

## Investigating Predictors of Academic Plagiarism among University Students

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**Abstract.** Academic plagiarism is increasingly becoming a challenge to academic integrity worldwide, owing to the ease of access to free information online. The aim of this paper was twofold; first, to ascertain the perceptions of transport and logistics management university students regarding academic plagiarism, and second, to determine the predictors of university students' plagiarism practices. A self-designed structured questionnaire was developed to collect information from the students of their understanding of plagiarism (UP), the plagiarism practices (PP), the understanding of the university plagiarism policy (UPP), the understanding of the departmental plagiarism policy (DPP), the awareness of the university and departmental training workshops (TOP), and the adequacy of the university and departmental training workshops (AOT). Independent *t*-tests were computed for the differences in plagiarism, based on home language and gender. Also, a one-way ANOVA was computed to test if the year of study, the degree enrolled for, and race, had an impact on plagiarism practices. Lastly, a regression model was computed to determine the impact of the plagiarism predictors on the plagiarism practices. The results of this study revealed high-levels of the understanding of plagiarism, and an awareness of the university and departmental plagiarism policies. However, an analysis of the plagiarism practices revealed moderate levels of plagiarism, indicating a likelihood of intentional plagiarism among students. Two significant predictors of plagiarism practices among university students were identified as; the understanding of plagiarism and the understanding of the university-wide plagiarism policy. University instructors and education managers are informed through the findings of this study that clear plagiarism policies are important in reducing academic dishonesty among students. It is important to continuously train students on what plagiarism entails and how to avoid academic dishonesty.

**Keywords:** Plagiarism understanding; plagiarism education; academic integrity; higher education

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## 1. Introduction

Plagiarism is an academic misconduct, which includes unethical conduct in academic projects and intellectual dishonesty (Singh, 2017). Academic plagiarism affects both students and academic practitioners across the globe (Mohamed, Samat, Aziz, Noor, & Ismail, 2018). The internet with readily available data, is a significant source of information that students plagiarize with ease, and sometimes accidentally (Singh, 2017). Universities and other institutions are currently relying on software, such as Turnitin and iThenticate, to detect any similarity between the existing published texts available on the internet, and students' essays, dissertations or theses. These applications help to ensure the originality of the submitted work. However, Singh and Remenyi (2016) argued that the software programs are not likely to solve the problem, as they only detect the degree of similarity with the freely accessible internet sources; yet in some cases, students can circumvent these databases. Given the availability of online ghost assignment writers, as well as readily available resources on the internet, universities and other training institutions face a significant problem because students sometimes plagiarize consciously and skilfully. The remainder of this paper covers the literature review on academic plagiarism, the methodology, results, discussion and conclusion.

## 2. Literature Review

Academic plagiarism is increasingly becoming a challenge to academic integrity for the managers of academic programs, instructors, as well as for students. Bell (2018) argued that academic plagiarism is a "crime" committed by using the works of others and presenting it as one's own work, without proper acknowledgement. The academic plagiarism offense can affect students, faculties, institutional reputation or any other individual, who presents the plagiarized work as original (Bartley, Albert, & Liesegang, 2014; Bell, 2018). Academic plagiarism could be viewed as being deliberate, and undermining the intellectual honesty of the offenders (Babalola, 2012). Although plagiarism could be deliberate, it could also be committed unintentionally by students, who do not know how to reference correctly (Das, 2018). Intentional plagiarism is committed when students buy papers online or hire someone to write term papers, and present them for assessment as their own (Babalola, 2012). Plagiarism incidents among students are on the rise globally (Hopp & Speil, 2020). Babalola (2012) posited that this is exacerbated by easy access to free online information. Babalola (2012) further pointed out that students might desire to have good grades without investing in sufficient study time, resulting in the pursuit of quick fixes, which increase the chances of submitting plagiarized work.

McCabe (2005) reveals the findings of a survey of 83 universities across the US and Canada where 68% of students admitted to collaboration on individual assignments.. Other findings of significance include failure to cite when paraphrasing or copying directly from written sources (63%), failure to cite when paraphrasing or copying from internet sources(60%), and receiving assistance from unauthorized individuals (37%).

