 1 * BSc (Hons), 1 * Ba (Hons), 1 * BA and 1 * MA. From September 2020, there will be an additional six dual awards: 1 * MA, 3 * MSc, 2 * MEng. The total number of dual awards being offered by completion of 2020 will be 10.

The key notion to understand when considering dual awards is, the award itself is the result of a jointly conceived development that neither party, DMU or APU, could offer independently of the other. This concept is the bringing together of institutes and expertise to provide for a more detailed and beneficial degree. Many of the awards would also benefit from the potential accreditations and validations that DMU already has for many of its existing programmes, especially with regards to the CEM faculty. Having established accreditations helps sell the programme to potentially interested parties, especially accreditations that are seen as Westernised and thus more esteemed.

To maintain convention, many of the proposed new dual awards have the same existing exit awards currently employed at DMU, these were as follows:

- Certificate of Higher Education (CertHE)
- Diploma of Higher Education (DipHE)
- Bachelor of Arts (Hons) (BA)
- Bachelor of Science (Hons) (BSc)
- Postgraduate Certificate (PGCert)
- Postgraduate Diploma (PGDip)
- Masters (MA and MSc)

There are several standout benefits in the establishing of a TNE with APU; these can be summarised as follows:

(a) This would be a *new* joint venture, seen as a cross faculty initiative, with CEM as the lead faculty. The proposal supports the TNE directive in a key identified strategic market.
(b) It enables growth in numbers by a different mode of collaboration.

(c) It enables the opportunity to collaborate with a high-quality and well-respected private University and allows DMU to penetrate a highly competitive and saturated TNE market.
(d) It allows access to a wider pool of international students through APU's extensive agent network in markets that DMU may be unable to easily penetrate.
(e) Enhances the DMU brand globally.
(f) Increase income for all faculties across a range of programmes.
(g) The development of the portfolio of dual awards which would require the delivery of a truly joint enterprise that neither party could offer independently of the other.

The standout benefits directly associated with DMU are as follows:

(i) Additional income from fees to support external income generation and faculty diversification agendas.
(ii) Association with a highly regarded and established education brand, with a view to enabling the diversification of the DMU course portfolio in a global context.
(iii) Excellent employability and student satisfaction.
(iv) Collaborative research opportunities.
(v) Potential for increased numbers of international students studying on campus through 1 + 2 and 2 + 1 general progression agreements with APU committing to DMU becoming the preferred progression partner.
(vi) Diversification of De Montfort University's student population.
(vii) International growth as a TNE arrangement by enabling DMU to offer awards to students who may be unable to study in the UK.

APU is rated by the Ministry of Higher Education as a 5 Star University (Excellent) under the SETARA Ratings System and is a partner who is highly experienced in delivery to UK expectations. APU prides itself on its employability record with 97% of students in relevant employment on graduating. DMU also has a 97% for its employment and further education figures based on the recent University's Destination of Leavers from Higher Education (DLHE) survey. This will only enhance DMU's reputation in the Pacific region.

All aspects of management and oversight and decision-making on student achievement will be undertaken jointly by both degree-awarding bodies. APU will be primarily be responsible for delivery although there will be opportunity for DMU staff to deliver guest lectures. It should be noted that student mobility is not a prerequisite.

All staff involved in the delivery and management of the provision will be jointly endorsed by both APU and DMU by means of a Joint Management Committee (co-chaired). Course Managers in each cognate area at each institution will be appointed to have oversight of curriculum.[3]

