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Impact of pressure, self-efficacy, and self-competency on students' plagiarism in higher education

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Abstract

To explore students' plagiarism in higher level education, we designed a quantitative study and collected data from enrolled university students from Islamabad, the capital city of Pakistan. This was done by distributing a web-link for an online survey (google form) through WhatsApp social media mobile software. We applied structural equation modeling (SEM) techniques by using IBM SPSS AMOS 24.0.0 software to analyze collected data. The research findings suggest that some human factors do in fact exist and that these factors drive students to engage in certain unethical practices of plagiarism. Apart from poor training and lack of skills on the students' part, the pressures and the self-efficacy they face as they engage in research practices can make students susceptible to plagiarize.

Keywords: Academic ethics, academic integrity, educational innovation, higher education, influence factors, plagiarism, university students, Pakistan

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1. Introduction

In academia, plagiarism is considered to be an act of academic dishonesty. It is mostly found in research communities where an individual uses the work or idea of another author without proper citation or full credit to said author. Because of the lack of transparency, and the decision to claim another person's work as one's own, plagiarism is seen as an unethical act both at local and international levels (Fatima et al. 2019, Jiang, Emmerton, and McKauge 2013, Sun and Tian 2016). The latest published work on plagiarism and research misconduct in reputed journals (such as Accountability in Research, Journal of Academic Ethics, Journal

of Empirical Research on Human Research Ethics, Research Ethics, Science and Engineering Ethics and so on) and international conferences (such as World Congress on Research Integrity, and the International Congress on Peer Review and Scientific Publication) supports that plagiarism from students was seen in the universities of both developed and developing countries, where local and overseas students are enrolled (Fatima et al. 2019, Andre 2019). Most of the universities in the developed countries have already implemented some form of academic ethics policy (Anney and Mosha 2015). Said universities also have access to the latest plagiarism software including "*Turnitin*" and "*Urkund*" that are installed in their education systems (Ali, Abdulla, and Snášel 2011). The purpose of deploying said anti-plagiarism software is to control plagiarism and as such to improve the quality of academic research and education at university level. In our research, this task was taken by the academic and research ethics policies of a local university issued by the governing institute, the Higher Education Commission (HEC) of Pakistan.

Most of this cohort of students involved in plagiarism is from developing countries (Saeed, Aamir, and Ramzan 2011). The reason behind their respective convictions is the difference in academic background and also the stark cultural difference that emerges when they study overseas in another country (Ahmed 2019, Do Ba et al. 2017, Fatima et al. 2019, Shukr and Roff 2015). The first case of plagiarism was reported in the 1940s (Quraishi and Aziz 2017), after which, the research and academic communities took on several initiatives in an attempt to control this unacceptable act at all levels of research and education around the globe. Currently, many local higher education entities and international publishers have designed and implemented research ethics policies such as the Committee of Publication Ethics (COPE). Said bodies have also established anti-plagiarism software such as "*Turnitin*" to discourage plagiarism among individual researchers and amongst research group members.

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The plagiarism commonly appears amongst university students and faculty members of less developed countries such as Pakistan. This is due to low educational standards, the high burden of studies on students, lack of writing skills, and easy access to digital resources through the latest technology in developing countries like Pakistan (Ikram 2017, Ramzan et al. 2012, Rusdi et al. 2016).

In South Asia, the Higher Education Commission (HEC) of Pakistan was the first organization that developed stringent plagiarism policies by deploying anti-plagiarism software in all HEC accredited higher education universities/ institutes (Mansoor and Ameen 2016). The Higher Education Commission (HEC) is the hub for all accredited higher education degree awarding institutes/ universities in Pakistan. HEC is responsible for maintaining the quality of academic and research ethics and therefore, takes strict measures to control the plagiarism that occurs at all levels of academics. This is done by designing and implementing plagiarism related policies in all HEC accredited institutes/universities in Pakistan (HEC 2019b). According to the HEC plagiarism policy, only ≤19% similarity is allowed between one research work to that of another one, with a mere ≤5% allowed from a singular source (HEC 2019a) and all local students and faculty members is acceptable. Since 2007, HEC has given decisions on 171 plagiarism cases under their plagiarism policy and in the year 2018, 59 cases of plagiarism are still under investigation. In an attempt to control plagiarism in education and research, all HEC accredited institutes/ universities have deployed "*Turnitin*", a plagiarism checking software (Dawn 2018). The purpose of this anti-plagiarism checking software is to check the originality of the research work completed by students and faculty members. Local university teachers based in Pakistan are already using "*Turnitin*" software to check their students' submitted work such as their course work assignments, semester research reports, and their final degree dissertations (Ikram 2017).

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This is to check any possibility of plagiarism in accordance to university and HEC plagiarism policies. Local universities and HEC plagiarism policies ensure the quality of academic research work at all levels of study within the university offered degree-awarding programs.

According to the World Economic Forum education quality index, Pakistan ranked 94 out of 137 countries (Spectator-Index 2018). However, in a separate Scimago journal & country ranking for 2018, Pakistan ranked 38 out of the 233 listed countries in all regions. Pakistan ranked 10th in the Asiatic region thanks to a number of publications and its citations (SJR 2019). Currently, more than 140 public and private universities, and their respective campuses, are functioning. Said universities are promoting education all over the country through their main or sub-campuses which fall under the umbrella of HEC. In Islamabad alone, the capital territory of Pakistan, there are 21 federally chartered universities, of which 15 are public sector universities (Fatima and Ming 2019, HEC 2018, 2019b). The main objective of this study was to find out the foremost causes of plagiarism due to personal factors in universities situated in Islamabad, the capital city of Pakistan. For this, we analyzed the relationship between the general data of students (such as gender, study level, program discipline, study mode, enrollment status, and usage time on internet) and their own statements regarding the personal factors of their academic dishonesty (plagiarism).

