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Academic Discipline Integration by Contract Cheating Services and Essay Mills

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Abstract
Contract cheating services are marketing to students at discipline level, using increasingly sophisticated techniques. The discipline level reach of these services has not been widely considered in the academic integrity literature. Much of the academic understanding of contract cheating is not discipline specific, but the necessary solutions to this problem may need to vary by discipline. This paper reviews current knowledge about contract cheating services at the discipline level, including summarising four studies that rank the relative volume of contract cheating within different academic disciplines. The reviewed studies show high volumes of contract cheating transactions in the disciplines of Business and Computing. Examples of discipline level contract cheating research and service advertising are provided. The main contribution of the paper is an analysis of the discipline level reach by contract cheating services as seen through an analysis of Google search results from the United Kingdom. This analysis of 19 discipline groups uses measures of organic search engine results, paid results and competition. Three discipline groups are shown as currently being heavily exploited by essay mills; these are: (1) Architecture, Building and Planning, (2) Computer Science and (3) Law. In addition, the discipline group of Creative Arts and Design is shown to be at risk of future exploitation. The paper recommends that academics are made aware about continual change in the contract cheating industry including the involved marketing taking place at discipline level. The paper concludes with a call to action for academia to develop discipline specific solutions to contract cheating.

Keywords Contract cheating · Essay mills · Academic integrity · Search engines · Marketing

Background

The challenge of students breaching academic integrity continues to be a problem for higher education. As technology develops, the ways in which students cheat, intentionally or

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otherwise, continue to evolve. Paramount to these problems is contract cheating, first discussed in the literature by Clarke and Lancaster (2006). The term contract cheating is now regularly used to describe the behaviour whereby a student uses or attempts to use a third party to complete academic work for them. This may or may not involve a cash payment.

The base of literature on contract cheating is developing quickly. Figures suggest that up to 15% of current students will pay someone else for work produced through contract cheating by the end of their course, a figure which has seen regular growth over the past 40 years (Newton 2018). Many recommendations about how to address contract cheating exist, from both researchers and national quality bodies (Lancaster and Clarke 2016; Quality Assurance Agency 2017). Common recommendations include increasing the awareness that contract cheating happens amongst staff and students, working with students in partnership as advocates for academic integrity, actively aiming to detect contract cheating and redeveloping assessment design to make this process engaging for students and fit for modern purposes.

Contract cheating is part of a massive international industry, thought to be worth hundreds of millions of dollars per year. Essay mills, services offering bespoke assessments of all types that are written to order, are a key part of the industry. Many students first become exposed to contract cheating services through heavy marketing from essay mills.

The marketing methods used by contract cheating services are becoming increasingly savvy (Medway et al. 2018; Ellis et al. 2018). Many services are using social media bots on services such as Twitter to engage students when they are at their most vulnerable (Amigud and Lancaster 2019).

Some marketing techniques appear to be bordering on deception. Students using contract cheating services are putting themselves at risk of being scammed or blackmailed (Lancaster 2018b). New contract cheating companies appear to be forming all the time, fuelled by writers who are willing to work for very little money (Lancaster 2019). Due to the large amounts of money at stake, the contract cheating industry has a vested interest in staying ahead of any developments in academic integrity designed to circumvent its effectiveness.

One area in which it could be argued that academia is falling behind the contract industry lies with how well it understands contract cheating on a discipline level. There are few papers and studies investigating contract cheating in anything other than a broad sense, yet it is often assumed that a "*one size fits all*" solution will work the same for all academic disciplines. Although current recommendations are well-intended, the existing approaches may not be the best. The ways in which different academic disciplines are taught and assessed vary greatly. Some disciplines require memorisation of large amounts of information, some have a practical focus, some require creativity and some require students to write reams of text. As such, the methods through which assessment design is addressed and contract cheating considered also need to vary by discipline.

The contract cheating industry, in developing its response to contract cheating interventions, also seems to be focusing its marketing at a discipline level. For example, they are optimising their websites to appear under terms that a student looking for help and support for their particular discipline would use, "*history essays*" for a history student, say. This is helping the industry to increase its customer reach. Yet, there is little known about the relative risks to different discipline areas, for what disciplines the industry is most successfully marketing to students at present and in what disciplines the industry is likely to turn its plan of attack to in the future.

