



A Bibliometric Study on Academic Dishonesty Research

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Abstract

Educational policy and social sciences researchers have been studying dishonest behaviors among students for a long time. In this bibliometric study we examine the extant literature on academic dishonesty until 2017. We also analyze the specific case of the literature on plagiarism (as a specific type of academic dishonesty) since it is arguably one of the most common academic dishonest behavior. We aim at identifying the intellectual structure of the field of academic dishonesty and plagiarism. Results show that Donald L. McCabe (academic dishonesty) and Richard L. Marsh (plagiarism) appear as the most productive authors. Furthermore, Whitley (*Research in Higher Education*, 39(3), 235–274, 1998) “Factors associated with cheating among college students: A review”, and Pennycook (*TESOL Quarterly*, 30(2), 201–230, 1996), entitled “Borrowing others’ words: Text, ownership, memory, and plagiarism” are the most cited publications on academic dishonesty and on plagiarism, respectively. Additionally, a strong connection between the McCabe and Treviño articles emerged from the co-citation analysis on academic dishonesty, and also a strong relationship between Pennycook (*TESOL Quarterly*, 30(2), 201–230, 1996) and Pecorari (*Journal of Second Language Writing*, 12(4), 317–345, 2003), suggesting that these articles are strongly connected. Results suggest that these are the most influential authors and articles of the field.

Keywords Academic dishonesty · Academic cheating · Academic misconduct · Plagiarism · Bibliometrics

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Introduction

Ethics and dishonest behavior worldwide have been increasingly investigated as the world has witnessed several major ethical scandals across a number of countries and in a myriad of industries, such as banking, academic, football, or the automobile industry. Cases of alleged unethical behaviors have been widely publicized in the media and some academic examples include University of Illinois clout scandal, the use of ringers by University of Iowa's students to take their exams, and the case of 77 students that were punished by their dishonest behavior at the University of Coimbra, in Portugal, amongst others. Furthermore, a wider range of questionable research practices should be further analyzed (Martinson et al. 2005) since dishonest behavior often starts in school (Harding et al. 2004). In fact, dishonesty in an academic setting has been a consistent and paramount problem for many years at all educational levels (Harding et al. 2004), and it is a serious educational issue (Orosz et al. 2016; Koul et al. 2009).

Although difficult to define accurately (Lambert et al. 2003), the concept of academic dishonesty encompasses several harmful behaviors, including plagiarism, or fraudulent excuses (Yazici et al. 2011). It may be defined as being "intentionally unethical behavior" (Von Dran et al. 2001, pp. 40) and "using deceit (fraud) in academic work" (Cochran 2016, pp. 814), which result in the breach of the defined rules and accepted standards whereby cheaters are seen to gain an unfair advantage over those who do not cheat (Dick et al. 2003).

Research on academic dishonesty in college is not a recent topic (e.g. Hartshorne and May 1928; Canning 1956; Bowers 1964; Hetherington and Feldman 1964; Harp and Taietz 1966) and the literature is vast and arguably dispersed (Ma 2009). The classical work of Bowers (1964) showed high levels of cheating among business students. In the study, the author concluded that 66% of undergraduate business students surveyed in 99 campuses reported at least one incident of cheating, and that the prevalence of cheating among business students was higher than that in other fields of knowledge (Bowers 1964). McCabe and Treviño (1997) concluded that 84% of the students in their sample reported one or more incident of serious cheating, with business students attaining higher levels of cheating than their peers from other fields of knowledge. More recently, Kuntz and Butler (2014) surveyed 325 first-year psychology and business students from a large university in New Zealand. The focus was on the individual and contextual antecedents of attitudes toward the acceptability of cheating and plagiarism. Results show that gender, justice sensitivity, and understanding of university policies regarding academic dishonesty were the key predictors of students' attitudes toward the acceptability of cheating and plagiarism. Tibbetts (1997) studied gender differences with respect to deviant propensities to cheat and, in a more recent study (Mustaine and Tewksbury 2005), the research effort was also dedicated to studying some gender differences, concluding that cheating may be part of a larger problem behavior orientation for males. Nevertheless, the increasing number of publications on cheating is arguably an indicator of the prevalence of the cheating problem on college campuses over the last decades (Harding et al. 2004).

Some forms of academic misconduct have been receiving scholarly attention and research efforts. The specific case of plagiarism has received a great deal of attention (Park 2003). "The topic of plagiarism is of universal interest to scholar/teachers because of occasional incidents encountered either with colleagues or students" (Brown and Murphy 1989, pp. 432), and it is considered as a serious issue (Moss et al. 2018). Despite the existence of several forms of

academic dishonesty, recent research has found that, in an academic setting, the most frequent form of academic dishonesty was plagiarism (Abusafia et al. 2018). Moreover, both staff and students considered that “copying a few paragraphs and not citing the source” was the most common cheating form (Wilkinson 2009, pp. 98).

Although institutions have been implementing actions to limit plagiarism, such as teaching how to paraphrase, developing honor codes, workshops and training on citation, or disseminating specific documentation on plagiarism and its forms and consequences, several articles mentioned above show that plagiarism still persists. Thus, it looks like past and current institutional actions are not enough. In fact, Marsh and Campion (2018) suggest that academic integrity should be strongly assumed as an institutional concern, instead of just students’ responsibility. Moreover, through a collaboration approach and using workshops and open educational resources settled to address paraphrasing, summarizing and quotation, Marsh and Campion (2018) concluded that “better collaboration and co-operation among faculty staff, learning advisors and librarians is therefore essential” (Marsh and Campion 2018, pp. A-223). Hence, in our study, the topic plagiarism is studied, along with the broader topic of academic misconduct, in order to understand the intellectual structure of the fields.

Bibliometric Studies

The knowledge that emerges from all the academic publications is essential for the accurate understanding of the theories and practices that universities, and their managers, need in order to have a concrete impact on their organizations. However, the dispersion of the literature makes the task of grasping the advancements in theory and practice difficult demanding for a literature review.

What are bibliometric studies? Bibliometric studies are quantitative analyses of the extant literature which is achieved by examining a given corpus of research (Goldie et al. 2014). The bibliometric studies rely on the meta-data of extant literature (e.g. title, authors, year, journal, keywords, references, and so forth) to determine ranks, trends and connections (Ferreira et al. 2014). By analyzing quantitatively a large volume of research (hundreds or thousands of works at once), the bibliometric studies arguably allow an objective understanding of the literature in a field (Bonilla et al. 2015). The quantitative analysis of the wealth of research in a given field allows to define the intellectual structure of that field. We may define the intellectual structure of a field as the network of key publications and the strength of interconnections between them that form the major themes addressed and theories used in that field (Ferreira et al. 2014; Ramos-Rodríguez and Ruiz-Navarro 2004). Thus, analyzing the intellectual structure of a field allows the understanding of the development of the field.