In 2015, 50 000 students enrolled at British Universities, were found to have plagiarized (Mostrous & Kenber, 2016). Similar observations were made by Chien

(2017) in Taiwan, Do Ba et al. (2017) in Vietnam, Baruchson-Arbib and Yaari (2004) in Israel, and Arce Espinoza and Monge Nájera (2015) in Costa Rica. The nature of plagiarism is wide-reaching but often underreported from many regions of the world (de Jager & Brown, 2010).

Devlin and Gray (2007) indicate that the mass sharing opportunities the internet presents are a stimulus for a student to consciously plagiarize, either due to laziness or convenience. Students who confessed to plagiarism, cited limited time and the need to meet deadlines (67%), the burdens of course work (62%), the complicated nature of some assignments and tasks (56%), and the want for top grades (56%) as factors that influence plagiarism (Eret & Ok, 2014).

Plagiarism does not only take place intentionally. Unfamiliarity with plagiarism rules and regulations, the lack of training, and the absence of plagiarism understanding justify some academic dishonesty and is termed unintentional plagiarism (Elander, Pittam, Lusher, Fox, & Payne, 2010; Gullifer & Tyson, 2010; Lankamp, 2009). Nevertheless, when the risk is perceived to be low, students often think that intentional plagiarism and getting caught are negligible (Cleary, 2012; Elander et al., 2010; Strittmatter & Bratton, 2016).

The high occurrence of plagiarism can additionally be linked to the fear of failure (Devlin & Gray, 2007; Goh, 2015; Kent State University, 2014) and the pressure to perform academically well (Bayaa, Ablordeppey, Mensah, & Karikari, 2016; Dahiya, 2015; Goh, 2015; Hosny & Fatima, 2014). These reasons extend to financial concerns (Devlin & Gray, 2007) and personal or family problems (Goh, 2015).

Following the 2015 survey of British universities, Ali (2016) found that 35% of these cases involved students originating outside the European Union. To categorize non-English speakers as being prone to plagiarism is weak even if cultural perspectives, such as the approaches to language and learning, are predispositions to students from Western institutions to plagiarize (Ehrich, Howard, Mu, & Bokosmaty, 2016). Egan (2008) considered the establishment of English adeptness and elementary writing skills in academia are key to non-English speaking students' understanding of plagiarism. However, Lund (2004) argued the need for universities to recognize the role of cultural subtleties for non-native English speakers and encompass these dynamics into plagiarism policies.

As higher education moves online and e-learning becomes more commonplace, there is a misconception that distance education lends itself to plagiarism. Irrespective of online or traditional learning environments, (Ison, 2014) found that because students use the same research sources, there is no significant difference in the propensity to plagiarize. The inclination to plagiarize may also be determined by the type of assignment. (Youmans, 2011) concluded that when guidelines stipulate the number of citations as optional, less plagiarism transpires. It is therefore difficult to isolate definitive determinants of plagiarism in higher education.

Existing academic literature identified a lack of proper training of undergraduate students on academic integrity as one of the causes of plagiarism (Bell, 2018). Students are given a list of 'dos and don'ts' regarding a high-level of academic writing, without any embedded training on its integrity. Existing literature

suggests that students are not provided with adequate information on intellectual property rights nor the likely consequences of their violation for themselves or for the university (Bell, 2018). Institutions of higher learning have plagiarism policies but have not promoted them to students to discourage academic dishonesty, but they rather encourage the development of academic writing skills (Babalola, 2012). Sometimes students lack self-confidence in conducting research and resort to academic dishonesty when desperate. Bell (2018) found that, although the internet has a plethora of information, which students are likely to use, institutions have made little or no effort in training them on how to use internet sources while maintaining academic integrity.

Based on the identified causes, it is observed that incidents of plagiarism are on the rise, which is of great concern to institutions of higher learning. To counter the increase in plagiarism, Bell (2018) recommended that universities should do more than just promote citation mechanics by incorporating academic integrity in the pedagogical approaches. In addition, plagiarism incidents among students can be minimized by conducting tutorials all year round that help students sharpen their information literacy skills, rather than holding once-off workshops (Babalola, 2012; Bell, 2018). Mohamed et al. (2018) asserted that plagiarism could be minimized when institutions develop transparent and consistent frameworks for preventing, detecting and penalizing offenders. On a global scale, plagiarism incidents can damage the reputation of a university, where its graduates become undesirable in the industry, thus, "it kills creativity, innovation and diligence" (Babalola, 2012).