This paper reviews the current understanding of contract cheating at a discipline level, discussing some key papers and studies that go beyond recommending a single solution for all

disciplines. The information used to support the review is collected from academic research, talks and through other sources. An illustrative example of how the contract cheating industry promotes itself at discipline level is provided. The disciplines that the literature states are most at risk from the contract cheating industry are considered. The paper presents a small-scale study, examining how far the industry is reaching students online by using current discipline specific search terms. Further "*at risk*" disciplines are identified. The paper is intended to motivate the debate regarding how academia discusses and addresses contract cheating in the future.

Contract Cheating Discipline Specific Marketing Example

It is helpful to consider how contract cheating services are promoting themselves to different student audiences. An example of this is shown in Fig. 1. This figure shows an essay mill site optimised to appeal to nursing students. It appears on the first page of results during a search for "*nursing essay*" on the United Kingdom (UK) version of Google. This is the type of search term likely to be used by a nursing student looking for help or inspiration regarding how to write an essay, but not necessarily setting out to cheat.

The essay mill in Fig. 1 uses several standard marketing techniques used across the industry to make sure that its offer appeals to students. Examples of these marketing techniques, some aimed at specifically at this customer segment, others at students of all types, are shown in Table 1. This is not a comprehensive list of all customer engagement methods used by the site. Many further marketing techniques, such as the use of online chat, provision of a UK telephone number and presenting the ordered work as "*plagiarism free*" appear further down the page.

The introduction to this paper discussed that the contract cheating industry advertising may not be as clear-cut as it appears. A savvy customer may also question some elements of this sample site. For example, the nurse pictured is not wearing the traditional type of attire used in the UK. The use of US spelling in the advertising, as in "*customized*", is also questionable. The term "*grade paper*", shown in the action button, would be uncommon in UK higher education. The line "*Get More Than What You Expected…*" lacks grammatical credibility. Even an

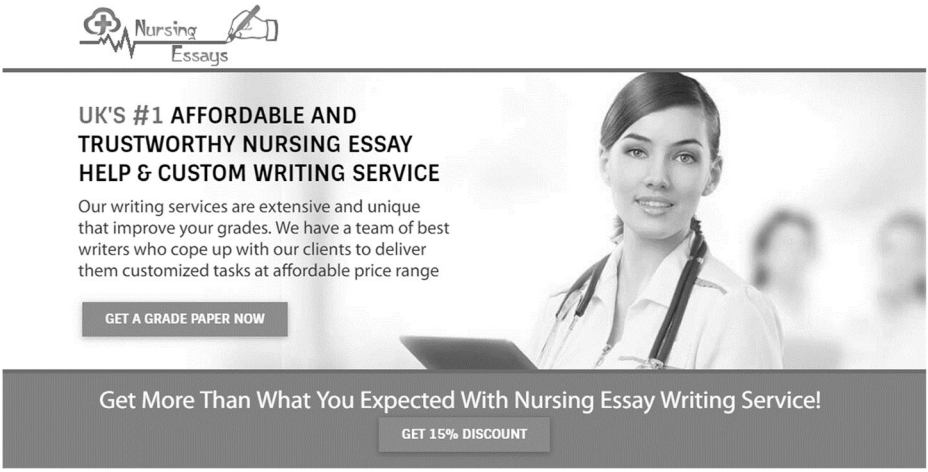


Fig. 1 Example of an essay mill targeted towards nursing students here

Table 1 Marketing techniques used by example discipline specific essay mill

Customer Segment Specific Marketing Techniques	General Marketing Techniques
• Nursing specific logo provided	• Advertising as "affordable" and "trustworthy"
• Image of a nurse on page	• Offer of a discount
• Text customised to nursing	• Presenting the student as having access to a team of writers

analysis of the UK telephone number and address provided would likely demonstrate that the essay mill was not really based in the UK.