2. Conceptual framework and hypotheses development

2.1 Pressure

Due to high competition among peers, students are inclined to engage in plagiarism (Rehman and Waheed 2014). Pressure that is often affiliated with time constraints and a heavy workload, along with the desire to achieve a given task, is also a critical factor in plagiarism. For students to engage in plagiarism, they usually rely on help from the internet (Díaz,

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Montoliu, and Becerra 2018) or from their fellow students. Pressure itself has gross influences on the behavior of individual plagiarism, especially when it comes from family and peer groups (Ehrich et al. 2011). Full-time students often face financial constraints due to high tuition fees per semester covered by their families, and part-time students face pressure from their workplace (Selemani, Chawinga, and Dube 2018). These factors encourage university students to find the shortest and least stressful way to complete their coursework or program requirements. Sometimes pressure also comes from parents who incite their children to strive hard and constantly improve their grades (Burgason, Sefiha, and Briggs 2019).

H1: The lower the pressure is, the less likely it is for the students to engage in plagiarism.

2.2 Self-efficacy

Self-efficacy can drive students to plagiarize during their time of study (Kazi, Aziz, and Quraishi 2018). Research has found three main elements of self-efficacy: pride with oneself, the relationship between oneself and others (with teachers), and that of other persons (with students) (van Osch, Zeelenberg, and Breugelmans 2018). In assessing self-efficacy among students, it was seen to lead them towards plagiarism (Pandoi, Gaur, and Gupta 2019). The students also feared being seen as less than their peers in the classroom. Another element of self-efficacy that contributes to plagiarism is the desire to avoid embarrassment in front of family members (Leong et al. 2018, Šprajc et al. 2017). Sometimes university students are hesitant to get help from others because of a lack of motivation in studies, and sometimes they think that academic assignments and tasks are useless and are irrelevant for their personal and professional development (Jereb et al. 2018).

H2: The less self-efficacy students are, the less likely they are to plagiarize.

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2.3 Self-competency

Lack of self-competence among university students is seen in poor writing skills, which in turn, affects the student's ability to acquire help from available sources. They can include examples where students acquire writing services through the internet (Kokkinaki, Demoliou, and Iakovidou 2015). Poor time management also occurs among students and is catalyzed by their laziness and lack of drive; this impacts their ability to make their own efforts. Instead, said students resort to stealing material from different resources available. Sometimes students can find and source help through online solutions in the form of academic articles and reports from ghostwriters and online research service providers. Lack of academic skills can also force students to copy someone else published work without properly citing or acknowledging said work. It has also been the case that students submit the work of other students as their own without receiving permission (Rehman and Waheed 2014). Among other factors, plagiarism is seen to be done intentionally (Chuang, Craig, and Femiani 2017) and due to a lack of awareness; this is despite the fact that some students, whilst lacking basic competencies, have common knowledge about the illegal reproduction of published work and also about the possible consequences (Díaz, Montoliu, and Becerra 2018).

H3: The more self-competent students are the less likely they are to plagiarize.

2.4 Plagiarism

Academic dishonesty is an umbrella term, which covers the behavior of an individual or group of researchers when they get credit for someone else's work without supporting their research results with proper citations or references of said author's work (Ellahi, Mushtaq, and Bashir Khan 2013). Plagiarism is a vital topic for research integrity, where most of the university students are not well aware of plagiarism (Kokkinaki, Demoliou, and Iakovidou 2015). In academia, most students face difficulties during their studies, which is the primary

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cause of plagiarism, especially because of internal factors, also known as personal or situational factors (Chuang, Craig, and Femiani 2017, Fatima et al. 2019) play a role in the mix. These factors are seen among students due to poor time management skills. These can be expressed in ways such as less time spent on studies or less focus on studies. Some students are also careless about their future career plans and this indifference leads them to engage in unethical behavior including plagiarism (Slade, Rowland, and McGrath 2018).

2.5 Control variables

In Pakistan, all HEC approved universities and their constituent colleges/campuses offer undergraduate (BS), postgraduate (MS/M.Phil.) and doctorate (PhD) level programs with different domains such as natural sciences, engineering, and management and social sciences. Undergraduate level programs that are offered are based on course-work (technical education), which heavily relies on course assignments, written examinations and final degree project reports. The degree requirements have no research publication requirements. However, post-graduate (MS/M.Phil.) and doctorate (PhD) research based programs require students to publish research articles in the HEC approved list of local journals or peer reviewed international journals with same database indexing (such as EBSCO, ProQuest, Ulrich's directory and so on). University offered programs are based on government-authorized bodies (Fatima et al. 2019) in Pakistan i.e. HEC, Pakistan Engineering Council (PEC), and Pakistan Medical & Dental Council (PMDC), and these programs allow both male and female students to enroll in the institution. So, based on existing evidence, we considered gender, study level, program discipline, mode of study, enrolled program status, duration of internet usage (Šprajc et al. 2017).

[Insert figure 1]

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Previous literature and published work of Fatima, Ming, and Abbas (2018) and Fatima et al. (2019) helped us in designing the proposed research model (see figure 1). For data collection, questions were adapted from the published work of Šprajc et al. (2017), and were distributed using an online survey. This is because questions and proposed model are relevant to our research study. The proposed model for this article is based on three factors i.e. pressure, self-efficacy, and self-competency related to students' plagiarism.