Bibliometric studies may use different techniques to extract information from the data collected (Albort-Morant and Ribeiro-Soriano 2016). The authorship analysis allows identifying the most prolific authors in a field, i.e. the scholars that drive the field. Analyzing the publication year allows to track the evolution of the field thus identifying whether it is growing or decreasing. And analyzing the knowledge base (i.e. the reference list of each work analyzed) allows to detect commonalities and connections. Thus, many bibliometric studies use the knowledge base of the sample to perform citation and co-citation analyses (e.g. Ferreira et al. 2014; Ramos-Rodríguez and Ruiz-Navarro 2004; Reis et al. 2015; Marques et al. 2018). Citation and co-citation analyses allow identifying the most cited works and their joint use thereby permitting to infer the intellectual structure of a field (Ramos-Rodríguez & Ruiz-Navarro, 2004).

Bibliometric studies may serve as a complement to traditional literature reviews and content analysis papers (Reis et al. 2015). Bibliometric studies perform structured reviews of a field by objectively selecting and analyzing a sample of works (Ferreira et al. 2013) which makes them less susceptible to researcher biases given the use of a quantitative methodology (Marques et al. 2018). The works analyzed by bibliometric studies may include all types of academic publications: books, conference proceedings, theses, dissertations and journal articles. The most common works analyzed in bibliometric studies are journal articles since they are considered certified knowledge (Ramos-Rodríguez and Ruíz-Navarro 2004). The works included in a sample are usually selected using objective criteria, such as all the articles in a journal (Ramos-Rodríguez and Ruíz-Navarro 2004) or a group of journals (Ferreira et al. 2013), the articles on a subject in a group of leading journals (Reis et al. 2015), or all the articles in journals indexed in a given index (Bonilla et al. 2015). Therefore, bibliometric studies arguably avoid researchers' biases by relying in objective criteria and measures. Thus bibliometric studies arguably allow an unbiased and organized depiction on a specific topic (Albort-Morant and Ribeiro-Soriano 2016).

Bibliometric studies are useful to make sense of the large volume of research published in several journals across various academic disciplines every year (Talukdar 2011). The sheer volume and dispersion of knowledge makes it essential for scholars to be aware of state-of-the-art practices, in order to advance in their research efforts. Bibliometric research has been posited as being helpful in several disciplines (e.g. Wang et al. 2012). As Goldie and colleagues (Goldie et al. 2014, pp. 286) stated, bibliometric analyses have been used in other fields, but this type of bibliometric “has not yet been done to any serious degree in the field of education”, thus calling for more bibliometric studies. Just recently, several reviews of research on educational issues have been published (e.g., Hallinger 2018; Murtonen et al. 2017) denoting the importance of this kind of studies in the field of education. However, to the best of our knowledge, no other bibliometric study focuses on the specific issue of academic dishonesty. Moreover, bibliometrics are also useful for educational policymakers for supporting strategies and procedures (Goldie et al. 2014) namely those addressing the academic cheating issues.

Our study aims at identifying the intellectual structure of academic dishonesty research and plagiarism research. Specifically, this study seeks to identify the most productive researchers and the most influential papers in the sample, arguably allowing to understand the intellectual structure of the field. From a methodological perspective, we use bibliometric techniques to empirically analyze academic dishonesty and plagiarism research publications in journals indexed in Thomson Reuter's ISI Social Science Citation Index (SSCI) until 2017, in Web of Knowledge database. We conduct authorship, citation and co-citation analyses of the extant research on academic dishonesty and, also on plagiarism, to better characterize the existing knowledge and to map the intellectual structure of academic dishonesty literature as a whole, and the specific case of plagiarism.

The study is structured as follows. After the introduction, the method is presented, including sample and procedures, and in the third section the results are shown – both for academic dishonesty and for plagiarism. The paper ends with a broad discussion, as well as limitations and avenues for future research.

Method

Bibliometric Analysis

Bibliometric analyses are based on quantitative procedures aiming at organizing the extant research and are thus adequate for systematic literature reviews. Bibliometric techniques were previously used transversely in a wide range of areas, such as business ethics literature (e.g. Ma 2009; Talukdar 2011), ethics research with an accounting focus (e.g. Uysal 2010), sustainability (Cullen 2017), management with regard to religion (e.g. Gundolf and Filser 2013), workplace spirituality (e.g. Oswick 2009), or economics in Latin America (e.g. Bonilla et al. 2015). Despite several studies which carried out bibliometric analyses of the ethics field, none has so far focused exclusively on the phenomena of academic dishonesty and plagiarism. In our study, several steps were followed, starting with the definition of the field under study, then choosing the database for searching the existent research, defining and adjusting the search criteria, organizing and compiling the categories of bibliographic information and codifying the material retrieved, and finally, we have analyzed the information (Albort-Morant and Ribeiro-Soriano 2016).

Sample

To perform the current bibliometric study we collected a sample of articles published in highly-ranked journals. We selected Thomson Reuters' ISI Web of Knowledge (www.isiknowledge.com), the principal collection of Web of Science, henceforth WoK), using the entire database of Social Sciences Citation Index (henceforth SSCI). SSCI was selected as it is a widely known and it has been a database used in several published bibliometric studies (e.g. Albort-Morant and Ribeiro-Soriano 2016; Gurzki and Woisetschläger 2017), and the journals composing it are generally considered to be highly ranked in social sciences (Wang et al. 2012). Analyzing articles published in highly ranked journals, as those indexed in SSCI, arguably allows to observe the most relevant trends in the field, as the works that drive a field forward tend to be published in highly ranked journals. Thus, analyzing the knowledge base of the papers in the sample (i.e. the references used in the papers of the sample) arguably allows understanding the intellectual structure of the field.

For this study we considered the period until 2017 (2017 included), considering all publications available on SSCI/WoK. The search in the WoK was conducted using the keywords “academic dishonesty”, “academic cheat*”, or “academic misconduct” in the “Topic” feature, and, for a second group of analyses, the word “plagiarism” was used to search in the “Topic” feature. Using the “Topic” feature allows the search to include three fields: title, keywords and abstract to ensure a wider coverage (Ferreira et al. 2014). We selected the keywords when reviewing the extant literature, which posits that these are some of the most common terms used by authors (Barnhardt 2016). The “*” wildcard character was used to ensure that the maximum variation could be included, which would eventually contain “cheating”, “cheater”, etc. We did not restrict the language of the articles, following Cullen's (2017) recommendation. Finally, we manually screened the articles by reading the title and abstract of all the articles and reviews obtained in search process to guarantee that the sample was accurate and complete (Ferreira et al. 2014). These procedures returned a total of 503 publications (articles and reviews) on the first search. For the second search, on plagiarism,

829 publications (articles and reviews) were retrieved. Thus, the articles in this sample deal, firstly, with academic cheating, academic dishonesty, or academic misconduct, and, secondly, with plagiarism. The first article obtained in our sample of research on academic dishonesty was published in 1972 and, in 1953 concerning the first work on plagiarism.