Wider research into contract cheating providers has suggested that students need to approach these sites with caution (Lancaster 2018b). Many services appear to offer multiple sites, differentiated, for example, by academic discipline and the location of the students the site is marketing towards. Despite these apparent differences, all of these alternative front-ends to the same service still provide students with access to the same pool of writers. An individual writer is no more likely to be specialised in writing nursing essays than they are in providing solutions for any other academic discipline. An indication that sites solely have access to UK writers, or to graduate writers from a certain named university, is unlikely to be correct. Due to the lack is specialism, the work purchased from these services may also not actually be very good (Lines 2016; Sutherland-Smith and Dullaghan 2019).

Contract Cheating by Discipline

Volume of Contract Cheating by Discipline

There have been few attempts in the literature to quantify the volume of contract cheating in different academic disciplines. Even where these do exist, the discipline groupings used differ, so they are not directly comparable. The groupings are also not considered relative to the size of the market for that discipline.

Table 2 summarises four studies of the volume of contract cheating in different discipline groups. Each study was conducted in a similar way. Contract cheating requests were classified based on discipline groups and the number of requests in these groups were totalled. Those totals have been used to provide a comparative ranking of the discipline groups from which most requests were observed. For the purpose of Table 1, only the top five ranked discipline groups for each study are shown, but these cover the majority of requests leaving only a long tail of further requests.

The studies reported in the leftmost three columns of Table 2 (Lancaster and Clarke 2012, 2014; Lancaster 2016) relate to specific contract cheating sites where requests are visible. The second site, Transtutors, and third site, Student Lance, are interesting as these sites are presented primarily as providing tutorial support, rather than offering contract cheating. This shows the challenge of separating out legitimate tutorial support from those companies looking to help students to cheat.

The fourth study from Table 2 was reported by a writer inside an essay mill who observed the requests and was reported by Lancaster (2016). The essay mill writer also noted that 80% of the work was at higher education level, with the remaining 20% being at high school level, suggesting that contract cheating can start before students arrive at university.

Table 2 Discipline groups from which most contract cheating has been observed

	Source			
Ranking	EssayBay Study (Lancaster and Clarke 2012)	Transtutors Study (Lancaster and Clarke 2014)	Student Lance Study (Lancaster and Clarke 2015)	Requests inside an essay mill (Lancaster 2016)
1	Business and Administrative Studies	Computing/IT (=1)	Business	Business
2	Social Studies	Business Studies (=1)	Law	Health (including nursing and psychology) (=2)
3	Historical and Philosophical Studies	Accounting/Finance	Computer Science	IT (=2)
4	Subjects aligned to Medicine	Humanities	Mathematics	History
5	Education	Science	Professions and Applied Science	Anthropology

Although it is not possible to draw binding conclusions from Table 2, career focused disciplines appear to focus heavily. The area of Business appears most prominently in Table 2, followed by Computing. Both of these areas have received a small number of subject specific contract cheating related publications. Two further areas that both feature and which have received publications are Science and a combined area of Health and Medicine. Examples of the publications in these areas will be provided.

Examples of Contract Cheating Publications by Discipline

The studies of contract cheating in Business have focused largely on case studies and opportunities. Wellman and Fallon (2012) identified that contract cheating was taking place on an MBA level module. Baird and Clare (2017) found this occurring on a capstone project where students were working in interdisciplinary teams, but collaborating to agree to hire a third party. Both of these case studies could be considered as students outsourcing assessed work at a high academic level. In both cases, the authors took the view that modules and assessments needed to be redesigned to reduce the opportunities for academic integrity breaches. The idea that business students were willing to hire a third party was corroborated by Sarwar and Idris (2018). They surveyed business students and found that the more aware they became of contract cheating, the more willing they were to hire someone to help them to cheat.

A similar notion of capstone project outsourcing was found by Lancaster and Clarke (2007), who investigated visible requests on a site used for contract cheating in computing. They found several examples where crucial work, like capstone projects, was requested. They also found a large volume of introductory programming requests, generally work that could be completed quickly by an experienced programmer and which would not require a high level of English language proficiency. The fact that assessments can be outsourced cheaply matches that found by Lancaster (2019). In addition, specific methods to address contract cheating and promote academic integrity in computing are being developed (Lancaster 2018a).

