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Why Do Students Plagiarise? An empirical study on built environment students amidst Covid-19

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Abstract
Plagiarism has been battering the higher education since the onset of the Covid-19 pandemic. Hence, this research aimed at developing a model which can elucidate the types, reasons and strategies to mitigate plagiarism and misconduct in online examinations. The instrument employed for this research was an online questionnaire, and the study population was determined to be built environment students from five institutions of higher learning. A total of 308 survey forms were analysed using factor analysis, structural equation modelling (SEM) and content analysis. Sixteen (16) case studies were presented and were examined to validate the overall findings.

Keywords: Modelling, Online Examination, Plagiarism, Online Examination

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1.0 Introduction

The advent of the Internet of Things (IoT), as well as scores of cutting-edge devices, have engendered a two-sided effect; on the one hand, shifting to online assessment is not insurmountable for instructors, but on the other, it provides avenues for learners to embark on unethical behaviours and attitude. Covid-19 has transmuted the facade of higher education on multiple levels, and sitting on the sharp end of the echelon includes a permutation of face-to-face final examinations into alternative assessments. An array of non-conventional assessment methods have been promptly introduced, such as project-based learning or cooperative online tasks, but unfortunately, plagiarism and misconduct were still found to be preponderant among learners in institutions of higher education (Jess, 2020). However, not all students plagiarise, but glaring cases were being reported now and then, and disciplinary actions were subsequently inflicted on students caught red-handed with this unethical behaviour. Educators from the world over have been constantly confronting these plagiarists, but this group of fractious perpetrators continue to persist (Jess, 2020). Most of them revolved around the multifaceted travesty of plagiarism and misconduct, such as cheating, inappropriate bibliographic citations, use of paper mills, and cheating from others during examinations (King, Guyette, & Piotrowski, 2009).

2.0 Literature Review

Plagiarism and misconduct in online examinations have witnessed exponential growth among learners of higher education. When it comes to plagiarism, widespread access to the internet and other electronic media has served as a double-edged sword: it allows

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students to plagiarise with ease via cut-and-paste, but it also enables academics to easily identify the source of the plagiarised materials when detected (Lyon, Barrett, and Malcolm 2006). Plagiarism-detection software, once adopted, was unlikely to eliminate plagiarism issues. Instead, plagiarism-detection software should be seen as a tool for detecting suspicious papers and identifying plagiarism sources. Academicians who decide to use plagiarism-detection software need to consider how much a student paper and another source overlapped before it becomes solid evidence for plagiarism (Youmans, 2011). Previous research conducted on plagiarism had shown that 80% of undergraduate students in Australia admitted to cheating academically (Maslen, 2003). Additionally, King et al. (2009) indicated that 90% of plagiarism was through relying on another student to complete exam questions while 73.6% was through online exams. In a survey conducted by McCabe et al. (2012), 41% of students admit to having committed some form of cheating which is considered alarming. Subsequently, one empirical investigation indicated that academic fraudulence in virtual classrooms was more prevalent than in traditional classrooms (Grijalva et al., 2006). Utilising online sources, relying on print reference sources, using an open book, using class notes, and consulting other people are unauthorised resources frequently used by students during online examinations. Besides, having a third party take the exam, collaborating using a cell phone, asking the instructor the exam questions and answers, and asking for more time to take the exam are considered plagiarism and misconduct in online examinations (Hellas, Leinonen, & Ihantola, 2017; Hylton, Levy, & Dringus, 2016). There are various reasons for plagiarism and misconduct in online examinations. The online environment or ambience adds to a persuasion of dishonesty on multiple forms due to the lack of instructors' supervision. Furthermore, pressure in obtaining good grades and systematic cheating opportunities leads students to succumb to the use of inappropriate resources (Apoorv et al., 2020; Hellas et al., 2017; Sterngold, 2004). Moreover, the long-drawn-out time for online examinations would also contribute to plagiarism (King et al., 2009). The longer time for students who were not being monitored could result in them feeling more comfortable and free to utilise unauthorised resources and collaborate with other people during the examinations (Hylton et al., 2016). It is also suggested that the instructors consider giving short time-intensive exams and essay questions (Grijalva et al., 2006) thus a more accurate assessment could be provided and making it difficult for the students to replicate (Gibelman et al., 1999). Additionally, strategies like a plagiarism detection tool for online examinations, a webcam, clear instruction and briefing, workshop on citation and referencing would minimise cheating among students (Apoorv et al., 2020, Hylton et al., 2016, Youmans, 2011). The consequences of plagiarism, such as students failing to gain the necessary skills, the institution's reputation, future scholarship, and employment opportunities, need to be clearly explained to the students to prevent plagiarism in online examinations (Apoorv et al., 2020).