Using the Bibexcel software (Persson et al. 2009), all the bibliometric information of the articles was extracted, specifically: journal name, article title, authors, keywords, year of publication, and reference list. To clear the sample of potential miscoding regarding the authors' names, work titles, volumes, pages numbers and so forth, a manual normalization was carried out, correcting any differences, typos and other inconsistencies. The networks were drawn using the social networks' software Ucinet 6 for Windows (Borgatti et al. 2002, 2013).

Procedures

Bibliometric techniques are suitable for the general overview of a research field and the analysis of leading researchers (Bjork et al. 2014). In this study we conduct citation and co-citation analyses to describe the evolution of research on academic cheating and on plagiarism, and we map the knowledge base of academic cheating and plagiarism in order to illustrate the correspondent intellectual structure of the fields. It is worth noting that the results we present are computed from the sample and are not exhaustive of all the research on academic dishonesty and plagiarism.

Authorship Analysis

Similar to other bibliometric studies (cf. Albort-Morant and Ribeiro-Soriano 2016), we performed an authorship analysis aiming at identifying the most prolific authors. Authorship analysis consists in counting the number of publications on the topic by each of the authors included in the sample. When an author has high productivity on the topic, i.e. authors a high number of articles, it is likely to be a significant author (Podsakoff et al. 2008).

Citation Analysis

Citation analysis is one of the most common bibliometric techniques and it is one of the earliest methods (Ma 2009). Performing a citation analysis requires analyzing the reference list of the works in the sample and computing the frequency of each one. This process permits the identification of the most influential research, which form the knowledge base of the research on the topic. Furthermore, citation analysis reveals the works with the highest impact in the field (Ferreira 2011). These analyses require retrieving the reference list of all the articles of our sample and computing how many times each reference is used. Additionally, we have also split the sample into three sub-periods (until 2000; 2001–2010; 2011–2017) to identify the potential changes in the knowledge base over time and thus inferring classical and emerging issues of research on academic dishonesty and/or plagiarism.

Co-citation Analysis

To map the intellectual structure of a research field we use a co-citation analysis (cf. Gurzki and Woisetschlager 2017). Co-citation analysis involves counting pairs of co-cited authors –

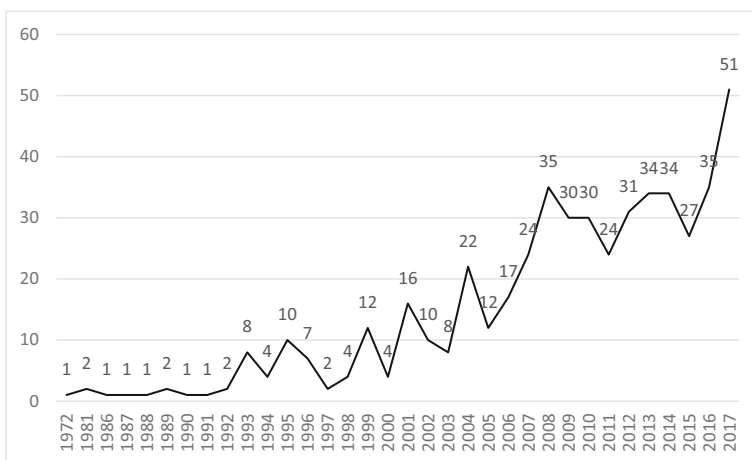
i.e. referenced together in one of the articles of the sample (Ma 2009; White and McCain 1998). Using the co-citation data, we build a co-citation matrix which numerically describes the interconnectedness of the works which form the knowledge base of the field (Ferreira et al. 2014). Ucinet 6 software was used to perform social network analysis, and hence to obtain a graphic illustration of the relations in the co-citation matrix. The co-citation map allows us to identify the strongest links in academic cheating and plagiarism research, which are represented by the thickness of the lines connecting two works.

Results

Our first results focus on the academic dishonesty topic. Academic cheating research has existed at least since the late 1950s/early 1960s, but the volume of published research increased substantially over the 1972–2017 period. Figure 1 depicts the evolution of articles on academic dishonesty since the 1970s, up until 2017 in the SSCI database (SSCI only includes data after 1972). During the 1970s, 1980s, and 1990s, research on academic cheating was extremely scarce (a maximum of 10 articles published per year). From 1999 onwards, researchers devoted more efforts to this topic, and results show an increasing trend, especially since 2008.

Authorship Analysis on Academic Dishonesty

Overall, the 503 articles were authored by 1070 scholars, averaging 2.6 authors per article. The authorship analysis was carried out to identify the most prolific authors (Albort-Morant and Ribeiro-Soriano 2016; Bonilla et al. 2015). An author with a high number of papers in a given field of research indicates a prolific scholar – arguably with a high quality track record who has gained the approval of their peers (Ramos-Rodríguez and Ruíz-Navarro 2004). Therefore, an author with a high number of articles in a given field is likely to be highly influential (Podsakoff et al. 2008). Table 1 shows that McCabe is the most productive author (12 articles), followed by Whitley (8 articles).



Source: Data collected from ISI Web of Knowledge.

Fig. 1 Evolution of publications on academic dishonesty: 1972–2017

Table 1 The most productive authors (academic dishonesty sample)

Rank	Reference	# publications
1	Donald L. McCabe	12
2	Bernard E. Whitley	8
3	Cynthia J. Finelli	7
4	Trevor S. Harding	7
5	Donald D. Carpenter	7
6	Linda K. Treviño	6
7	George M. Diekhoff	5
8	Kenneth D. Butterfield	5
9	Eric M. Anderman	5
10	Shu Ching Yang	5

Source: Data collected from ISI Web of Knowledge

Citation Analysis on Academic Dishonesty

The 503 articles included in the sample used a total of 17,012 references, averaging 34.8 references per article. Examining in detail all the references would be impracticable and would render few meaningful results, hence we computed the frequencies of use to assess the most used references. Analyzing the works which are cited in a given field of research is useful as a means of ascertaining the knowledge base of the field (Diodato 1994). Citing a given work acknowledges an intellectual debt of some sort (White et al. 2004), as authors cite research which is relevant to their own research (Ramos-Rodríguez and Ruíz-Navarro 2004). Therefore, the more often a given work is cited, the more influential and important it is to the field (Ferreira et al. 2014). Table 2 presents the 25 most cited works in the 503 articles on academic dishonesty. These are arguably the most influential work on the topic of academic dishonesty. In addition, we have also retrieved the number of citations (according to Google Scholar) of the most cited works. Comparing the two measures, we may identify a similar, albeit not entirely matching, trend. The most cited works in our sample are also highly cited overall.

The article of Whitley' (1998), "Factors associated with cheating among college students: A review", is the most cited in the sample with 113 citations (22.5% of the total), and the article "Academic dishonesty: Honor codes and other contextual influences" by McCabe and Treviño (1993), is the second most cited, having being cited in 109 articles in the sample (21.7% of the total), followed by "Individual and contextual influences on academic dishonesty: A multi-campus investigation" by McCabe and Treviño (1997), with 104 citations (20.7% of the total), and followed, in the place, by the paper by McCabe and colleagues (McCabe et al. 2001), entitled "Cheating in academic institutions: A decade of research". These four articles are also the most cited in the sample, according to the citation obtained from Google Scholar.