Work on contract cheating in the sciences is less developed, but O'Malley and Roberts (2012) have begun work in this area. They have recommended methods to make it more difficult for students to outsource their work. When students post contract cheating requests that are visible on the web, O'Malley and Roberts recommend methods to make it possible for educators to trace these requests. Most importantly, they have helped to raise awareness within this academic discipline.

Contract cheating in health and medicine is a concern, particularly since professionals in this area may undertake life-saving roles with the public. A summary of the issues by Lancaster (2016) considers the high visibility of specialist essay mills aimed at this market and the types of assignments regularly seen on public-facing contract cheating sites. This includes requests to have capstone projects written as well as to have application statements produced to get students a place on the course in the first place. Contract cheating style support is not just limited to written assessments. Currie et al. (2017) observed cheating taking place in practical dentistry examinations, where ready-prepared teeth were available for purchase which students could substitute in place of the ones they were meant to be working on during practical assessments.

This brief review covers the vast majority of literature that is available related to subject specific interventions on contract cheating. Surprisingly little has been published. If nothing else, it is hoped that the remainder of this paper will motivate the need for more work on contract cheating to be completed within individual disciplines.

Methodology

Searches for 19 specific discipline areas were made on Google to see the results that a student looking for help in writing essays in their particular discipline area would see. The searches were made in the UK version of Google, using an incognito window to avoid personalised results. The searches were manually conducted during a single day in November 2018.

The discipline areas used were the 19 Higher Education Statistics Agency (HESA) discipline groups in use in the UK. In each case, a keyword representative of the discipline group and the associated term "*essay*" was used. These terms were chosen to represent a student looking for help, not one specifically setting out to cheat. The discipline groups and associated search terms are shown in Table 3.

The HESA discipline groups were chosen because the number of students enrolling on courses in those discipline areas in the UK is available. The student enrolment figures used in this paper are those from the 2016/2017 academic session. The HESA data covers all students enrolling on courses through the UK's Universities and Colleges Admissions Service (UCAS). This allows for an assessment of the relative reach of the different discipline specific marketing activities.

HESA breaks down its discipline groups 1 to 9 as its "*Sciences*" and A to J as its "*Non-Sciences*". One quirk of the HESA discipline groups is that both A and B include the term "*medicine*". To maintain consistency with other studies, this search term remains in the sample twice. The number of students associated with both A and B differs.

In each case, the first page of Google search engine results was examined. This contained 10 organic search engine results, but sometimes also contained paid advertisements for contract cheating services. The first page of results was selected as these were the ones most likely to be seen by a student. A long tail of further results is available, although few people navigate beyond the first few pages of results, so the first screen approach is considered sensible.

Table 3 HESA discipline groups and associated study search terms

Discipline Group	Search Term
(1) Medicine & dentistry	medicine essay
(2) Disciplines allied to medicine	medicine essay
(3) Biological sciences	biology essay
(4) Veterinary science	veterinary essay
(5) Agriculture & related disciplines	agriculture essay
(6) Physical sciences	physical sciences essay
(7) Mathematical sciences	maths essay
(8) Computer science	computer science essay
(9) Engineering & technology	engineering essay
(A) Architecture, building & planning	architecture essay
(B) Social studies	social studies essay
(C) Law	law essay
(D) Business & administrative studies	business essay
(E) Mass communications & documentation	communications essay
(F) Languages	languages essay
(G) Historical & philosophical studies	history essay
(H) Creative arts & design	creative arts essay
(I) Education	education essay
(J) Combined	combined essay

The results shown were manually checked to see if they represented a contract cheating service or not. Table 4 shows some examples of results found in the first page of results likely to be classified in these two groups.

The example of a page of sample essays is worthy of further discussion. Many essay mills are now providing such a page, helping them to optimise their sites against more long tail search terms. These pages can be presented as providing help for students as they have access to a lot of examples. The marketing for the main essay writing services on such pages is not subtle. Here students wishing to breach academic integrity can receive an essay more suited to their needs.