[3] http://www.apu.edu.my/explore-apu/apiit-education-group

15.6 Facilitating Transnational Education

DMU already has a large international student population, this is partially due to the international population of the city, a cultural melting pot which dates back decades and plays heavily into the history of the city. The proposed aforementioned TNEs are the result of a joint consultation with APU. The notion of the TNE is that no one institute will be able to offer the proposed programme without both institutes being involved, with regards to the faculty of Computing, Engineering and Media (CEM), our expertise lies in computing-based degrees and the accrediting bodies that these programmes are associated to. APU recognises the fact that we have a strong likelihood of creating a joint curriculum whereby these programmes will also be accredited to governing bodies of high-standing. APU's involvement is to provide advice on how to maximise the potential for success when presenting these newly proposed TNEs to prospective students. By allowing the students from APU to undertake a significant portion of their studies at DMU, the programmes need to be of merit. Not just of merit to the student but also of merit to the families of the students. APU have been very descriptive in the significance of cultural of inclusion, and how to better market programmes that tap into the hot topics of the era. There is a very high likelihood that these potential students have never ventured away from their home countries, to better facilitate a harmonic transition to Leicester, students are given briefs on British culture. They are provided information packs and are invited to workshops on what is available to them; how to navigate the city; what is considered faux pas; how to better acclimate to a British way of life. Also, in addition, students are made aware of the multitude of existing international student societies, where they can meet students from the same home countries, cultures and the like. For those students who are religious, they are informed of the various places of worship around the city. There is a huge emphasis placed on inclusion, to better make their stay with us more enjoyable and productive.

The TNEs that are predominately hosted at DMU can tap into the already established international student scene, whereby a considerable effort has been made to make them feel at home. There is also increased pastoral involvement, with regular contact being made with international students to make sure everything is running smoothly. This is mandated not just by DMU policy, but also by government policy, we are expected to inform the government of any student that does not attend for any considerable amount of time. Personal tutors are encouraged to be more engaging with international students to make sure that they are doing well and are still attending their timetabled sessions.

The TNEs that have been proposed by the CEM faculty and APU are understandably computing-based. APU is a technology-based institute; therefore, there was anticipated interest from APU before the conclusion of the TEF Gold Tour. Out of all of this, the students are the most important part of the equation. As the hosting institute, DMU needs to be reassuring to these students and also APU that their best interests will be maintained and adhered too. A constant talking point from the author's talks was to highlight the international student population of DMU, this

showed that as an institute DMU is favourable to international students and also demonstrated that resources available at DMU are of high-quality. Considering that the proposed TNEs are computing in nature, there is an emphasis of utilising the research quality of DMU CEM faculty academics, in doing so, provides additional gravitas to the fact that the machines and hardware that DMU utilise is of exceptional quality. Teaching and learning can be undertaken in a host of different environments, however, better quality teaching and learning can be undertaken in better equipped teaching spaces. This can lead to better ideas being developed and more creative thinking being undertaken. The author cannot speak for the different faculties of DMU, however, with regards to the TNEs proposed by DMU and the faculty of CEM, in conjunction with APU, there is an absolute need to include and foster teaching geared towards upcoming global hot topics. Computing-based paradigms rarely ever affect one location; they are truly global in their outreach. The application of a paradigm can differ from location to location, but it is the job of the academic to remove the proverbial blinkers to allow for creative thinking to be undertaken: Teaching how to think is better than teaching what to think.

The author's personal experience with TNE development has been a pleasant one. TNEs are promoted to encourage collaborative efforts where potential students have the opportunity to benefit from a joint enterprise. Computing-based degrees can be touted to secure particular TNEs as they are truly global in their outreach. Undertaking such programmes provides for expertise that can be applied globally. The high-quality of the teaching and learning associated to a Gold status institute is the driving force in securing TNEs with potential collaborators.

15.7 Conclusion

It can be seen that from the case study presented, there are many benefits to be had when considering TNE and prospective international collaborative partners. The changing landscape of HE, not just at national level, but also internationally, needs to be analysed constantly. Cultural expertise in international markets and aspirations have all factored into the decision process of this agreement. From the aforementioned benefits highlighted in the previous sections, both DMU and APU stand to benefit greatly from this partnership. Students from APU will have the option to undertake a year of study at DMU if they so wish, further providing for an international experience.