Co-citation Analysis on Academic Dishonesty

We performed a co-citation analysis by inspecting the joint use of the references of the articles on academic dishonesty. When two references are cited together, a connection of some sort between them is assumed (Ramos-Rodríguez and Ruíz-Navarro 2004). Therefore, the more often a pair of works is co-cited – i.e. cited in the same article of the sample – the more connected those works are (Diodato 1994). Using the 25 most cited references in the 503

Table 2 The 25 most-cited works (academic dishonesty sample)

Rank	Reference	Citation frequency	GS citations
1	Whitley (1998). Factors associated with cheating among college students: A review. <i>Research in Higher Education</i> , 39(3), 235–274.	113	831
2	McCabe & Treviño (1993). Academic dishonesty: Honor codes and other contextual influences. <i>Journal of Higher Education</i> , 64(5), 522–538.	109	1084
3	McCabe & Treviño (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. <i>Research in Higher Education</i> , 38(3), 379–396.	104	908
4	McCabe et al. (2001). Cheating in academic institutions: A decade of research. <i>Ethics & Behavior</i> , 11(3), 219–232.	102	1110
5	Davis et al. (1992). Academic dishonesty: Prevalence, determinants, techniques, and punishments. <i>Teaching of Psychology</i> , 19(1), 16–20.	75	595
6	Haines et al. (1986). College cheating: Immaturity, lack of commitment, and the neutralizing attitude. <i>Research in Higher Education</i> , 25(4), 342–354.	68	546
7	Michaels et al. (1989). Applying theories of deviance to academic cheating. <i>Social Science Quarterly</i> , 70(4), 870–85.	51	342
8	Newstead et al. (1996). Individual differences in student cheating. <i>Journal of Educational Psychology</i> , 88(2), 229–241.	48	523
9	Graham et al. (1994). Cheating at small colleges: An examination of student and faculty attitudes and behaviors. <i>Journal of College Student Development</i> , 35(4), 255–260.	45	301
10	Anderman et al. (1998). Motivation and cheating during early adolescence. <i>Journal of Educational Psychology</i> , 90(1), 84–93.	44	506
11	Sims (1993). The relationship between academic dishonesty and unethical business practices. <i>Journal of Education for Business</i> , 68(4), 207–211.	41	377
12	Jordan (2001). College student cheating: The role of motivation, perceived norms, attitudes, and knowledge of institutional policy. <i>Ethics & Behavior</i> , 11(3), 233–247.	40	334
13	Bowers (1964). <i>Student dishonesty and its control in college</i> . New York: Bureau of Applied Social Research, Columbia University.	40	624
14	Nonis & Swift (2001). Personal value profiles and ethical business decisions. <i>Journal of Education for Business</i> , 76(5), 251–256.	39	112
15	McCabe et al. (2002). Honor codes and other contextual influences on academic integrity: A replication and extension to modified honor code settings. <i>Research in Higher Education</i> , 43(3), 357–378.	39	358
16	Crown & Spiller (1998). Learning from the literature on collegiate cheating: A review of empirical research. <i>Journal of Business Ethics</i> , 17(6), 683–700.	38	405
17	Jensen et al. (2002). It's wrong, but everybody does it: Academic dishonesty among high school and college students. <i>Contemporary Educational Psychology</i> , 27(2), 209–228.	37	322
18	Murdock & Anderman (2006). Motivational perspectives on student cheating: Toward an integrated model of academic dishonesty. <i>Educational Psychologist</i> , 41(3), 129–145.	36	243
19	Harding et al. (2004). Does academic dishonesty relate to unethical behavior in professional practice? An exploratory study. <i>Science and Engineering Ethics</i> , 10, 311–324.	36	251
20	McCabe et al. (2006). Academic dishonesty in graduate business programs: Prevalence, causes, and proposed action. <i>Academy of Management Learning & Education</i> , 5(3), 294–305.	36	625
21	Diekhoff et al. (1996). College cheating: Ten years later. <i>Research in Higher Education</i> , 37(4), 487–502.	35	324
22	Genereux & McLeod (1995). Circumstances surrounding cheating: A questionnaire study of college students. <i>Research in Higher Education</i> , 36(6), 687–704.	34	231

Table 2 (continued)

Rank	Reference	Citation frequency	GS citations
23	McCabe (1992). The influence of situational ethics on cheating among college students. <i>Sociological Inquiry</i> , 62(3), 365–374.	33	280
24	Murdock et al. (2001). Predictors of cheating among early adolescents: Academic and social motivations. <i>Contemporary Educational Psychology</i> , 26(1), 96–115.	33	273
25	Baird (1980). Current trends in college cheating. <i>Psychology in the Schools</i> , 17(4), 515–522.	32	429

GS citations: Google Scholar overall citations, as of October 2018

Source: Data collected from ISI Web of Knowledge and Google Scholar

articles included in the sample concerning academic dishonesty, we then plotted the co-citation network displayed in Fig. 2. Two dimensions are represented in the figure: 1) the lines correspond to the intellectual ties between the works, which represent the co-citation links; thicker lines represent works that are more connected, i.e., more cited; 2) the position of the works in the network is revealing: works that are placed in a more central position means that they have higher impact and relevance, whereas works placed at the periphery mean that they have a lower impact, despite also being relevant (Ferreira et al. 2014).

Observing Fig. 2, we find a strong tie linking the papers of McCabe and Treviño (1993, 1997). Both articles examine the factors that underlie academic dishonesty among college students. McCabe and Treviño (1993) examines a narrow range of contextual factors that lead to higher levels of cheating, in particular to studying the effectiveness of the honor code through a comparison of academic dishonesty in distinct colleges that have an honor code, and colleges that do not have an honor code. The study used data from 6096 students from 31 small US colleges and universities. With regard to honor code effectiveness, academic dishonesty was most strongly related to the perceptions of peers' behavior, than to the simple existence of an honor code. A few years later, McCabe and Treviño (1997) conducted the first multi-campus study focusing on both the individual and contextual factors that influence academic dishonesty. As stated in their study: “with a single exception (Bowers 1964), we know of no multi-campus studies of academic dishonesty among college students that have examined both personal and contextual factors” (McCabe and Treviño 1997, pp. 380). Results suggest that cheating was influenced by distinct characteristics of individuals (age, gender, and grade-point average), as well as a number of contextual factors (level of cheating among peers, fraternity/sorority membership, perceived severity of penalties for cheating, and peer disapproval of cheating – this last one being the strongest influential).