3. Material and methods

3.1 Ethical procedure for data collection

The proposed research project was presented to the school research committee of the university for approval. Although study was exempted from ethical approval due to anonymous survey. The approval ethically helps researchers to carryout proposed research (Arrona-Palacios and Díaz-Morales 2018). After approval of the research topic, we continue to start work on this study and distributed an anonymous survey for data collection. Our designed survey was in the English language because all degree level offered programs in Pakistani universities and the medium of instruction is in English. In the start of online-survey, confidentiality notes were written which cover privacy, the anonymity of individual respondent and also the purpose of the study as well. For this research, all respondents were volunteers and their personal information and personal opinion remains confidential. For this research, we fully ensured the privacy and security of individual participant data that remained anonymous due to the sensitivity of the research topic. We distributed an online survey by using a Google form i.e. https://docs.google.com and asked an MS/M.Phil. University student (volunteer) to circulate said survey and questionnaires among university students, who were enrolled in Islamabad based universities in Pakistan during February

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2019. After the distribution of the online survey, responses were received from 227 individuals, of which the data of 151 were usable for this research.

3.1.1 Pilot survey

Initial data collection was based on two sets of pilot studies. Firstly, for the confirmation of the layout, we requested our mentor to thoroughly review questionnaires. The purpose of the second pilot study was to confirm the layout, reliability, and sequence of survey questions. For reliability and sequence of questionnaires; initially, we distributed 15 online survey forms among the target group i.e. university students. Upon successful completion of both steps, we formally asked a volunteer student to distribute online survey links among Pakistani students.

3.1.2 Participants

For the distribution of survey forms, mobile based social media application i.e. WhatsApp was used as this one of the most commonly used mobile application by Pakistani students. Participants for this study were currently enrolled in MS/M.Phil. and Ph.D. programs both in public and private universities. These two programs were chosen based on heavy research workloads where students have to submit course assignments and semester research reports. It is also important for students to publish articles in HEC approved list of local and international journals in order to fulfill their degree requirements and graduate.

3.2 Instruments

The online survey was designed to tackle topics such as the impact personal factors have on plagiarism on university students. To do this, we used a 7-point Likert scale where “1” was assigned to students who “strongly disagreed” and “7” for “strongly agreed,” related to pressure, self-efficacy, and self-competency, and plagiarism. We adapted survey

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questionnaires related to pressure, self-efficacy, self-competency and plagiarism from published work of Šprajc et al. (2017). Pressure has 7 items, self-efficacy has 9 items, self-competency has 8 items, and plagiarism has 5 items. The online survey was divided section that is confidentiality note, individual (respondents) characteristics and questionnaires related personal factors of students' plagiarism. The survey was focused on gender, level of study, field of study, mode of study, motivation of study and time usage on the internet as well as individual characteristics, and the other section was based on the pressure, self-efficacy, and self-competency, plagiarism (Šprajc et al. 2017) of students' personal factors of plagiarism.

3.3 Data scrutiny and analysis

We distributed the Google based online survey through a link among university students located in Islamabad. A convenient sampling method was used for data collection. After data collection, we scrutinized online collected entries to confirm their completion. Incomplete and biased responses were excluded from the study. After the distribution of the online survey, responses were received from 227 respondents. Since some of the surveys were either biased or incomplete, only 151 (66.52%) responses were usable for this research and remaining (33.48%) responses were excluded.

We conducted a pilot survey to examine the layout, reliability, and sequence of survey questions, and these responses were excluded from the final analysis of the collected data. SEM technique was used to analyze quantitative data. Firstly, we checked the validity and reliability of the collected data. Internal consistency was checked by factor loadings, CR, AVE, and discriminate validity was applied to check the reliability. Secondly, hieratical regression analysis technique was applied to test the effects between independent variables (pressure, self-efficacy, and self-competency) and dependent variable (plagiarism). The

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purpose of applying statistical techniques to produce results and draw a conclusion related to the developed hypotheses.

4. Results and analysis

4.1 Demographics information

The demographic facets of respondents involved in this research are presented in table 1. The respondents were categorized according to gender, study level, discipline, study mode, enrolment status, and time spent on the internet. According to table 1, 66.2% (100 respondents) of respondents were male and remaining 33.8% (51 respondents) were female. Where 74.2% (112 respondents) were MS/M.Phil. students and 25.8% (39 respondents) were Ph.D. students from three disciplines (55% Natural sciences, 25.2% Engineering, and 19.2% Management and Social sciences). Mode of study of respondents for this research study were 68.2% (103 respondents) traditional learning, 1.3% (2 respondents) distance learning, 30.5% (46 respondents) blended (mixed) learning where 24 (15.9%) respondents were enrolled as full-time student and remaining 127 (84.1%) were part-time. 81 (53.6%) out of 151 respondents were users of the internet between 2 and 5 hours.

[Insert table 1]

4.2 Internal consistency and validity

We employed Structural Equation Modeling (SEM) for data analysis. Many scholars consider SEM as one of the best techniques to validate research across multiple disciplines (Keith 2014). To determine the internal consistency and validity of the items, IBM SPSS AMOS 24.0.0 (Windows version) software was used to extract the factor loadings by the maximum likelihood method and rotation by Promax. The purpose of this was to examine the values from factor loadings, CR, AVE and to determine the internal consistency of the items, Cronbach's α was used. As Cronbach's alpha value of ≥ 0.7 has been reported to be good, a

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threshold $\alpha \geq 0.7$ was used to determine the internal consistency of data in this study (Gliem and Gliem 2003) and all constructs are considered to be valid for further analysis of proposed research model. The use of latent variables in any research requires a liability test run which measures the validity of the data and the required threshold values for these tests include Cronbach's alpha (0.7), composite reliability (0.7), and average variance extracted (AVE) of 0.5 (Anderson and Gerbing 1988, Hair et al. 1998). Based on these criteria, the values obtained indicate that our research constructs have a good internal consistency and reliability as presented in table 2.