APU was one of several selected institutes that were a part of the itinerary for DMU's TEF Gold Tour. It was by far the largest of the HE institutes and one of the more established; in terms of student numbers, established links and longevity. To fill the void that Stafford University (SU) created when it decided not to continue in expanding their TNE association with APU, created a perfect opportunity for DMU to offer their expertise. SU was awarded Silver in the TEF, and currently ranks at 83rd in the Times Higher Education Rankings, compared to DMU's Gold status and 65th position ranking. It would imply that the quality of teaching and learning that

DMU is able to offer, would be exceeding that of SU. Therefore, the quality of this arrangement when considering DMU instead of SU is of more benefit. This will most likely also be the case when considering the notion of collaborative research efforts, the research interests of APU are more aligned with that of DMU rather than SU. This was clearly identified after dialogue was exchanged by the author and the many academics from APU.

The conferment of being awarded a Gold status from the TEF was the catalyst that was used to showcase DMU's talents, to showcase the reason why DMU was presented with Gold. To demonstrate the teaching and learning styles that are adopted and to show first-hand, how academic staff interact with their audiences (Hsieh et al. 2011). The CEM faculty was the driving force in directing the tour itself and as such, computing-based institutes were predominately selected. The quality of the computing programmes undertaken at DMU was advantageous in securing computing-based TNEs. From initial feedback, the entire tour was a success and very well received, with the visitation to APU proving to be the most fruitful of all. APU was identified to be a key potential strategic partner from early market research analysis. Based on the current trend for HE institutes in Malaysia to proactively enhance their international relations, specifically to those in the UK, it was deemed advantageous for DMU to seize the opportunity to investigate further.

The chain of events first involved identifying potential key institutes, all of which have had some experience in dealing with international relations, partnerships, TNE collaborations and the like. The distinguishing factor was that DMU was a Gold status institute, with a track record for continued excellence in teaching, learning and research. These were the selling points that were presented to interested parties, of which APU was very keen. From that initial dialogue, the TEF Gold Tour was arranged and the agenda set, this occurred on April 2018. The tour itself concluded and impressions were collected and dialogue was continued with those that were interested. From that, continued interactions regarding curriculum and possible joint and dual awards were discussed, which resulted in the memorandum of understanding (MoU) being drafted. At the time of writing this chapter; April 2019, 1 year has since passed since the tour itself. The first four dual awards are set to be introduced in September 2019; this will be followed by an additional six dual awards to be introduced in 2020.

Indicative financial arrangements have already been agreed upon by APU and DMU following a basic costing exercise, which itself is based on forecasted numbers for each dual awarded programme, the level of development activity, and ongoing resource from the faculty (particularly in relation to programme structure/design given that curriculum development is currently in its early stages). The forecasted numbers look very promising. It is believed that the student experience of those involved will be of merit and will further enhance DMU's Gold status and rankings.

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Appendix A
Internship Agenda

Capacity Building in Higher Education

INNOVATIVE ICT EDUCATION FOR SOCIAL-ECONOMIC DEVELOPMENT (IESED)

Internship: IT in the Context of Intercultural Competency

17-21 September 2018

De Montfort University (DMU) , Leicester, UK
Organiser : Dr Armaghan Moemeni, School of Computer Science and Informatics, DMU
armaghan@dmu.ac.uk

Participants: *Lecturers from Belarus partner universities, experts and representatives from De Montfort University*
The goal *of this internship is to familiarise Belarus HEIs lecturers with innovative teaching and learning methodologies for development of new study programmes, with a particular focus on intercultural competency through sharing the expertise and know-hows*
Monday, 17 September 2018—Introductions—Room *VP2.02*

(continued)

J. Carter and C. Rosen (eds.), *Transnational Higher Education in Computing Courses*, https://doi.org/10.1007/978-3-030-28251-6

(continued)