3.0 Methodology

This research employed a mixed methodology comprised of a digital questionnaire survey administered among five institutions of higher education as well as dissecting sixteen (16) real cases of plagiarism detected among learners pursuing built environment studies.

3.1 Sample Size

From a population of 1,200 undergraduates in built environment programs offered by five institutions of higher education, 308 completed survey forms were garnered, amounting to a response rate of 25.67%. According to Krejcie & Morgan (1970), the recommended sample size for a 1,200 population is 291. Hence, this research fulfils the acceptable sampling size for adequate data analysis. The students were from various geographical locations ranging from 19 to 33 years old in terms of demographics. The majority (63.3%) were female, and 36.7% were male. Most of the students were from quantity surveying backgrounds (66.2%), Architecture (33.4%) and others (0.3%). The students were mainly in Year 2 of study (36.4%), followed by Year 1 (33.8%), Year 3 (21.1%) and Year 4 (8.8%). In the aspect of a prior online learning experience, 83.8% claimed that they have the background, while 16.2% were without an online learning experience. Sixteen (16) case studies related to students' plagiarism in online examination which were brought to the disciplinary unit, were analysed to validate the overall findings.

3.2 Research instrument

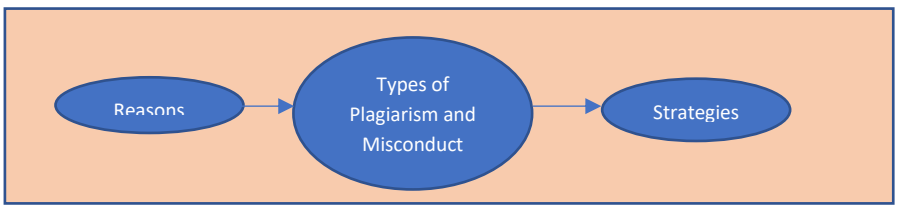

Fig. 1: Conceptual Framework (Adapted from Apoorv et al., 2020; Hellas et al., 2017; Jess, 2020; King et al., 2009)

The instrument for this research was adapted from previous studies on academic integrity, which included sixty (60) variables; 10 variables for type of plagiarism and misconduct, 31 variables for reasons and 19 variables for strategies to mitigate plagiarism and misconduct in the online examinations. A 5- Likert scale type ranging from (1) Strongly Disagree to (5) Strongly Agree was used for the questionnaire survey as a response format. The questionnaire survey also requested information on gender, age, location, the programme of study, years of study and prior online learning experience. At the end of every section, this research gauges the students' opinions on type, reasons and strategies to mitigate plagiarism and misconduct in online examinations through open-ended questions.

This research intends to employ Structural Equation Modelling (SEM). SEM begins with a theory where the researcher intends to test the relationship among constructs of interest in the research (Zainuddin, 2015). Figure 1 shows a conceptual framework adapted from various theories.

In SEM, there are a series of goodness-of-fit indexes that reflect the fitness of the model. However, there is no agreement among researchers on which fitness index to use. Hair (2010) explained that the goodness of fit of the SEM is indicated by how well it reproduces the observed covariance matrix among the indicator items. Holmes-Smith et al. (2006) recommend using at least three fit indexes by including at least one index from each category of the model fit which are Absolute Fit, Incremental Fit and Parsimonious Fit. The choice of the index to choose from each category depends on which literature is being referred to. This research selected one index from each category of the model fitness indexes.

Therefore, it is necessary to prove that the data is normally distributed for the 60 variables before executing these analyses. The results have demonstrated that the data is normally distributed, between 1.361 and 0.815 standard deviations, this research can proceed with the parametric test (Zainuddin, 2012). The statistical analysis is further supported by the content analysis from the open-ended questions and sixteen (16) case studies to enhance the results and discussion.