[Insert table 2]

Fornell and Larcker (1981) however, presented an alternative method in which he argued that the validity of the data could be examined by equating the correlations between the constructs to their respective square root of AVE values. A good discriminate validity is reached if the square root of AVE is greater than the correlations. Therefore, a correlation between the constructs to their respective square root of AVE values was also determined to discriminate validity of the data. Results obtained from the second method also indicate good validity as presented in table 3.

[Insert table 3]

4.3 Hypotheses test and their effects

Since IBM SPSS AMOS 24.0.0 (Windows version) has been reported to be a powerful instrument that can run regression and structural model analysis simultaneously and also used to determine the validity and goodness fit of our research model (Kelloway 1998). After calculating the results, we tested the hypotheses relationships as follows. H1: Pressure of studies on the students, however, was positively associated with the plagiarism ($\beta = 0.152$, $p < 0.01$). Similarly, H2: Self-efficacy was positively related to plagiarism and the relationship

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was also statistically significant with a β-value of 0.112. H3: Self-competency was negatively associated with plagiarism and this relationship was statistically significant (β = -0.188, p< 0.001). These results support (hypotheses) H1: Pressure, H2: Self-efficacy and H3: Self-competence of our study. Specifically, after carrying out SEM and hierarchical regression analysis, the findings from the current research indicate that self-competence and pressure played a bigger role in promoting and encouraging plagiarism. The relationships between these three factors are presented in figure 2. The investigation of controlled variables found that enrolment status (full-time/ part-time) was the only significant variable that influenced plagiarism as shown in table 4 (M1), an effect that however withered away when pressure, self-efficacy, and self-competency were included into the relationship.

[Insert table 4]

5. Discussion

The main theme of this research was to investigate possible association between personal factors (pressure, self-efficacy, and self-efficiency) and that of immoral and unethical practice of plagiarism among university students studying in Islamabad, the capital city of Pakistan. Results of this study have shown that personal factors of pressure, self-efficacy and self-competence of the students do influence students to engage in plagiarism (Ramzan et al. 2012). In this era of digitalization and connectivity, the sharing of academic research has been made easier and consequently, the rise of unethical practices such as plagiarism have also risen. Studies have shown that the unethical-practices of plagiarism can be tackled if the underlying factors associated with these practices are addressed properly. Therefore, by categorizing those underlying factors into different categories, for instance as external or internal factors, marks a step in the right direction towards combating plagiarism. In the quest to assist in the endeavor, this research embarked on investigating three main personal factors

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that were believed to have contributed to the plagiarism intention by students currently studying in different graduate programs.

[Insert figure 2]

As indicated in the research model with results in figure 2, personal factors of pressure, self-efficacy, and self-competency in students are significantly associated with students' plagiarism. Therefore, in order to assist in combating this unethical act, both administrators and researchers involved in any academic fields must look for innovative ways to address the underlying reasons that would push students to use pressure and perceived or real incompetency as excuses to engage in plagiarism. This could be done by instilling confidence among the students, providing sufficient training in research methods, and highlighting clearly to the students the consequences of their involvement in the unethical practice of plagiarism. Whereas pressure on students also comes from their families, peers and the limitation of financial resources (Fatima and Ming 2019). So, pressure on students has a strong association with the act of plagiarism. To avoid this act factor, university and government body offers scholarships based on merit and also need. Furthermore, in regards to the influence of pressure, students should be reminded of the importance of honesty and hard work, and therefore should be encouraged to develop their self-esteem and trust in their own capabilities. This will help them to avoid succumbing to the pressure from their peers, which might tempt them to cheat (Devlin and Gray 2007, Park 2003). This shows that when students are self-efficacy in the research (Rocher 2018) they are undertaking, this assists them in developing and fostering self-esteem and reliance. Therefore, they would be expected to engage in honest research in order to maintain their status (Granitz and Loewy 2007, Kuiper 2018). This study provides a significant contribution to the literature on higher education by providing empirical evidence that, while lack of student training in relevant

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research tools and methodologies might be the largest contributor to plagiarism in the academia (Fatima, Ming, and Abbas 2018, Hosny and Fatima 2014, Wang 2008), pressure from peers and self-efficacy also play equally important roles in this regard.

Since self-competence was significantly associated with plagiarism, proper training of students and equipping them with the required skills for research (Devlin and Gray 2007, Ramzan et al. 2012) will assist them to develop a positive attitude and foster confidence in their capabilities (Parameswaran and Devi 2006). Therefore, research institutions should focus not only on providing better training and providing skill-development services to their students, but also on creating a conducive environment in order to inhibit the emergence of the immoral and unethical practice of plagiarism. This will make sure to impart on students a culture of honesty and hard work in their academic research and as such, will help to achieve long-term results. In addition, high levels of self-competence were scarcely associated with plagiarism. Therefore, research institutions should grab the opportunity to always assist students in realizing the value of honest research, as this would be fruitful in combating plagiarism.