9.00–9.30	*Registration and Welcome Coffee*
9.30–10.00	**Greetings** *Professor Richard Bull, Deputy Dean of Faculty of Technology, DMU* *Professor. Helge Janicke, Head of School of Computer Science and Informatics, DMU*
10.00–11.00	***Introduction to The Teaching Excellence and Student Outcomes Framework (TEF) in the context of UK's Higher Education*** *Professor Richard Hall—Professor of Education and Technology*
11:00–11:30	**Coffee Break**
11.30–12.30	***#DMUGlobal at DMU*** *Mr. Andras Fesus—#DMU Global Officer*
12.30–13.00	**Introduction to the IESED Internship at DMU** *Dr. Armaghan Moemeni—IESED Project Investigator (PI), Faculty of Technology, DMU*
13.00–14.00	**Lunch**
15.00–15.30	**Higher Education Academy and Teaching Fellowships** *Dr. Hardeep Basra s, Academic Learning & OD Consultant, People & Organisational Development*
15.30–16.30	**Tour of the Faculty—School of Engineering and Sustainable Development, Queens Building** *Mr. Manbir Sambhi—Technical Services Manager, Faculty of Technology*
Tuesday, 18 September 2018 Course Design & Teaching and Learning Approaches—Room *VP2.02*	
9.00–9.30	**Welcome Coffee**
9.30–11.00	**Design of Learning Outcomes and Course Objectives** *Dr. Christine Fidler—Associate Professor Quality, Faculty of Technology*
11.00–11.30	**Break**
11.30–13.00	**Innovative Assessment Methods** *Mr. Matthew Dean—Senior Lecturer, School of Computer Science and Informatics*
13.00–14.00	*Lunch*
14.00–15.30	**Effective Approaches Teaching & Learning** *Mr. Geoff Hughe—Academic Learning Consultant*
15.30–15.45	*Coffee Break*
15.45–16.15	**Distance Learning and M.Sc. in Engineering—Institute of Energy and Sustainable Development** *Dr. Andrew Wright, Institute of Energy and Sustainable Development—School of Engineering*
16.15–16.30	**Reflection of the Day**
Wednesday, 19 September 2018—Teaching Support—Room *VP2.02*	
9.00	*Welcome Coffee*
9.15–9.30	**Introduction to 'The Centre for Enhancing Learning through Technology' (CELT)** *Dr. Neil Stokes, CELT Manager*
9.30–10.00	**Technologies to Support Universal Design for Learning (UDL)** *Ms. Heather Conboy, DMU CELT Project Officer*

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10.00–10.30	**Flipping the Classroom and Scenario–based Approaches to Teaching and Learning** *Dr. Rob Weale, DMU CELT Project Officer*
10.30–11.00	**The Assistive Technology Toolkit with a Focus on Mind Mapping** *Ms Jina Ali, Assistive Technology Officer, Library and Learning Services (LLS)*
11.30–12.00	*Coffee Break*
12.00–13.30	**Supporting Student Academic Development at DMU** **Centre for Learning and Study Support (CLaSS) & Centre for Maths and Statistics Education** *Ms. Louise Buckingham, Academic Team Manager, DMU Library and Learning Services Ms. Karen Symons, Senior Lecturer—Centre for Statistics and Maths Education*
13.30–14.30	*Lunch*
14.30–15.30	**Aligning Assessments to Outcomes—IESED case studies applying Bloom's Taxonomy** *Dr. Armaghan Moemeni and Mr. Richard Gatward—IESED Project Managers of IESED, DMU*
15.30–16.00	**Tour of the Faculty—School of Computer Sciences and Informatics, Gateway House** *Mr. Manbir Sambhi—Technical Services Manager, Faculty of Technology*
Thursday, 20 September 2018—Showcase of Good Practice at DMU—Room VP2.02	
9.00–9.30	*Welcome Coffee*
9.30–10.30	***Examples of Innovative approaches in Teaching and Learning*** *Dr. Catherin Flick, School of Computer Science and Informatics*
10.30–11.30	***Universal Design for Learning (UDL) in the Faculty of Technology Examples of Innovative Assessment Approaches*** *Dr. Sara Wilford, School of Computer Science and Informatics*
11.30–12.30	*Coffee Break with Posters/Showcases Demonstrations* ***Machinima as a Learning Tool—****Professor Tracy Harwood, Institute of Creative Technologies (IOCT)* ***Student Preferences for Learning Programming—****Mr. Matthew Dean, School of Computer Science and Informatics* ***Reflective Learning Logs as an Assessment & Feedback Mechanism within Group Collaborative Learning Environments—****Dr. Christine Fidler, School of Computer Science and Informatics*
12.00–13.00	***An approach to e-marking for Engineering and STEM programmes*** *Dr. Neil Brown, School of Engineering*
13.00–14.00	*Lunch*
14.00–15.30	**Use of Lego as a Tool for Developing Research and Teaching skills** *Ms. Julia Reeve—CELT Officer, DMU's Doctoral College*
15.30–16.00	*Coffee and Final Conclusion/Internship Reflection*
18.00	*Social Dinner in Leicester*
Friday, 21 September 2018—External Visits	