On the other hand, the studies by McCabe and Treviño (1993, 1997) appear to be strongly linked to the paper by Whitley (1998). Whitley (1998) reviews the results of 107 studies of the prevalence and correlates of cheating among college students published between 1970 and 1996. Among the strongest correlates of cheating were having moderate expectations of success, having cheated in the past, studying under poor conditions, holding positive attitudes toward cheating, perceiving that social norms support cheating, and anticipating a large reward for success” (Whitley 1998, pp. 235). In addition to reviewing the extant literature, Whitley

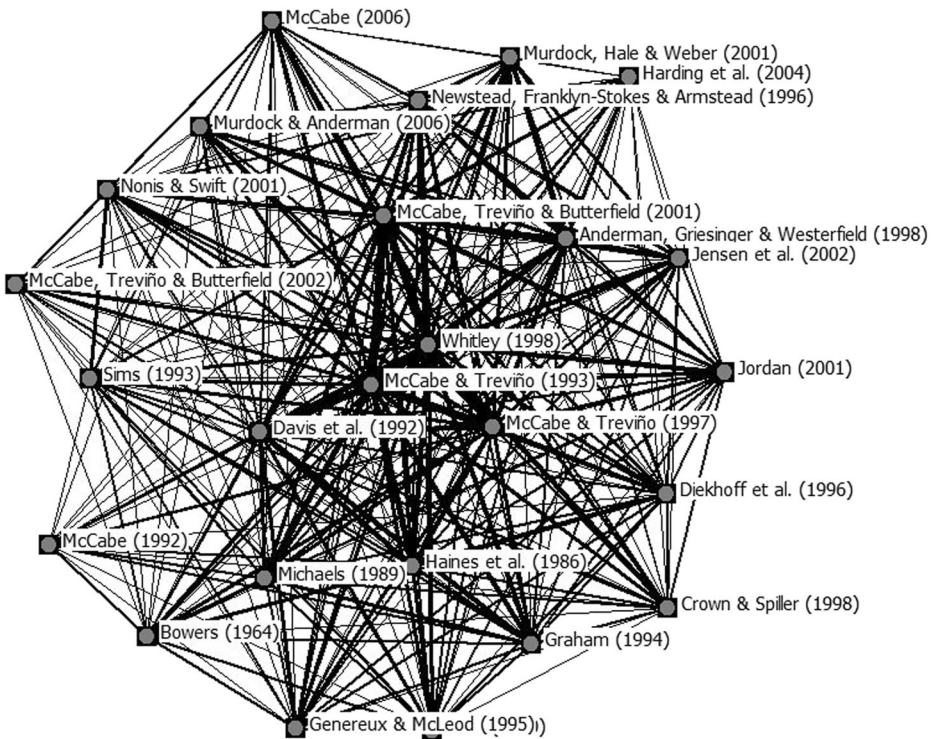


Fig. 2 Co-citation network among the top 25 most-cited articles (academic dishonesty sample)

(1998) moves forward and proposes a comprehensive model of the antecedents of cheating, organizing the variables found to be related to cheating as an attempt to propose a causal model of cheating. The proposed model is based on the theory of planned behavior (Ajzen 1991), in which the behavior of cheating is caused by an intention to cheat. The extent to which that intention actually results in behavior is affected by the extent to which the situation includes constraints on cheating, such as increasing the distance between students, and the use of alternate forms of the test. Therefore, the intention to cheat is based on three factors: (1) the theory of planned behavior variables - attitudes toward cheating, perceived norms concerning cheating, and moral obligation not to cheat; (2) the benefits expected to increase from cheating; and (3) the perceived risk of being caught when cheating. Moreover, the model suggests that prior cheating may influence the theory of planned behavior variables, and the perceived ability to cheat. This perceived ability to cheat may influence a higher or lower level of risk detection. The situational constraint (one's expectations of the constraints to be found in the cheating situation) may also influence the perceived ability to cheat.

Furthermore, McCabe and Treviño (1993, 1997) and Whitley (1998) are connected to Davis and colleagues (Davis et al. 1992). Using data collected through a 21-item survey in a sample of more than 6000 students, Davis and colleagues (Davis et al. 1992) analyze the prevalence, causes, techniques, faculty and institutional responsibility, deterrent measures, and punishment dimensions of academic dishonesty. Davis et al. (1992) identified several factors as important determinants of cheating and their behavior is influenced by external pressures: pressures for good grades, student stress, ineffective deterrents, and condoning teachers. Alarming results

emerge from the study showing that students of the sample lack integrity, academic or otherwise. Davis and colleagues (Davis et al. 1992) launched a challenge to the institutions, understanding that preventive measures deter cheating in specific situations, but they will not succeed in the long run, suggesting that codes of ethics needed to be institutionalized, which demanded for a change in the educational system. In sum, these group of studies denotes the importance of the introduction of the factors that influence cheating on academic dishonesty research.

Observing Fig. 2, we also conclude that McCabe and Treviño (1993, 1997), Whitley (1998) and Davis et al. (1992) appear as the most central works. Based on their central position, we may arguably assume that these have the most relevant status on academic cheating research.

Evolution of the Intellectual Structure of Academic Dishonesty

We have split the sample of works on academic dishonesty into three sub-periods to ascertain structural and emerging issues of the field (the results of these analyses are presented as supplementary material for concision concerns). Observing the 25 most cited works in the different sub-periods, we conclude that the top ranked works have been constantly the most influential in every period. Thus, we may assume that the intellectual structure of the field is relatively stable over time.

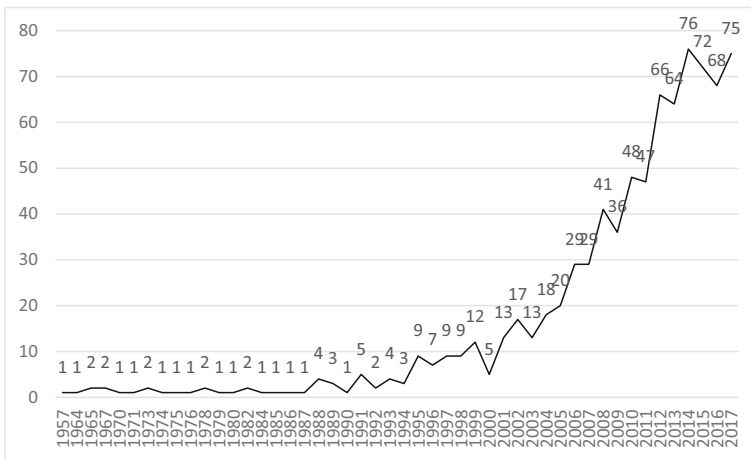
Nevertheless, observing the latest sub-period (2011–2017) some new issues have emerged suggesting novel research interests. Some research has analyzed why students cheat, trying to better understand the causes of students' academic dishonesty behavior and the moral roots of the phenomenon, in an attempt to correlate those with one's own cheating behavior (Rettinger and Kramer 2009; O'Rourke et al. 2010). Observing others cheating was strongly correlated with one's own cheating behavior (Rettinger and Kramer 2009). In fact, seeing others cheat increases cheating behavior based on the fact that students to judge the behavior less morally reprehensible (O'Rourke et al. 2010). Comparisons of conventional and digital cheating is also a recent research tendency (e.g. Stephens et al. 2007). On one hand, conventional cheating has been used more often, such as in copying homework, collaborating when it is not permitted, and copying from others during an exam; on the other hand, digital plagiarism has exceeded conventional plagiarism (Stephens et al. 2007).