6. Conclusion, limitations and future research directions

This research finds evidence that various personal factors can drive students to engage in the unethical practice of plagiarism. Apart from poor training and lack of skills on the students' part, the pressures they face as they engage in research was one of the contributing factors of plagiarism. This finding is interesting since the focus of the majority of research on plagiarism has been on internal factors within the control of students and whenever external factors have been studied, the focus has been on the skills and training of the students. Normally, studies have stressed the technical aspects, for instance, the need for proper

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training of students in research methods to provide them with the skills and techniques, which are then expected to reduce the instances of plagiarism. However, earlier studies have neglected the social aspects (peer pressure and self-efficacy) of plagiarism. Therefore, given the significance of both the technical aspects and social aspects of students towards promoting or subverting the instance of plagiarism, it is imperative for the institutions to address plagiarism from both angles in order to guarantee long-term success. Focusing on one aspect and neglecting the other aspect could result in the ineffective combating of plagiarism cases. Furthermore, instilling discipline and outlining the consequences of unethical research behavior to students, and by attaching severe punishment to such practices would go a long way in assisting students to reduce plagiarism cases (Hu 2015, Ledwith and Rísquez 2008). This would lead to higher self-esteem among the students, in which case they will self-efficacy themselves in their research endeavors, thereby reducing the temptation to engage in plagiarism. Therefore, research institutions should provide a conducive research environment by increasing awareness of plagiarism and reducing pressure on students through counseling and other means to inhibit and hinder the emergence and growth of such vices.

6.1 Limitations and future research opportunities

Our study, however, has some limitations. Firstly, our respondents were enrolled in higher education; students only from public and private universities located in Islamabad, Pakistan. Another limitation is that we only considered students' plagiarism with respect to their personal factors, without considering external factors such as culture, environment, internet, and teaching. Therefore future studies should be directed at the inclusive comparison between students of both private and public sector universities or explore the comparative studies between different provincial based universities in Pakistan or abroad.

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References

Ahmed, Khawlah. 2019. "Academic integrity: Challenges and strategies for Asia and the Middle East." *Accountability in Research*. doi: 10.1080/08989621.2015.1096206.

Ali, Asim M El Tahir, Hussam M Dahwa Abdulla, and Václav Snášel. 2011. "Overview and comparison of plagiarism detection tools." Dateso 2011, Annual International Workshop on Databasis, Texts, Specificatiosn and Objects, Pisek, Czech Republic.

Anderson, James C, and David W Gerbing. 1988. "Structural equation modeling in practice: A review and recommended two-step approach." *Psychological Bulletin* 103 (3):411-423. doi: 10.1037//0033-2909.103.3.411

Andre, John M. 2019. "More Effective Assessment: Using Student Presentations with Vietnamese University Students." *VNU Journal of Science: Education Research* 35 (1):39-47. doi: 10.25073/2588-1159/vnuer.4180

Anney, Vicent Naano, and Mary Atanas Mosha. 2015. "Student's plagiarisms in higher learning institutions in the era of improved internet access: Case study of Developing Countries." *Journal of Education and Practice* 6 (13):203-216.

Arrona-Palacios, Arturo, and Juan F Díaz-Morales. 2018. "Morningness–eveningness is not associated with academic performance in the afternoon school shift: Preliminary findings." *British Journal of Educational Psychology* 88 (3):480-498. doi: 10.1111/bjep.12196.

Burgason, Kyle A, Ophir Sefiha, and Lisa Briggs. 2019. "Cheating is in the eye of the beholder: An evolving understanding of academic misconduct." *Innovative Higher Education*:1-16. doi: 10.1007/s10755-019-9457-3.

Chuang, Chia Yuan, Scotty D. Craig, and John Femiani. 2017. "Detecting probable cheating udring online assessments based on time delay and head pose." *Higher Education Research & Development* 36 (6):1123-1137. doi: 10.1080/07294360.2017.1303456.

Accepted Manuscript

Dawn. 2018. "59 plagiarism cases being probed: HEC." accessed 19 December. https://www.dawn.com/news/1392544.

Devlin, Marcia, and Kathleen Gray. 2007. "In their own words: A qualitative study of the reasons Australian university students plagiarize." *Higher Education Research & Development* 26 (2):181-198. doi: 10.1080/07294360701310805.

Díaz, Juan Carlos Torres, Josep María Duart Montoliu, and Mónica Hinojosa Becerra. 2018. "Plagiarism, internet and academic success at the university." *NAER: Journal of New Approaches in Educational Research* 7 (2):98-104. doi: 10.7821/naer.2018.7.324.

Do Ba, Khang , Khai Do Ba, Quoc Dung Lam, Dao Thanh Binh An Le, Phuong Lien Nguyen, Phuong Quynh Ngyuen, and Quoc Loc Pham. 2017. "Student plagiarism in higher education in Vietnam: An emphirical study." *Higher Education Research & Development* 36 (5):934-946. doi: 10.1080/07294360.2016.1263829.

Ehrich, Lisa Catherine, Megan Kimber, Jan Millwater, and Neil Cranston. 2011. "Ethical dilemmas: A model to understand teacher practice." *Teachers and Teaching: theory and practice* 17 (2):173-185. doi: 10.1080/13540602.2011.539794

Ellahi, Abida, Rabia Mushtaq, and Mohammed Bashir Khan. 2013. "Multi campus investigation of academic dishonesty in higher education of Pakistan." *International Journal of Educational Management* 27 (6):647-666. doi: 10.1108/IJEM-03-2012-0039.

Fatima, Anam, Asad Abbas, Wan Ming, Samira Hosseini, and Demi Zhu. 2019. "Internal and external factors of plagiarism: Evidence from Chinese public sector universities." *Accountability in Research* 26 (1):1-16. doi: 10.1080/08989621.2018.1552834.

Fatima, Anam, and Wan Ming. 2019. Impact of personal factors on students' academic dishonesty in higher education: Evidence from Pakistan. *European Academic*

Accepted Manuscript

Research VII (2): 1348-1355. accessed 06 November http://euacademic.org/UploadArticle/3997.pdf

Fatima, Anam, Wan Ming, and Asad Abbas. 2018. "Chinese students' perception on plagiarism: A case of Anhui, China." *The New Educational Review* 53 (3):95-101. doi: 10.15804/tner.2018.53.3.08.