Across the globe, management related studies are popular among many university students. Vast amounts of management related content are available on the internet. The implication is that management students can easily access this information from the internet, making plagiarism a significant threat to the intellectual integrity of this group. Although the concept of plagiarism has been examined in prior studies, discipline specific enquiries; including veterinary studies in India (Singh, 2017), medical studies in Saudi Arabia (Alhadlaq, Dahmash, & Alshomer, 2020); medical students in Pakistan (Javaeed, Khan, Khan, & Ghauri, 2019); tourism and hospitality (Goh, 2015); nursing (Goodwin & McCarthy, 2020); pharmacy (Mohamed et al., 2018) and business science (Quispe, Núñez, Arias, Chávez, & Cara, 2019) have been carried out in different contexts. However, there are limited studies on the perceptions of student plagiarism among the management sub-discipline of Transport, Logistics and Supply Chain Management. Therefore, this study sought to investigate the predictors of plagiarism practices among such students, by them answering the following specific questions.

1. What are the perceptions of academic plagiarism among Transport, Logistics and Supply Chain Management university students?
2. What are the predictors of plagiarism practices among Transport, Logistics and Supply Chain Management university students?

### 3. Research Methodology

A quantitative research approach was used in this study. The quantitative approach allowed for the collection of standardized data that helped determine relationships between the academic plagiarism variables. A descriptive survey design was most appropriate for this study, to completely describe and explain the plagiarism phenomenon. The descriptive survey ensured that data was collected from the lecture rooms in their natural form without any modifications.

The unit of analysis for this study was the students enrolled for transport, logistics or supply chain management related modules at the time of collecting the data. The target population was approximately 2000 students. The suitable sample size at a 95% confidence interval was 322 students, in line with the guidelines provided by Saunders, Lewis, and Thornhill (2019). The sample size was considered sufficient to allow for the generation of the required statistical analysis to answer the research questions.

Primary data was collected from target respondents, who included 1st, 2nd, 3rd and 4th year students at a South African university. A self-designed structured questionnaire was developed to collect information from the students on the following aspects: 1) their understanding of plagiarism (UP); 2) plagiarism practices (PP); 3) understanding of the university plagiarism policy (UPP); 4) understanding of the departmental plagiarism policy (DPP); 5) the awareness of university and departmental training workshops (TOP); and 6) the adequacy of university and departmental training workshops (AOT). The opinions and perceptions of students regarding plagiarism of the listed areas mentioned above, were collected using a 5-point Likert-type scale ranging from 1= strongly disagree to 5 = strongly agree. The questionnaire was piloted among a group of students in the transport, logistics and supply chain management domain; to improve clarity, certain items were revised. The questionnaire was distributed to the students during the last 20 minutes of the lectures, these were completed independently and collected at the end of the lecture.

Independent t-tests were computed to determine the differences in plagiarism based on home language and gender. A one-way ANOVA was computed to test how the plagiarism practices were influenced by the year of study, the degree enrolled for and race. A relationship between the variables UP, UPP, DPP, TOP, AOT and PP was tested. Further, a regression model between the variables and plagiarism practices (PP) as an independent variable. The analysis was conducted using SPSS version 25.

Scale reliability was tested for the latent variables to reveal internal consistency. The Cronbach's alpha for all the construct variables is illustrated in Table 1; all reveal acceptable levels of internal consistency. The reliability results imply that the items under each of the latent variables were measuring the same aspect as expected.