Some essay mills have a side business, where they say that they provide "*free*" plagiarism checks for students. Many students miss the terms of services for using these free checks of plagiarism, which give the essay mills the rights to publish the student essays as samples after a defined period, such as three months. By providing such a service, this enables the essay mills to build up a larger database of sample essays, which they can use as content to interest the search engines and reach more students. In addition, students using free plagiarism detection services often have to provide a valid email address, allowing the essay industry continual access to market to them. They know what subjects students are working on from the free plagiarism checks. These are examples of some of the many deceptive techniques that the contract cheating industry is using to increase its reach.

Table 4 Types of sites found for essay search terms

Likely to Be a Contract Cheating Service	Not Likely to Be a Contract Cheating Service
• Discipline specific essay mill	• University page providing advice on academic writing
• Discipline page on a general essay mill	• Wikipedia page
• Page of sample essays, linked to essay mill	• Media story discussing contract cheating

Three measures were calculated for each discipline area based on the first page of Google search results:

- *organic results* – the number of results from contract cheating services placed without advertising payment and found on the first page of Google results for the search term.
- *paid results* – the number of paid advertising results from contract cheating services found on the first page of Google results for the search term.
- *competition* – a measure between 0 and 100 designed to show how many results for this search term exist compared with the number of students. A high measure indicates that it will be more difficult for a further contract cheating service to gain visibility in this space. The measure for the discipline area with most competition was scaled to 100.

Where the results across the three measures are consistently high, this indicates that contract cheating services are already well-established in this space, potentially posing a danger to students who are legitimately looking for help. Where the results are consistently low, this indicates that contract cheating services have not yet fully exploited this discipline area, but may still choose to do so.

To allow for a more formal comparison, the three measures for each discipline area were rated using a high-medium-low priority system and points awarded. The criteria used to allocate points is shown in Table 5, giving each discipline area a total score between 0 and 6. This rating process aimed to identify those academic areas for which essay mills were already firmly embedded in the search engine results (currently *high*) and those which essay mills could begin to exploit (currently *low*).

Research Methodology Limitations

The results presented in this paper can only be considered indicative of general trends in contract cheating service engagement techniques. The industry changes its approach regularly and a search on a different day may have produced different results. For example, one company may have increased its advertising budget for the month, or spotted a new opportunity to improve its search engine optimisation above its competitors. Google also makes regular changes to its algorithm to improve the user experience. On a repeat search, it may present a different set of results on the first page of its results or give a different total number of results.

Based on the locale of the researcher and the access to student enrolment numbers, results are also restricted to those that would be seen by a UK student. The same searches undertaken from different parts of the world may show different results.

The search terms used also relate to the 19 HESA discipline groups used in use in the UK. These terms do not represent a comprehensive range of all possible disciplines or search terms. For example, the area of business covers a wide range of subareas and a student may also consider searching for terms such as "*marketing essay*" or "*finance essay*". Likewise, the

Table 5 Criteria used by rate contract cheating service reach measures as high, medium and low

	High (2 points)	Medium (1 point)	Low (0 points)
Organic Results	6 to 10	3 to 5	0 to 2
Paid Results	2 or more	1	0
Competition	Below 20	Between 20 and 60	Above 60

search does not consider what happens if a student extends their consideration beyond the first page of results.

Some of the decisions taken regarding the prioritisation system and where to set the boundaries may appear rather arbitrary. They are based on the experience of the author as a long-standing researcher into contract cheating. They also take into account the wish to ensure coverage across the high-medium-low spectrum. But a different researcher may make different decisions.

The search term is also restricted to "*essay*". This is not the predominant assessment type in all areas, so other general terms such as "*assessment*" or "*dissertation*" could also be considered. Likewise, discipline specific terms could be used, for example a search for "*program*" for a Computing assessment. For the purpose of this study, the term "*essay*" is considered appropriate, particularly since it is an investigation of the traditional style of essay mills used by the contract cheating industry.