Fornell, Claes, and David F Larcker. 1981. "Structural equation models with unobservable variables and measurement error: Algebra and statistics." *Journal of Marketing Research* 18 (3):382-388. doi: 10.2307/3150980.

Gliem, Joseph A, and Rosemary R Gliem. 2003. "Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales." 2003 Midwest Research to Practice Conferencein Adult, Continuing and Community Education, Ohio State University, Columbus, Ohio.

Granitz, Neil, and Dana Loewy. 2007. "Applying ethical theories: Interpreting and responding to student plagiarism." *Journal of Business Ethics* 72 (3):293-306. doi: 10.1007/s10551-006-9171-9.

Hair, Joseph F, Rolph E Anderson, Ronald L Tatham, and William C Black. 1998. *Multivariate data analysis*. 5th ed. Upper Saddle River, NJ: Prentice Hall.

HEC. 2018. "HEC Recognised Universities and Degree Awarding Institutions." accessed 04 December. http://hec.gov.pk/english/universities/pages/recognised.aspx.

HEC. 2019a. "HEC plagiarism policy." accessed 06 September. https://hec.gov.pk/english/services/faculty/Documents/Plagiarism/Guidelines%20on%20Turnitin.pdf.

HEC. 2019b. "Higher Education Commission of Pakistan." accessed 03 January. https://www.hec.gov.pk.

Accepted Manuscript

Hosny, Manar, and Shameem Fatima. 2014. "Attitude of students towards cheating and plagiarism: University case study." *Journal of Applied Sciences* 14 (8):748-757. doi: 10.3923/jas.2014.748.757

Hu, Guangwei. 2015. "Research on plagiarism in second language writing: Where to from here?" *Journal of Second Language Writing* 30:100-102. doi: 10.1016/j.jslw.2015.08.004

Ikram, Nadeem. 2017. "Plagiarism-requiring a holistic approach." *Journal of Rawalpindi Medical College* 21 (4):311-312.

Jereb, Eva, Matjaž Perc, Barbara Lämmlein, Janja Jerebic, Marko Urh, Iztok Podbregar, and Polona Šprajc. 2018. "Factors influencing plagiarism in higher education: A comparison of German and Slovene students." *PloS one* 13 (8):e0202252.

Jiang, Hai, Lynne Emmerton, and Leigh McKauge. 2013. "Academic integrity and plagiarism: A review of the influences and risk situation for health students." *Higher Education Research & Development* 32 (3):369-380. doi: 10.1080/07294360.2012.687362.

Kazi, Asma Shahid, Fakhra Aziz, and Uzma Quraishi. 2018. "An oasis of literacy in a desert of poverty: A case study of a rural school for the underprivileged in Southern Punjab." *Sage Open* 8 (2):2158244018784115. doi: 10.1177/2158244018784115.

Keith, Timothy Z. 2014. *Multiple Regression and Beyond*. New York: Routledge.

Kelloway, E Kevin. 1998. *Using LISREL for structural equation modeling: A researcher's guide*. Thousand Oaks, CA: Sage.

Kokkinaki, Angelika I, Catherine Demoliou, and Melpo Iakovidou. 2015. "Students' perceptions of plagiarism and relevant policies in Cyprus." *International Journal for Educational Integrity* 11 (3):1-11. doi: 10.1007/s40979-015-0001-7.

Accepted Manuscript

Kuiper, Alison 2018. "Freedom to learn: The threat to student freedom and why it needs to be reclaimed." *Higher Education Research & Development* 37 (7):1547-1550. doi: 10.1080/07294360.2018.1492932.

Ledwith, Ann, and Angélica Rísquez. 2008. "Using anti-plagiarism software to promote academic honesty in the context of peer reviewed assignments." *Studies in Higher Education* 33 (4):371-384. doi: 10.1080/03075070802211562

Leong, Wei Shin, Haslinda Ismail, Jolene Sonia Costa, and Hong Boon Tan. 2018. "Assessment for learning research in East Asian countries." *Studies in Educational Evaluation* 59:270-277. doi: 10.1016/j.stueduc.2018.09.005.

Mansoor, Faiqa, and Kanwal Ameen. 2016. "Promoting academic integrity in South Asian research culture: The case of Pakistani academic institutions." *South Asian Studies* 31 (2):77-90.

Pandoi, Deepika, Sanjaya Singh Gaur, and Anup Kumar Gupta. 2019. "Role of virtues in the relationship between shame and tendency to plagiarise: Study in the context of higher education." *International Journal of Educational Management* 33 (1):66-85. doi: 10.1108/IJEM-02-2018-0074.

Parameswaran, Ashvin, and Poornima Devi. 2006. "Student plagiarism and faculty responsibility in undergraduate engineering labs." *Higher Education Research & Development* 25 (3):263-276. doi: 10.1080/07294360600793036.

Park, Chris. 2003. "In other (people's) words: Plagiarism by university students--literature and lessons." *Assessment & evaluation in higher education* 28 (5):471-488. doi: 10.1080/02602930301677

Quraishi, Uzma, and Fakhra Aziz. 2017. "Academic dishonesty at the higher education level in Punjab, Pakistan." *Journal of Research & Reflections in Education* 11 (1):68-85.

Accepted Manuscript

Ramzan, Muhammad, Muhammad Asif Munir, Nadeem Siddique, and Muhammad Asif. 2012. "Awareness about plagiarism amongst university students in Pakistan." *Higher education* 64 (1):73-84. doi: 10.1007/s10734-011-9481-4

Rehman, Rana Rashid, and Ajmal Waheed. 2014. "Ethical perception of university students about academic dishonesty in Pakistan: identification of student's dishonest acts." *The Qualitative Report* 19 (4):1-13.