Appendix B
Feedback Comments from BY Participants of IESED Internship, DMU, UK

1. The internship was very useful for Belarus teachers and we asked them to explain, what new competencies they have acquired during the internship "IT in the Context of Intercultural Competency". The teachers report in their answers:

   - Design-based assessment methods, student engagement.
   - Use information technologies for recognition and reward schemes, feedback, development, and progression.
   - Development of teaching programmes in the field of education.
   - Specific aspects of the formulation of the goals and objectives of courses designed to train IT professionals are have clarified.
   - Expanded the professional competence of applying innovative methods and technologies in the field of teaching IT disciplines.
   - Updated the knowledge in applying the practice-oriented approach in conducting classroom activities, as well as tools and methods of distance learning.
   - With reference to competence of social interaction with the team received additional motivation to develop new projects in the team.
   - Improved the pedagogical competence of presentations.
   - Gained experience in open space and flexible environments.
   - Improved business English skills.
   - Got the competence of business interaction with English colleagues.
   - Defined the trajectory of the further filling of the course "Management of e-business".
   - New approaches to educational planning. Ways to create a new curriculum. Uses Universal Design for Learning (UDL) technology. New knowledge assessment methods. Ways to work with distance learning and much more.
   - I acquired knowledge and skills in the field of innovative approaches to teaching and learning, effective approaches to innovative assessment.
   - Competencies in the field of innovative teaching methods.
   - Using social networks to communication with students and learning manage.

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2. The Project coordinators asked internship participants, how are you going to adapt the effective approaches of teaching and learning for development of new study programmes. There are provided some typical answers of participants:

   - The best way to incorporate the innovative DMU approaches into new study programmes is to apply a feasibility analysis to realise which of them will work in the local environment.
   - Studied modern approaches to curriculum development, presented in the report by Dr. Christine Fidler—Associate Professor of Quality, Faculty of Technology "Development of Learning Results and Course Objectives" and "Design of Learning Outcomes and Course Objectives". The author reviewed Bloom's improved taxonomy for curriculum development. I am going to apply this methodology in the development of new curricula.
   - I am going to adapt effective teaching and learning approaches to the development of new curricula using the different forms and methods of teaching learned during the workshop.
   - I will use Bloom's taxonomy to design controls in a training course.
   - As for me, I'll spread game elements in education process and I will also spread distance learning widely.
   - I'm going to increase the number of practical assignments for implementation in project groups.
   - I intend to expand cooperation with IT companies for organising student excursions. 3. I'm going to organise business games using Mind Map and Lego during conducting practical classes in the course "Management of e-business".
   - In the new study, programmes will be laid the opportunity to choose learning strategies that take into account the individual characteristics of students.
   - I am going to include in the teaching and methodological support of the academic discipline the use of the methods presented Flipped classroom approach amplification STEM-education.