The Specific Type of Academic Dishonesty: Plagiarism

A second group of results focus on a specific type of academic dishonesty: plagiarism. Plagiarism is considered to be one of the most common forms of academic dishonesty. In terms of scientific publications, results show that the first publications on plagiarism started in the 50s, but the number of publications has suffered an important increase in the twenty-first century (Fig. 3).

Authorship Analysis on Plagiarism

Overall, the sample of 829 works on plagiarism were authored by 1798 scholars, averaging 2.2 authors per article. For this sample, an authorship analysis was performed to identify the most prolific authors, but also to verify if some commonalities and/or differences arise from this specific sample when compared with the previous sample of authorship on academic dishonesty works. Table 3 shows that Richard L. Marsh is the most productive author on plagiarism (15 articles), followed by Joshua D. Landau (14 articles).



Source: Data collected from ISI Web of Knowledge.

Fig. 3 Evolution of publications (plagiarism sample): 1957–2017

Citation Analysis on Plagiarism

Concerning the sample of publications on plagiarism, the 829 works included used a total of 26,108 references, averaging 31.5 references per article. We computed the frequencies of use to assess the most-used references (Table 4), based on the premise that the influence and notoriety of a given work emerge from the citation frequency. The overall citation data denote a similar pattern, suggesting that the most influential papers on the field of plagiarism included in our sample are also the most influential overall.

Results show that the article by Pennycook (1996), entitled “Borrowing others’ words: Text, ownership, memory, and plagiarism” is the most cited work by the articles in our sample, with 60 citations (7.2% of the total). The article “In other (people’s) words: Plagiarism by university students-literature and lessons”, published in 2003 by Park is the second most cited publication (53 citations, 6.4% of the total).

Table 3 The most productive authors (plagiarism sample)

Rank	Reference	# publications
1	Richard L. Marsh	15
2	Joshua D. Landau	14
3	Jason L. Hicks	10
4	Miguel Roig	10
5	Guangwei Hu	8
6	Yongyan Li	8
7	Timothy John Perfect	7
8	Louisa-Jayne Stark	5
9	Mary Ann Foley	5
10	Jun Lei	5

Source: Data collected from ISI Web of Knowledge

Table 4 The 25 most-cited works (plagiarism sample)

Rank	Reference	Citation frequency	GS citations
1	Pennycook (1996). Borrowing others' words: Text, ownership, memory, and plagiarism. <i>TESOL Quarterly</i> , 30(2), 201–230.	60	921
2	Park (2003). In other (people's) words: Plagiarism by university students-literature and lessons. <i>Assessment & Evaluation in Higher Education</i> , 28(5), 471–488.	53	875
3	Ashworth et al. (1997). Guilty in whose eyes? University students' perceptions of cheating and plagiarism in academic work and assessment. <i>Studies in Higher Education</i> , 22(2), 187–203.	51	515
4	McCabe et al. (2001). Cheating in academic institutions: A decade of research. <i>Ethics & Behavior</i> , 11(3), 219–232.	50	1110
5	Brown & Murphy (1989). Cryptomnesia: Delineating inadvertent plagiarism. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 15(3), 432.	49	186
6	Marsh & Bower (1993). Eliciting cryptomnesia: Unconscious plagiarism in a puzzle task. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 19(3), 673.	48	139
7	Johnson et al. (1993). Source monitoring. <i>Psychological Bulletin</i> , 114(1), 3.	47	4519
8	Howard (1995). Plagiarisms, authorships, and the academic death penalty. <i>College English</i> , 57(7), 788–806.	45	534
9	Pecorari (2003). Good and original: Plagiarism and patchwriting in academic second-language writing. <i>Journal of Second Language Writing</i> , 12(4), 317–345.	44	455
10	Marsh et al. (1997). Contributions of inadequate source monitoring to unconscious plagiarism during idea generation. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 23(4), 886.	37	159
11	McCabe & Treviño (1993). Academic dishonesty: Honor codes and other contextual influences. <i>The Journal of Higher Education</i> , 64(5), 522–538.	37	1084
12	Marsh & Landau (1995). Item availability in cryptomnesia: Assessing its role in two paradigms of unconscious plagiarism. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 21(6), 1568.	34	90
13	Chandrasoma et al. (2004). Beyond plagiarism: Transgressive and nontransgressive intertextuality. <i>Journal of Language, Identity, and Education</i> , 3(3), 171–193.	32	210
14	Roig (2001). Plagiarism and paraphrasing criteria of college and university professors. <i>Ethics & Behavior</i> , 11(3), 307–323.	32	223
15	Angelil-Carter (2000). Stolen words? Plagiarism in writing. <i>Harlow, UK: Longman</i> .	30	305
16	Currie (1998). Staying out of trouble: Apparent plagiarism and academic survival. <i>Journal of Second Language Writing</i> , 7(1), 1–18.	30	309
17	Martinson et al. (2005). Scientists behaving badly. <i>Nature</i> , 435(7043), 737.	30	1005
18	Whitley (1998). Factors associated with cheating among college students: A review. <i>Research in Higher Education</i> , 39(3), 235–274.	29	831
19	Johnson & Raye (1981). Reality monitoring. <i>Psychological Review</i> , 88(1), 67.	29	2366
20	Roig (1997). Can undergraduate students determine whether text has been plagiarized?. <i>The Psychological Record</i> , 47(1), 113–122.	29	208
21	Franklyn-Stokes & Newstead (1995). Undergraduate cheating: who does what and why?. <i>Studies in Higher Education</i> , 20(2), 159–172.	29	410
22	McCabe & Treviño (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. <i>Research in Higher Education</i> , 38(3), 379–396.	29	908
23	Newstead et al. (1996). Individual differences in student cheating. <i>Journal of Educational Psychology</i> , 88(2), 229.	28	524
24	Shi (2004). Textual borrowing in second-language writing. <i>Written Communication</i> , 21(2), 171–200.	27	280
25	Deckert (1993). Perspectives on plagiarism from ESL students in Hong Kong. <i>Journal of Second Language Writing</i> , 2(2), 131–148.	26	236