Rocher, Andrew R du. 2018. "Active learning strategies and academic self-efficacy relate to both attentional control and attitudes towards plagiarism." *Active Learning in Higher Education*:1-14. doi: 10.1177/1469787418765515.

Rusdi, Syezreen Dalina, Norashikin Hussein, Nor Azian Abdul Rahman, and Fauziah Noordin. 2016. "Plagiarism: An empirical evidence of business students." *Environment-Behaviour Proceedings Journal* 1 (4):62-71. doi: 10.21834/e-bpj.v1i4.181.

Saeed, Saqib, Rizwan Aamir, and Muhammad Ramzan. 2011. "Plagiarism and its implications on higher education in developing countries." *International Journal of Teaching and Case Studies* 3 (2-4):123-130. doi: 10.1504/IJTCS.2011.039552.

Selemani, Apatsa, Winner Dominic Chawinga, and Gift Dube. 2018. "Why do postgraduate students commit plagiarism? An empirical study." *International Journal for Educational Integrity* 14 (1):7. doi: 10.1007/s40979-018-0029-6.

Shukr, Irfan, and Sue Roff. 2015. "Prevalence of lapses in academic integrity in two Pakistani medical colleges." *Medical teacher* 37 (5):470-475. doi: 10.3109/0142159x.2014.947928

SJR. 2019. "Scimago Journal & Country Rank." Scimago Lab, accessed 06 February. http://www.scimagojr.com/countryrank.php.

Accepted Manuscript

Slade, Christine, Susan Rowland, and Dominic McGrath. 2018. "Talking about contract cheating: facilitating a forum for collaborative development of assessment practices to combat student dishonesty." *International Journal for Academic Development*:1-14. doi: 10.1080/1360144x.2018.1521813.

Spectator-Index. 2018. "Education quality, 2018." accessed 18 September. https://spectatorindex.com.

Šprajc, Polona, Marko Urh, Janja Jerebic, Dragan Trivan, and Eva Jereb. 2017. "Reasons for plagiarism in higher education." *Organizacija* 50 (1):33-45. doi: 10.1515/orga-2017-0002.

Sun, Ying, and Rui Tian. 2016. "Dishonest academic conduct: From the perspective of the utility function." *Accountability in Research* 23 (3):139-162. doi: 10.1080/08989621.2015.1096206.

van Osch, Yvette, Marcel Zeelenberg, and Seger M Breugelmans. 2018. "The self and others in the experience of pride." *Cognition and Emotion* 32 (2):404-413. doi: 10.1080/02699931.2017.1290586.

Wang, Yu-Mei. 2008. "University student online plagiarism." *International Journal on E-Learning* 7 (4):743-757.

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Table 1. Demographics of the respondents

Demographics	Frequency	Percentage (%)
Gender		
Male	100	66.2
Female	51	33.8
Study level		
MS/M.Phil.	112	74.2
Ph.D.	39	25.8
Discipline		
Natural sciences	84	55.6
Engineering	38	25.2
Management and Social Sciences	29	19.2
Study mode		
Traditional learning	103	68.2
Distance learning	2	1.3
Blended (mixed) learning	46	30.5
Enrolment status (full time)		
Yes	24	15.9
No	127	84.1
Usage time on internet		
2 or less hour	28	18.5
Between 2 and 5 hours	81	53.6
5 or more hours	42	27.8

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Table 2: Factor loadings, Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE)

Constructs	Items	Factor Loading	Cronbach's alpha	CR	AVE
Pressure	Pressure from parents or relatives	0.673	0.923	0.923	0.633
	Pressure from classmates or other peers	0.867			
	Under stress	0.824			
	Pressure from school, work or academic staff	0.846			
	Financial strains	0.786			
	Fear of failure	0.838			
	Career stress	0.753			
Self-efficacy	I do not want to lose face in front of my peers	0.875	0.975	0.976	0.818
	I do not want my teachers to think I am unintelligent	0.874			
	I do not want to let down my family	0.881			
	I do not want to ashamed of my work	0.909			
	I concentrate on my capabilities being judged in relation to my peers	0.933			
	I am concentrating on upholding personal ideals in my education	0.891			
	I am afraid of looking for guidance from others	0.915			
	My fear of failure leads me to plagiarism	0.883			
	Set academic assignments will aid neither my career nor personal life	0.951			
Self-competency	I find it difficult to complete tasks in the allotted time	0.726	0.936	0.937	0.656

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	The amount of work is too much for me to deal with	0.929			
	I do not understand the citation process	0.918			
	I do not know how to search a relevant material	0.806			
	My researching skills are non-existent	0.816			
	My reading comprehensive skills are weak	0.843			
	My written work is sub-optimal	0.822			
	I frequently find it troublesome to accurately express my thoughts.	0.569			
Plagiarism	I prefer to take it easy	0.815	0.892	0.894	0.631
	My priority is to pass the course/class rather than academic learning	0.886			
	My work is not up to the standard it should be	0.713			
	Plagiarism is the easier option than completing the work.	0.791			
	To achieve a more impressive grades	0.762			

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Table 3. Descriptive Statistics, correlation matrix, reliability, and **square root of AVE.**

Constructs	M	SD	Pressure	Self-efficacy	Self-competency	Plagarism
Pressure	5.353	1.416	**0.796**			
Self-efficacy	5.555	1.241	0.273	**0.904**		
Self-competency	5.219	0.862	0.028	0.047	**0.810**	
Plagiarism	4.578	0.810	0.349	0.234	-0.184	**0.794**

Note. N= 151. All correlations are significant at $p < 0.01$. **Bold values** on the diagonal represent square root of average variance extracted (AVE).