4.0 Results

The results were deliberated based on type, reasons and strategies to mitigate plagiarism. “Relying on print reference”, “utilising online sources”, and “using the open book” were the top three types of plagiarism. On the other hand, “Students were given a hint of a model answer", "students were given a hint of questions" and "personal behaviour and attitude" were reasons for plagiarism. Finally, "clear instruction and briefing", "supervision through webcam", and "plagiarism-detection software" were strategies to mitigate plagiarism.

Table 1 shows the results of the model fit indexes for types of plagiarism and misconduct. After the deletion of two items, the results for RMSEA, GFI and Chisq/df were improved and achieved the required model fit level.

Table 1: Model Fit Indexes (Types of Plagiarism)

Name of Category	Name of Index	Level of Acceptance	Result	Interpretation
Absolute Fit	RMSEA	RMSEA < .08	.018	Achieved the required fit level
Incremental Fit	GFI	GFI > .90	.993	Achieved the required fit level
Parsimonious	Chisq/df	Chisq/df <5.0	1.103	Achieved the required fit level

Table 2 indicates the results of the model fit indexes for reasons of plagiarism and misconduct. After deleting five items, the results for RMSEA, CFI and Chisq/df were improved and achieved the required model fit level.

Table 2: Model Fit Indexes (Reason of Plagiarism)

Name of Category	Name of Index	Level of Acceptance	Result	Interpretation
Absolute Fit	**RMSEA**	**RMSEA < .08**	**.067**	**Achieved the required fit level**
Incremental Fit	**CFI**	**CFI > .90**	**.932**	**Achieved the required fit level**
Parsimonious	**Chisq/df**	**Chisq/df <5.0**	**2.373**	**Achieved the required fit level**

Table 3 indicates the results of model fit indexes for strategies to mitigate plagiarism and misconduct in online examinations. After deleting three items, the RMSEA, CFI, and Chisq/df results were improved and achieved the required model fit level.

Table 3: Model Fit Indexes (Strategies to Mitigate Plagiarism)

Name of Category	Name of Index	Level of Acceptance	Result	Interpretation
Absolute Fit	RMSEA	RMSEA < .08	.065	Achieved the required fit level
Incremental Fit	CFI	CFI > .90	.949	Achieved the required fit level

Parsimonious	Chisq/df	Chisq/df <5.0	2.313	Achieved the required fit level

5.0 Discussion

The respondent's insights were analysed using content analysis. Open-ended questions revealed that the home environment is one of the significant reasons students perpetrate plagiarism. Students nowadays are diagnosed with a stressful home environment because of an unconducive learning environment, lack of online facilities at home, and location factors such as power outages and poor internet connection. Some students indicated that the lecturers did not give them explicit instructions before the online examinations. It is in line with the case studies whereby the students were not given verbal instructions before the online examinations. Lack of student preparation due to unpredictable questions or questions that are far ahead of what has been taught were also reasons for plagiarism. However, the instructors need to set high-order thinking questions (HOTS) for online examinations to ensure that the students cannot merely imitate the answers from online sources (Apoorv et al., 2020; Hellas et al., 2017; Wald & Harland, 2021). Some students argued that they had memorised the answers from the lecture notes, and it was detected as plagiarism by Turnitin software. The students argued that in a situation of conventional face-to-face examination, is it permissible to memorise facts and figures? The argument is that, during the face-to-face examination, students are closely monitored by invigilators and instructors as opposed to online examinations. The real reason is that no one is watching, and the students do not see the benefits of being honest with themselves.

An open-ended question supports the results from EFA and SEM. From the open-ended question, most of the students suggested that copying from the internet, discussing between members via the online platform or voice call, copying from lecture notes and asking for help from family members are among the popular types of plagiarism and misconduct among students. The online management system also has limitations whereby the students were able to submit their answers multiple times. This setup opens for an opportunity to discuss among friends, exchanging answers and copying each other. However, one of the students argued that plagiarism could happen to all and not only undergraduate students. Postgraduates, lecturers, research assistants, associate professors and professors might be plagiarizing when conducting study or research. Most of them use past researchers' work and claiming as theirs. Furthermore, plagiarism can only be detected by using software such as Turnitin. Another student had suggested a higher percentage for the similarity index, and that the 20% similarity index set by the faculty is burdensome for the students. It is observed that continuous assessment is the best method to substitute for an online examination. According to McCallum & Milner (2021), formative assessment helps monitor student progress and engagement; thus, the issues of online examinations can be minimized.