Results and Discussion

Contract cheating services are already well-established across the 19 discipline groups in this study.

The results indicated that 75 out of the 190 organic search results (39.5%) were held by contract cheating services, with between 2 and 9 results per discipline group. The largest number of organic results for contract cheating services, consisting 9 out of 10 first page results, were obtained for the search term "*law essay*". In several cases, the same individual contract cheating service had been able to obtain multiple organic results on the first page of Google. The same services often also appeared repeatedly across the different discipline areas.

Contract cheating services are also using paid advertising to increase their reach. 20 paid results were found, covering 10 out of the 19 discipline groups. The maximum number of paid adverts found per discipline group was 3 adverts, a result that occurred for both search terms "*law essay*" and "*maths essay*".

Table 6 shows a comparison of the organic results and paid results for the Science and Non-Science collections of discipline groups.

The results in Table 6 show that contract cheating services are slightly more successful in getting visibility through organic results for the Sciences than the Non-Sciences. The Non-Sciences are being more successfully reached through paid advertising. If the number of students enrolled is also taken into account, it appears that the contract cheating services can reach more students in the Sciences in either case.

Table 7 shows the discipline groups compared against the three measures, using the high-medium-low criteria and points mapping defined in Table 5.

Table 8 clusters the discipline groups based on the total number of points each obtained.

As Tables 7 and 8 demonstrate, the contract cheating industry has now made inroads towards marketing towards most discipline groups. Some groups appear to be more at risk than others.

Three discipline groups scored *high* against all three measures of organic results, paid results and competition. These were: (1) Computer Science, (2) Architecture, Building and Planning and (3) Law. That suggests that contract cheating services are well established in those marketing to UK students in those disciplines. Academics in those discipline areas need to be aware of the risks.

Table 6 Comparison of sciences and non-sciences

	Number of Students Enrolled	Total Number of Organic Results	Mean Number of Organic Results per Subject Group	Total Number of Paid Results	Mean Number of Paid Results per Subject Group
Sciences (9 subject groups)	1,013,425	31	3.44	12	1.33
Non-Sciences (10 subject groups)	1,304,445	44	4.44	8	0.8

Of equal interest is the only discipline group that score *low* against all three measures, that is: Creative arts & design. There could be an opportunity for contract cheating services to infiltrate that area, when they consider that competition for them to do so is low. It could also be that the approach used to teaching and assessment in the creative arts means that a contract cheating service is less likely to be able to market to its successfully, or that services lack workers with the specific skills needed by students in that field who are looking to breach academic integrity. It would also be useful to see if the successful methods used to ensure academic integrity in fields such as the creative arts could be reported back to help other academic disciplines.

Recent Developments

International responses to contract cheating continue to be ongoing. These responses include those provided through national Governments and a consideration of legislative approaches.

Table 7 Discipline groups reach compared against organic results, paid results and competition measures

Discipline group	Organic Results	Paid Results	Competition	Total Points
(1) Medicine & dentistry	medium	medium	high	4
(2) Subjects allied to medicine	medium	low	low	1
(3) Biological sciences	medium	high	low	3
(4) Veterinary science	low	high	medium	3
(5) Agriculture & related subjects	medium	low	high	3
(6) Physical sciences	medium	low	low	1
(7) Mathematical sciences	low	high	medium	3
(8) Computer science	high	high	high	6
(9) Engineering & technology	medium	high	low	3
(A) Architecture, building & planning	high	high	high	6
(B) Social studies	low	low	medium	1
(C) Law	high	high	high	6
(D) Business & administrative studies	high	low	low	2
(E) Mass communications & documentation	medium	low	medium	2
(F) Languages	low	medium	medium	2
(G) Historical & philosophical studies	low	high	medium	3
(H) Creative arts & design	low	low	low	0
(I) Education	high	low	high	4
(J) Combined	medium	low	medium	2

Table 8 Discipline groups clustered by total points from measures showing contract cheating industry reach