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Table 4: Hierarchical regression analysis results

Construct	Plagiarism			
	M1	**M2**	**M3**	**M4**
Gender	0.224	0.194	0.178	0.174
Study level	-0.301*	-0.312*	-0.321*	-0.323*
Study discipline	-0.075	-0.053	-0.044	-0.049
Study mode	0.052	0.034	0.026	0.029
Enrolment status	0.009	-0.001	-0.005	0.045
Usage time on internet	-0.090	-0.089	-0.103	-0.137
Pressure		0.152***	0.129**	0.132**
Self-efficacy			0.112*	0.117*
Self-competency				-0.188**
F	1.533	3.039**	3.310**	3.804***
R2	0.060	0.130	0.157	0.195
ΔR^2	0.060	0.069	0.028	0.038

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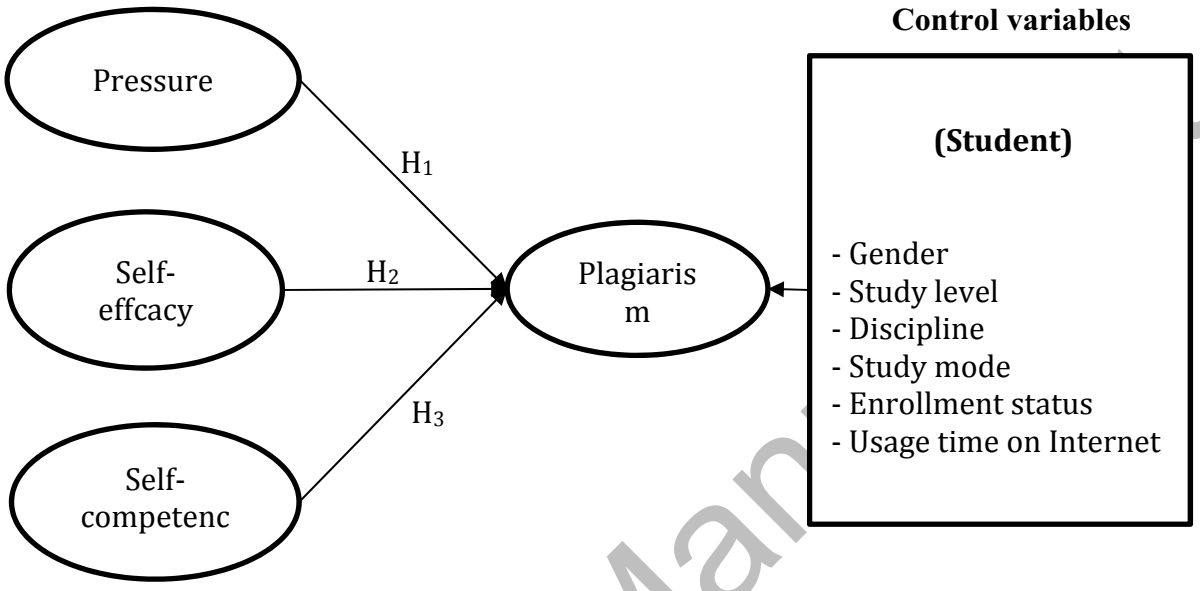

Figure 1: Proposed research model

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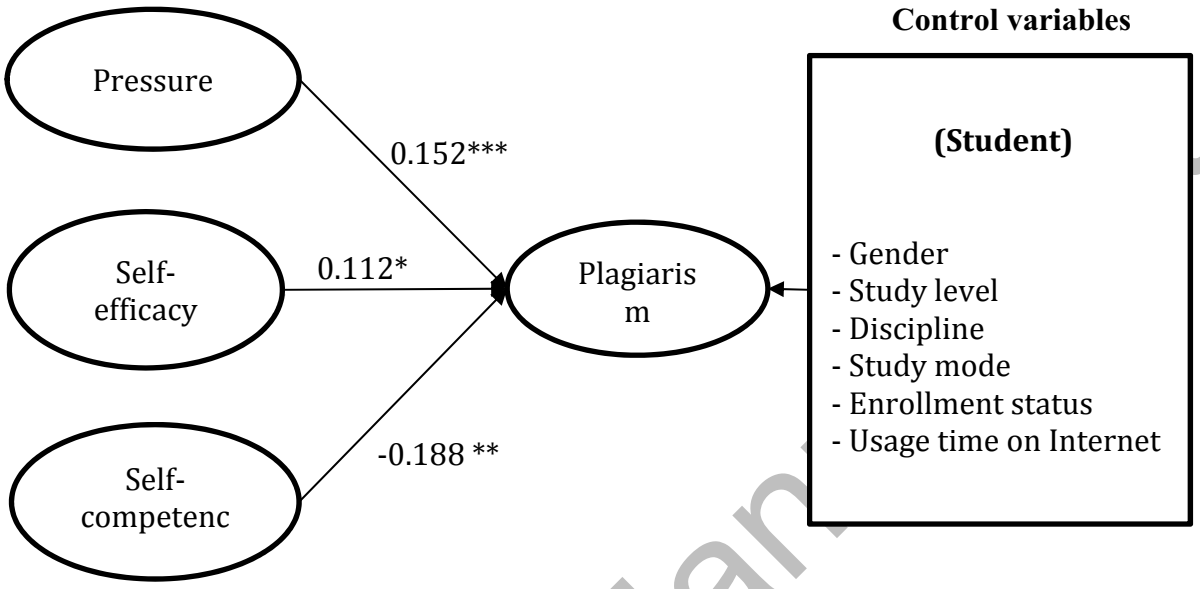

Figure 2: Model with results

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