GS citations: Google Scholar overall citations, as of October 2018

Source: Data collected from ISI Web of Knowledge and Google Scholar

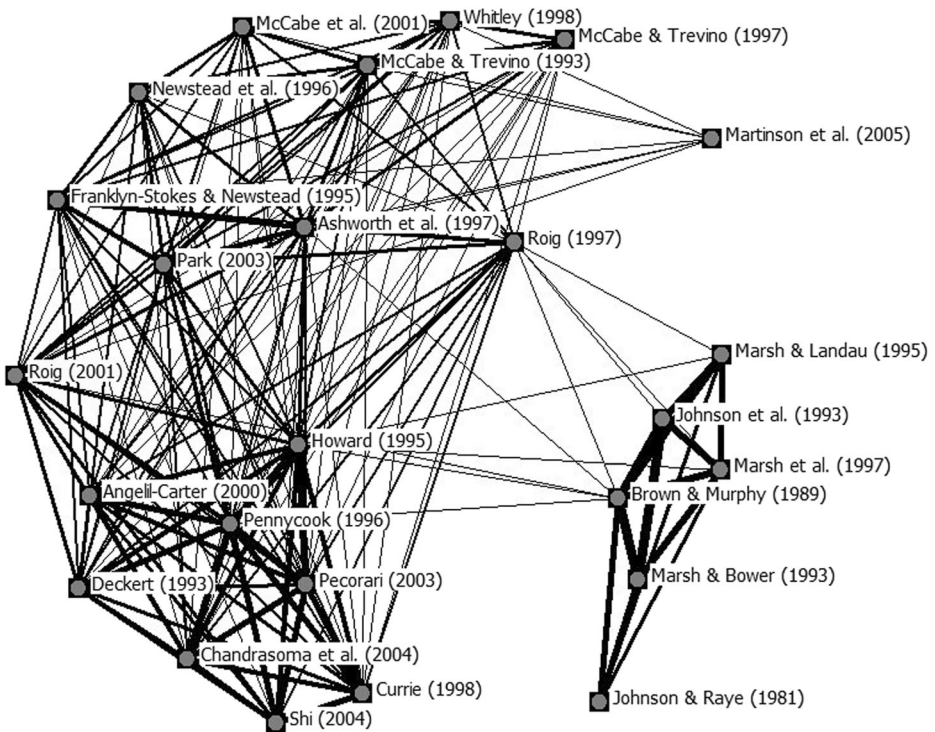


Fig. 4 Co-citation network among the top 25 most-cited articles (plagiarism sample)

Co-citation Analysis on Plagiarism

We performed a co-citation analysis of the sample concerning plagiarism (Fig. 4). Much as in the previous co-citation analysis, the lines of the diagram correspond to the intellectual ties between the works and the positioning also reveals the impact of the works.

Analyzing Fig. 4 three main clusters of works seem to emerge. At the top of the network a group of works dealing with academic dishonesty, also part of the intellectual structure identified above. The works by McCabe and Treviño (1993, 1997) and by Whitley (1998) are closely located, suggesting a relationship between them, which is coherent with our previous identification of intellectual structure of the topic of academic dishonesty. Additionally, also McCabe and colleagues (McCabe et al. 2001) appears to be part of the cluster of works on academic dishonesty.

Observing the thicker lines, a second cluster of works appear to be strongly linked at the bottom left of the networks and it is composed by the works by Pennycook (1996) and Pecorari (2003), which are strongly connected. Pennycook (1996) presents a work on the complexity of text, ownership, memorization, and plagiarism. Discussing it in a much more complex way than plagiarism is usually understood, Pennycook (1996) focus on two main approaches to the phenomenon: a Western notion of textual ownership (UK and US) and an Eastern approach (China), in which the context and cultural settings need to be incorporated to fully understand texts, ownership, and learning. These may be very different when

incorporating different cultural perceptions about ownership of texts, practices of memory, and writing need to be culturally understood. “All language learning is to some extent a process of borrowing others’ words and we need to be flexible, not dogmatic, about where we draw boundaries between acceptable or unacceptable textual borrowings” (Pennycook 1996, pp. 227). Also Pecorari (2003) discusses that although plagiarism is considered an extremely serious issue within academics, evidence suggests that some writers commit plagiarism without intending to misbehave regarding academic conventions. Based on a sample of the writing of 17 postgraduate students, results show that “the student writing was found to contain textual features which could be described as plagiarism, but the writers’ accounts of their work and the textual analysis strongly suggest absence of intention to plagiarize” (Pecorari 2003, pp. 317). Thus, the author suggests that patchwriting should be recognized as a neutral, because some writers plagiarize deliberately and dishonestly, in order to obtain some benefits. Others writers commit textual plagiarism for reasons more to do with their textual skills than their honesty.

At the bottom right a distinct group of works authored by Marsh and Bower (1993), Brown and Murphy (1989), Marsh and Landau (1995) and Johnson and colleagues (Johnson et al. 1993), appear to be strongly connected. All these works focus on studying and understanding, whether through experiments (Marsh and Bower 1993; Marsh and Landau 1995) or theoretically (Johnson et al. 1993), the phenomena of cryptomnesia. In conceptual terms, cryptomnesia is related to source forgetting, thus an unconscious plagiarism, and it may occur when someone, for instance, is writing a piece of poetry, composing a melody or in scholarly ideas, believing that the product is original (Marsh and Bower 1993). When this phenomena occurs it is considered as constitutes unconscious or inadvertent plagiarism. The work by Brown and Murphy (1989) was the first to study unintentional plagiarism, which Marsh and Bower (1993) investigated but in a different domain and to assess the impact of standard learning variables on cryptomnesia and source monitoring. The study by Marsh and Landau (1995) developed three experiments to explore the model used by Marsh and Bower (1993) to account for laboratory-induced cryptomnesia. All these works are relevant and interrelated because they brought novelty considering that information can be inadvertently plagiarized.

Evolution of the Intellectual Structure of Plagiarism

Concerning the sample of works on plagiarism, we followed a similar approach and split the sample into three sub-periods to investigate potential shifts over time (the results of these analyses are also presented as supplementary material for concision concerns). Observing the evolution over the different sub-periods, we conclude that the most cited works have been over time constantly the most cited. Thus, we may assume that the intellectual structure of the field of plagiarism is relatively stable over time.

However, in the latest sub-period for plagiarism (2011–2017), there is some concern over enhanced levels of online plagiarism. For instance, the study of Selwyn (2008) focuses on online plagiarism, in which the obtained results denote the important level of online plagiarism occurrence: three-fifths of students self-reporting at least a moderate level of internet-based plagiarism. Nevertheless, the results of Selwyn (2008) should include a contextualization of the online plagiarism in relation to the wider life of students, which is surrounded by internet, gadgets and technology.

Discussion and Concluding Remarks

In this study, we performed a bibliometric review of the extant research on academic dishonesty and on plagiarism. The main objective of this study is to map the knowledge base of academic dishonesty research and of plagiarism research, identifying the most influential authors and works on both topics, through authorship, citations and co-citations analyses, arguably allowing to understand the intellectual base structure of the field. We used bibliometric techniques to analyze 503 articles on academic cheating and on 829 articles published on plagiarism that were published until 2017 in journals indexed in the SSCI database (WoK). We aimed at offering a more complete understanding of the intellectual structure of academic cheating over the last decades. We contribute to the extant literature by putting forward a systematic review of the research on academic dishonesty and on the specific case of plagiarism. In addition, we offer a snapshot of the existing research up to this point, enabling other researchers to track further evolution and assist in the detection of investigation gaps.

Results show that Donald McCabe is the most productive author researching on academic dishonesty, followed by Bernard Whitley. When analyzing the most productive authors on plagiarism, Richard Marsh emerge as the most productive author, followed by Joshua Landau. Based on these authorship results, we conclude authors that are producing on the topics of academic dishonesty and on plagiarism are not coincident, thus suggesting that the experts on each topic are different.