Total Number of Points	Discipline Groups	Number of Discipline Groups	Percentage of Discipline Groups
0	(H) Creative arts & design	1	5.3%
1	(2) Subjects allied to medicine (6) Physical sciences (B) Social studies	3	15.8%
2	(D) Business & administrative studies (E) Mass communications & documentation (F) Languages (J) Combined	4	21.1%
3	(3) Biological sciences (4) Veterinary science (5) Agriculture & related subjects (7) Mathematical sciences (9) Engineering & technology (G) Historical & philosophical studies	6	31.6%
4	(1) Medicine & dentistry (I) Education	2	10.5%
5	*No discipline groups identified*	0	0%
6	(8) Computer science (A) Architecture, building & planning (C) Law	3	15.8%
	Total	*19*	*100%*

At some point in early 2019, Google quietly succumbed to national pressure to disallow adverts for contract cheating services in its UK search engine results. This has to be seen as a positive move to reduce the visibility of contract cheating.

The move by Google has not been completely successful. Although adverts no longer appear on search terms such as "*buy essay*", the industry has simply increased its advertising on discipline specific search terms.

A repeat search for the discipline specific terms discussed in this paper was undertaken in March 2019. The cumulative number of paid adverts appearing on the first page of results for these 19 discipline search terms increased from 20 in November 2018 to 22 in March 2019. This suggests that the contract cheating industry is continuing to find ways to circumvent the interventions that academic integrity proponents are putting into place.

Conclusion and Recommendations

This paper has presented a study into the reach of the contract cheating industry towards different discipline areas. The results of the study show that the online pervasion of contract cheating services at discipline level is already wide reaching.

The paper has identified that the creative arts are at risk of further exploitation, but this may not be the only area. Table 2 demonstrated that the business discipline is popular with contract cheating requests, but this scores low on two of the three classifiers, suggesting there is room for this market to develop still further. To a lesser extent, a similar conclusion could be drawn for social studies.

This investigation has been small in scale. A longitudinal study of discipline specific contract cheating service advertising would be useful. It may be possible to automate data

collection for this in full or part, perhaps by using a machine learning approach. Data could be collected on a daily basis and from different geographic locations. It may also be possible to increase the number of specific disciplines and search terms that are monitored and to use international enrolment numbers. This would allow questions regarding advertising to be answered, such as, does the industry ramp up its advertising during periods during which they believe students to be under heavy pressure?

One lesson that should be learned from this study is that no discipline area is immune from contract cheating. The industry is continually looking for ways to undermine academic integrity, or, as they may present it, to provide people with new opportunities to make an income by helping students who are finding it challenging to fulfilling their academic commitments.

The sector needs to come together and assess how successfully academic integrity principles are being taught to staff and students across the wide range of disciplines making up higher education. It needs to develop discipline specific solutions and to more widely share the good practice that has worked for individual disciplines.

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References

Amigud, A., & Lancaster, T. (2019). 246 reasons to cheat: An analysis of students' reasons for seeking to outsource academic work. *Computers & Education, 34*, 98–107. https://doi.org/10.1016/j.compedu.2019.01.017.

Baird, M., & Clare, J. (2017). Removing the opportunity for contract cheating in business capstones: A crime prevention case study. *International Journal for Educational Integrity, 13*, 6. https://doi.org/10.1007/s40979-017-0018-1.

Clarke, R., & Lancaster, T. (2006). Eliminating the successor to plagiarism? Identifying the usage of contract cheating sites. In *Proceedings of 2nd international plagiarism conference*. Newcastle: JISC Plagiarism Advisory Service.

Currie, W., Dracopoulos, S., & Hendry, G. (2017). Cheating in a dental practical exam. *International Journal for Educational Integrity, 13*, 5. https://doi.org/10.1007/s40979-017-0017-2.

Ellis, C., Zucker, I., & Randall, D. (2018). The infernal business of contract cheating: Understanding the business processes and models of academic custom writing sites. *International Journal for Educational Integrity, 14*, 1. https://doi.org/10.1007/s40979-017-0024-3.

Lancaster, T. (2016). Are all of our students completing their own work? Examining contract cheating within the computing discipline. https://www.slideshare.net/ThomasLancaster/are-all-of-our-students-completing-their-own-work-examining-contract-cheating-within-the-computing-discipline-london-metropolitan-university-120216. Accessed 15 Aug 2019.