3. Project coordinators the project coordinators asked the question to clarify, how course developers are going to introduce Universal Design for Learning (UDL) in development of new study courses of the study programmes under upgrading. Below we provide some answers:

   - I will try to implement Universal Design for Learning (UDL) in the development of new training courses.
   - Expanding the inclusion of scenario-based learning (SBL) into the educational process, such as problem-based learning (involving students in realistic situations in which they must take into account a wide range of factors, make decisions, analyse results, train others), gamification, serious games, education discoveries, various workshops, mental maps, group projects.
   - Adapt curricula to expand the possibilities of applying the inverted class technology in the educational process, which has shown its effectiveness in teaching students disciplines that require consistent study of the material and the use of the knowledge gained in solving practical creative problems.

- Apply a combination of basic approaches in the construction of educational methods: encouraging students to actively interact with educational content (motivation): interactive whiteboard, online discussion platform, groups in social media, wiki; flexible and diverse educational content available to all students (flexible educational resources): virtual classroom, blogs, video/audio recordings, open educational resources, multimedia content; flexible assessment of student learning (flexible assessment): voting systems, peer review, essay, online testing.
- I am going to implement the Universal learning design (UDL) in the development of new training courses on modernised training programmes using various learning technologies studied during the seminar, as well as on the basis of common principles of higher education.
- I will use Design of Learning Outcomes & Course Objectives, the module specification template provided to us by the internship. Also, I will use Framework of Technologies to enhance Universal Design for Learning (flexible ways to learn and express learning, assessment and feedback, flexible Study Resources).
- I'm going to apply in the study process of training specialists technologies to support Universal Design for Learning (UDL) and assistive technology toolkit with a focus on Mind Mapping.
- When developing new training courses I will plan to use more ways to provide information. The focus will be on developing knowledge acquisition skills in students.
- I find it difficult to answer. We need to think about how to implement the principles of UDL.
- By introducing, first of all, multiple means of representation and engagement.
- Use elements UDL in development of study programmes for master's degree programmes.

4. The next question to internship participants was—"How are you going to apply the knowledge and skills gained in preparing the materials for the new courses?". Below are provided some citations from teachers answers:

- Bloom's taxonomy implementing in course development, short video materials using, involving students via Moodle LMS.
- Use these materials in teachers' blogs, in lectures, project work, and in students group work.
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- Short video materials using.
- The knowledge and skills gained during the internship will have a great impact on the contents of study courses by aligning theoretical component with its practical embodiment.
- Use these materials in teachers' blogs, in lectures, project work, and in students group work, initiatives aimed at supporting the transition into and through a higher education course.

- In the process of organising individual and group work of students. And also when developing other courses in other disciplines.
- Use ICT in a larger volume, to build courses on a flexible modular basis, to use the methods of innovative rating assessment of knowledge—Post course materials in LMS.
- I will try a variety of options for submitting answers to questions, as Kate Flick advised, and I will remake materials for the new courses using taxonomy of Bloom.
- I've got more intercultural competencies through sharing the expertise and know-how, so I'm going to update selected topics of my course.
- I'm going to update the lectures when preparing materials for new courses.
- I hope it will be good to foresee in course playing elements and variable ways of checking results of independent work.
- The majority of the knowledge and skills gained will find practical application in preparing the learning materials.
- I plan to take into account the information received in the development of training materials for training courses.
- I'm going to use—the flipped classroom—Studying the needs and opportunities of students and increasing their motivation—To break up a lecture over 1 hour using Chunking methodology—Active Learning such as Communities of Practice, Small Group Work, Carousel, Self and Mutual Evaluation and the like—Feedback (Checks on learning) in the form of testing, written work and discussion—Time management of classes—Recording and using multimedia materials of such videos and interactive presentations.
- I am going to apply the acquired knowledge and skills in the preparation of materials for new courses through the improvement of lectures, adaptation of practical and seminar classes in accordance with the knowledge gained at the seminar, as well as through the organisation of trainings on the subject on the basis of feedback from students.
- I will use Bloom's taxonomy to design controls in a training course. Also, I will use flexible ways to learn and express learning, assessment and feedback, flexible Study Resources.
- I hope it will be good to foresee in course playing elements and variable ways of checking results of independent work.
- I'm planning to (1) Increase the use of distance education tools to organise students' independent work; (2) start using technology flipping the classroom (Scenario-based approaches to teaching and learning); (3) include the Lego Serious Play pedagogical technology as a tool for developing research skills in the training programme.
- I will use the Universal Design for Learning (UDL) technologies that I have learned from the DMU when preparing materials for new courses.
- I'm going to apply my knowledge and skills to the development of teaching and methodological support of disciplines.
- Through constructing the course syllabus (including practical assignments) on the basis of the knowledge and skills gained.