Concerning the most cited works on academic dishonesty, the article by Whitley (1998) “Factors associated with cheating among college students: A review” is the most cited in the sample, and the article “Academic dishonesty: Honor codes and other contextual influences” by McCabe and Treviño (1993), is the second most cited. Vis-à-vis the most cited works on plagiarism, Pennycook’s (1996) work entitled “Borrowing others’ words: Text, ownership, memory, and plagiarism” is the most cited, whereas the second most cited is Park’s (2003) entitled “In other (people’s) words: Plagiarism by university students-literature and lessons”. Pennycook (1996) highlights the complex tie of concepts and practices of text, ownership, memorization, and plagiarism, bringing a broader and complex perspective of plagiarism than the perspective usually adopted to understand the phenomena of plagiarism. Pennycook (1996) discusses two different cultural approaches concerning textual ownership, a Western (UK and US) versus an Eastern approach (China). It is argued that the context and cultural settings need to be incorporated to fully understand the concepts studied. Different perceptions based on two different cultural frameworks emerge concerning practices of memory, and writing practices, thus a flexible understanding of these cultural differences should be taken into account when defining the limits between what is considered acceptable or unacceptable textual borrowings. Park (2003) reviews the extant literature on plagiarism by students, mainly literature based on samples from North America students, inferring some possible lessons for institutional policy and practice in the UK higher education system. Park (2003) suggests the need for prevention systems in which detection and penalties should be assumed and implemented consistently in order to be effective.

Based on the co-citation analysis concerning academic dishonesty, the strongest connection is between the works by McCabe and Treviño (1993, 1997) focused on the antecedents of cheating, whether related just to contextual factors (McCabe and Treviño 1993), or to individual and contextual factors (McCabe and Treviño 1997). These two works emerge as being strongly linked to the article by Whitley (1998), in which a model is proposed to better

understand the antecedents of cheating based in the theory of planned behavior of Ajzen (1991). Additionally, these three works is connected to the study of Davis and colleagues (Davis et al. 1992), in which students' academic dishonesty behavior is influenced by external pressures such as pressures for good grades, student' stress or ineffective deterrents.

From the co-citation analysis on plagiarism, some works on academic dishonesty also appear associated with the works on plagiarism and, in specificthe group of studies on cryptomnesia and with some works on cultural and contextual issues needed to be taken into account when studying the intention behind such behaviors. Thus, arguably, some individuals plagiarize with a dishonest intention in order to obtain some benefits from it, while others has to do with an unconscious plagiarism or with textual skills, instead of an unethical intention.

Research on academic cheating started in the early twentieth century, as the case of the work by Hartshorne and May published in 1928 (Crown and Spiller 1998). However, academic dishonesty broadly, and plagiarism in particularly, have been received increasing attention from the late 80s and the 90s onwards. The unconscious plagiarism, cryptomnesia, has been researched and it is a psychological phenomenon which may occur in circumstances in which the information can be inadvertently plagiarized (e.g. Brown and Murphy 1989; Marsh and Bower 1993). The context and cultural background should be considered when analyzing issues related to text ownership (e.g. Pennycook 1996; Pecorari 2003). In the 1990s the idea that universities should create environments that do not tolerate academic dishonesty gained momentum (McCabe and Treviño 1993). Furthermore, "the context created at the academic institutions can have a powerful impact on academic dishonesty" (McCabe and Treviño 1997) and factors such as the existence of an honor code (McCabe and Treviño 1993), or peers' disapproval of cheating were identified as influencing cheating (McCabe and Treviño 1997). Studies on the frequencies and prevalence of academic cheating denoted cheating's existence and importance (Haines et al. 1986; McCabe and Treviño 1993). The 1990s were also rich in generating studies to identify individual factors of cheaters, such as age (Newstead et al. 1996; McCabe and Treviño 1997), gender (Davis et al. 1992; McCabe and Treviño 1997), or grade-point average (McCabe and Treviño 1997). Research on unethical behaviors among students in an academic setting has been growing, especially, since 2008. In summary, up until the twenty-first century, articles on academic cheating examined the identification of individual characteristics that could be correlated with cheating, together with situational and contextual factors that could lead to cheating. By the end of the 1990s, Whitley (1998) reviewed previous research and put forward a complete model of the antecedents of cheating. In Whitley's (1998) model, the theory of planned behavior (Ajzen 1991; Beck and Ajzen 1991) is crucial, and both the situational constraints and the intention to cheat assume a particular position as being the potential causes of cheating.

In the twenty-first century, new links were analyzed regarding both personal value profiles (a combination of value decisions) and ethical decision making (Nonis and Swift 2001). Cheating is assumed to be a predictor of possible future deviant behavior (Harding et al. 2004). Researchers dedicated their works to the motivational mechanisms underlying cheating (Murdock and Anderman 2006). Furthermore, researchers assessed different intrinsic and extrinsic motives that underlie cheating (Jordan 2001; Jensen et al. 2002) and concluded that students are more likely to cheat when extrinsic motives exist (Murdock and Anderman 2006). Lastly, research on academic dishonesty using different samples of students (Harding et al. 2004; McCabe et al. 2006) and non-American students (McCabe et al. 2006) was developed.

In sum, academic dishonesty seems like a transversal phenomenon that is thriving and has deserved scholars' attention but also other related topics, such as the unintentional plagiarism or source forgetting are important issues to have into account when researching or policy making. Consequently, academic dishonesty, in general, and the practice of plagiarism in particular, assume to be two major challenges to institutional decision making on the global academic accomplishment. Institutional strategies should incorporate these dimensions in their policies concerning teaching, learning, assessing and researching practices, not forgetting the contextual and cultural settings where these institutions are embedded and the associated phenomenon as cryptomnesia. The results of this study provide an overview of what has been carried out to date thus providing future research ideas to the field.

Limitations and Future Research

The main limitation of our study concerns the sample. Our study includes journals indexed in WoK but other indexes and databases could be included (e.g. Scopus). Including just one source (WoK) for the sample of articles analyzed may lead to some interesting works not being included. However, we selected WoK due to its worldwide reputation in social sciences (Wang et al. 2012) and since most relevant research is arguably published in leading SSCI-indexed journals (Ferreira et al. 2014). Nevertheless, future research may overcome this limitation by including articles from journals indexed in other databases. Furthermore, future research could use other outlets, such as non-indexed journals, proceedings, theses, and books, in order to have a broader perspective of the field. Nevertheless, we are confident that our large sample includes a wide array of journals and that it is representative of the topic.

Some future research avenues may be suggested. It would be interesting to perform a content analysis as a second step to complete the review on the topic of academic dishonesty and on plagiarism. Furthermore, it would be interesting to understand what drives the differences between the influence of works in a given field, and its overall influence. From other approaches, it would be interesting to assess the dishonest behavior of non-western students to investigate both the determinants of academic dishonesty and the repercussions of the dishonesty on individuals. Also, looking into the prevention and control mechanisms of non-western countries and their effectiveness could provide important clues for policy-making in western colleges.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interests.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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