Lancaster, T. (2018a). Academic integrity for computer science instructors. In J. Carter, M. O'Grady, & C. Rosen C. (Eds.), *Higher education computer science* (pp. 59–71). Cham: Springer. https://doi.org/10.1007/978-3-319-98590-9_5.

Lancaster, T. (2018b). Educational blackmail in the world of fake degrees, essay mills and contract cheating. https://www.linkedin.com/pulse/educational-blackmail-world-fake-degrees-essay-mills-thomas-lancaster. Accessed 15 Aug 2019.

Lancaster, T. (2019). Profiling the international academic ghost writers who are providing low-cost essays and assignments for the contract cheating industry. *Journal of Information, Communication and Ethics in Society, 17*(1), 72–86. https://doi.org/10.1108/JICES-04-2018-0040.

Lancaster, T., & Clarke, R. (2007). Assessing contract cheating through auction sites–a computing perspective. In *Proceedings of 8th annual conference for information and computer sciences*. Southampton: Higher Education Academy.

Lancaster, T., & Clarke, R. (2012). Dealing with contract cheating: A question of attribution. In *Proceedings of 1st annual higher education academy conference in science, technology, engineering and mathematics*. London: Higher Education Academy.

Lancaster, T., & Clarke, R. (2014). An observational analysis of the range and extent of contract cheating from online courses found on agency websites. In *Proceedings of eighth international conference on complex, intelligent and software intensive systems (CISIS)* (pp. 56–63). Birmingham: IEEE. https://doi.org/10.1109/CISIS.2014.9.

Lancaster, T., & Clarke, R. (2015). Examining contract cheating, essay mill use and academic misconduct by students on health courses. https://www.researchgate.net/publication/323425525_Examining_Contract_Cheating_Essay_Mill_Use_and_Academic_Misconduct_by_Students_on_Health_Courses. Accessed 15 Aug 2019.

Lancaster, T., & Clarke, R. (2016). Contract cheating: The outsourcing of assessed student work. In T. Bretag (Ed.), *Handbook of academic integrity* (pp. 639–654). Singapore: Springer. https://doi.org/10.1007/978-981-287-098-8_17.

Lines, L. (2016). Ghostwriters guaranteeing grades? The quality of online ghostwriting services available to tertiary students in Australia. *Teaching in Higher Education, 21*(8), 889–914. https://doi.org/10.1080/13562517.2016.1198759.

Medway, D., Roper, S., & Gillooly, L. (2018). Contract cheating in UK higher education: A covert investigation of essay mills. *British Educational Research Journal, 44*(3), 393–418. https://doi.org/10.1002/berj.3335.

Newton, P. (2018). How common is commercial contract cheating in higher education and is it increasing? *Frontiers in Education, 3*(67). https://doi.org/10.3389/feduc.2018.00067.

O'Malley, M., & Roberts, T. (2012). Plagiarism on the rise? Combating contract cheating in science courses. *International Journal of Innovation in Science and Mathematics Education, 20*(4), 16–24.

Quality Assurance Agency. (2017). *Contracting to cheat in higher education – how to address contract cheating, the use of third-party services and essay mills*. http://www.qaa.ac.uk/en/Publications/Documents/Contracting-to-cheat-in-higher-education.pdf. Accessed 15 Aug 2019.

Sarwar, S., & Idris, Z. (2018). Paid academic writing services: A perceptional study of business students. *International Journal of Experiential Learning & Case Studies, 3*(1), 73–83.

Sutherland-Smith, W., & Dullaghan, K. (2019). You don't always get what you pay for: User experiences of engaging with contract cheating sites. *Assessment & Evaluation in Higher Education*. https://doi.org/10.1080/02602938.2019.1576028.

Wellman, N., & Fallon, J. (2012). Investigating academic malpractice within an MBA Marketing module. *International Journal for Educational Integrity, 8*(1), 41–54. https://doi.org/10.21913/IJEI.v8i1.783.

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