5. When implementing EU projects, it is very important to share good experience with colleagues, students, and other high-level academics. In order to find out how the project participants will spread information about their experience, coordinators asked them the following question—"How are you going to share the gained experience during the internship "IT in the Context of Intercultural Competency". Below are provided some citations from teachers answers:

   - On the chair meeting, professional communications with colleagues, written report on the internship.
   - Of course, I'm going to share the gained experience during the internship trough meeting my colleague, in report on conference and seminars.
   - Organise a seminar for our colleagues and inform our students about my experience.
   - Organise a seminar for our colleagues and deliver open lecture for our students.
   - Organise a seminar for our colleagues and deliver open lecture for our students, write a paper.
   - In my practical work, in conducting open classes, discussing the results of the internship with colleagues, in organising joint events with other universities. A report on the results of the internship at the methodological seminar of the Department of Management and Economics is also planned.
   - To summarise the experience gained at seminars and training courses for university teachers, which are regularly conducted by the distance learning department of the Belarusian State Pedagogical University to enhance the professional competencies of teachers.
   - Of course, I will share the gained experience through faculty meeting, through attending lectures by colleagues.
   - Today we held a meeting with our department and I shared impressions and gave the Feedback on the internship procedures.

6. Internship participants emphasised that the internship was helpful and they were very grateful for organises of this internship:

   - I am utterly grateful to De Montfort University for our visit arrangements and a superb opportunity to get acquainted with their impressive experience in innovative teaching.
   - I am very grateful to all the organisers for the excellent internship. I especially want to thank Dr. Armaghan Moemeni. The internship materials were relevant, modern and useful for my professional skills. The teachers conducted many interesting lectures and interactive classes.
   - I liked that the internship was informative, active and interactive, illustrative, friendly, innovative.
   - I am grateful to De Montfort University for our visit arrangements and a superb opportunity to get acquainted with their impressive experience in innovative teaching".
   - Internship "Innovative Study methods" was held at a high level. I am grateful to the English colleagues for their studies, hospitality and open nature of business

communication. Each planned meeting was valuable. The organisation of a series of classes on computers will increase the effectiveness of training during the internship. Thanks to the organisers!

- Thank you, such internships are always very useful in terms of new acquaintances with colleagues and exchange of experience to improve the quality of education.

7. For Belarus teachers were provided a question, what impact of this internship on their *Professional development.* Teachers answer the following answers:

- I have been introduced to the study infrastructure of DMU and how it is used in the study process.
- I have been introduced to TEF in the context of the UK's higher education.
- I have been introduced to the Higher Education Academy, Fellowship Routes and their activities.
- I got acquainted with the innovative teaching and learning methodologies for development of new study programmes.
- I have been introduced to Innovative Assessment Methods used at DMU in the study process.
- I have been introduced to Universal Design for Learning (UDL) and it will help me to apply new technologies to support UDL.
- I have got acquainted with Effective Approaches Teaching and Learning and learned how to apply that in my course.
- I have been introduced to use of Lego as a tool for developing research and teaching skills.
- I have been introduced to DMU experience in using Distance Learning.
- My motivation to apply innovative teaching/learning methodologies for development of new study programmes has increased.
- I have become more interested in developing intercultural competencies in the IT context.
- I got more intercultural competencies through sharing the expertise and know-how.
- I have improved my foreign language skills.
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