Most of the students suggested that explicit instruction and briefing before examination and consequences if caught cheating must be made clear and available to them. Besides, turning on a webcam is another strategy to minimize plagiarism. However, turning on a webcam causes everything to lag because not all students have good internet connectivity due to financial problems and locality factors (Hylton et al., 2016). Regarding the similarity index, some students suggested that the university should provide tools for the students to check the plagiarism index and give them adequate time to revise their answers. However, this idea has defeated the instructors' purpose and the universities setting up the guidelines for online examinations. The idea might be helpful for postgraduate students submitting their theses or dissertation, but not for undergraduate students sitting for online examinations (Apoorv et al., 2020). Good communication between instructors and students, more examples and exercises such as paraphrasing and citation, and minimising last-minute assignments are among the strategies that have been highlighted to mitigate plagiarism. The instructors need to give the project as early as possible so that the students have more time to prepare for online examinations and minimise plagiarism and cheating. The instructors' feedback will help them recognise which part the students have made mistakes in and subsequently help them prepare systematically before the online examinations. Besides, the consequences of cheating should always be communicated among students so that they will be more alert; thus, preventing them from plagiarism. The use of handwriting is one strategy to avoid students copying directly from online sources. It may reduce plagiarism and failure rates as the similarity index tools cannot scan the similarity index using handwriting. However, some students argued that writing is not a better strategy to minimise plagiarism as the students can still plagiarise either way as plagiarism may happen to all, including researchers such as postgraduate students, lecturers and professors. The authentic and formative assessments can be seen as proactive strategies from the student's voice (Kïrsten & Burrell, 2021; McCallum & Milner, 2021) to help their progress and increase their understanding. According to Kïrsten & Burrell (2021), authentic assessment is associated with student behaviour improvement and outcomes. Authentic assessments in higher education include but are not limited to, online simulation, e-portfolio, video making, and design assessment (Kïrsten & Burrell, 2021). It also permits early intervention from plagiarism and misconduct in online examinations and improves students' learning outcomes. Plagiarism and misconduct can still exist for authentic assessment or formative assessment, but it will be more manageable as comments, suggestions and feedback are constantly disseminated to the learners. If necessary, the instructors may inform the learners to resubmit their assessments, which, unlike online examinations, re-examination will least feasible. Therefore, authentic assessment is poised to alleviate the issues of memorising answers from lecture notes as well as to overcome the prevalence of plagiarism and misconduct in online examinations.

6.0 Conclusion and Recommendations

Plagiarism and misconduct in online examinations have become increasingly pervasive among learners in higher education, a malaise exacerbated by a paradigm shift to online learning since the onset of the Covid-19 pandemic. This research uncovered that the most significant type of plagiarism was "utilising online sources", the most critical reason for plagiarism was "pressure from the financial problem", and the most crucial mitigation strategy was "clear instruction and briefing". These results were statistically inferred from the

factor analysis and the measurement model constructed. Ergo, by employing a mixed methodology, this paper managed to contribute to the knowledge of higher education implementation via the comparison and validation processes of both the questionnaire survey and the case studies. Results from the case studies served as a significant lesson for all academicians to deliberate actions against plagiarism meticulously. Findings indicated that "clear instruction and briefing", "use of plagiarism-detection software", "undoubted percentage of similarity index", "use of webcam" and "workshop of citation and referencing" must be firmly set in place to avert potential disputes between learners and their institutions of higher learning. Furthermore, all shreds of evidence must be robust and consistent enough before any punishment can be inflicted on learners on grounds of plagiarism. In sum, this study managed to lay a solid foundation for instructors to handle future online examinations more effectively, which have gradually morphed into a new norm in higher education post-pandemic.

Future research can be undertaken to identify the relationship between types, reasons and strategies to mitigate plagiarism and misconduct in online examinations. Further studies are also required to obtain the different perspectives of researchers and instructors as well as to explore appropriate assessment tools that can measure the findings of this research, thereby narrowing the knowledge gap even further.

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