**Table 1: Reliability analysis**

Variable	Cronbach's alpha
1) understanding of plagiarism (UP),	0.597
2) plagiarism practices (PP),	0.701
3) understanding of university's plagiarism policy (UPP),	0.608
4) understanding of the department's plagiarism policy (DPP),	0.725
5) awareness of university's and department's training workshops (TOP),	0.681
6) adequacy of university's and department's training workshops. (AOT)	0.752

Source: Research data

Of the 289 students, who completed the questionnaire, 45.7% were males, while 54.3% were females. The result of gender is an indication of more female than male students in the South African universities supporting the country's population gender split (Evans, 2018). The respondents consisted of blacks and whites at 74 and 14 percent. Indians and coloreds were 7.6 and 3.1 percent. While, Asians made only 0.3% percent of the sample. The result of the degree enrolled for indicates that the vast majority (76.8%) were logistics management students, while 12.8%, 6.9%, 1.4%, 1.0% and 0.3% were enrolled for transport management, marketing, information, retail, and hospitality management degrees and the rest (2.4%) were in the other category. The results indicate that the transport, logistics and supply chain modules are attractive to students enrolled for other management related degrees. The sample comprised of 20.8%, in first year, 38.1% in second year, 30.1% in year three and 11% were enrolled in the honors programme. The majority of the respondents were second and third year students, who had already received adequate training on plagiarism, implying that the results obtained were valid.

#### 4. Results

The mean statistics for each of the variables was calculated. These indicated that the students perceived university and departmental training workshops to be adequate (M=3.708; SD=1.186); understood the university's plagiarism policy (M=3.135; SD=1.112), as well as plagiarism (M=3.106; SD=1.268). In contrast, the mean scores revealed that the students' understanding of the departmental plagiarism policy (M=2.813; SD=1.235), plagiarism practices (M=2.336; SD=1.205) and awareness of university and departmental training workshops (M=2.115; SD=0.769) was relatively low, as presented in Table 2. This could imply that as much as the training takes place, its effectiveness is questionable. Table 2 illustrates the mean statistics of all the items included in the survey instrument. Based on the mean scores of the students' opinions, it is evident that students were aware that 'a passage copied directly from a source without proper citation' is plagiarism. The students were also aware of the university's plagiarism policy; they also consider the Turnitin application makes them more aware of plagiarism, as illustrated in Table 3. The least important item according to the mean ratings (M=1.87; SD=0.788 and M=1.56; SD=1.033) revealed that the students had not attended the department's workshops on plagiarism and were likely to continue plagiarizing.

**Table 2: Students' perception of plagiarism**

Items		Mean	Std. Deviation
UP1	An assignment submitted with passages copied directly from a book or article without citation is considered plagiarism.	4.41	1.187
UJPP1	I am aware of the university's plagiarism policy.	4.39	1.065
UP6	I am more aware of plagiarism because of Turnitin.	4.05	1.205
AOT2	A revision assignment will enable me to improve my academic writing.	4.04	1.149
AOT1	Academic writing should be offered as a first-year semester course as part of my curriculum.	3.96	1.342
UJPP2	I feel that the penalties for student plagiarism according to the university's policy are fair.	3.85	1.127
UP5	Turnitin is a fair tool to assess plagiarism.	3.74	1.355
DPP2	I feel that the penalties for student plagiarism according to the department's policy are fair.	3.60	1.111
DPP1	I am aware of the department's policy on penalties for student plagiarism.	3.52	1.382
AOT3	Attending the university's academic writing and plagiarism workshops has improved my academic integrity.	3.47	1.112
AOT4	Attending the department's academic writing and plagiarism workshops has improved my academic integrity.	3.36	1.140
UP7	Paraphrasing is not plagiarism.	3.35	1.319
UJPP6	The penalties for student plagiarism are remedial.	3.19	0.986
UJPP5	The penalties for student plagiarism are punitive.	3.13	1.027
PP4	Plagiarism at the university is widespread.	3.09	1.148
DPP5	Compared to other departments, this department is not concerned with the use of Turnitin.	2.68	1.282
PP5	Using a paraphrasing tool enables me to get away with plagiarism.	2.65	1.221
DPP6	Other departments are not as concerned with plagiarism as this department.	2.51	1.236
PP8	Acting with academic integrity is difficult.	2.50	1.256
TOP2	I am aware of the various workshops offered by the university's writing centre.	2.47	0.754
PP3	Students rarely plagiarise.	2.40	1.046
PP9	If I have knowledge that a fellow student has plagiarised, I will report it to my lecturer.	2.39	1.242
DPP3	I do not understand the penalties for student plagiarism according to the department policy.	2.38	1.137
TOP3	I am aware that the department offers good academic writing practices and plagiarism workshops.	2.29	0.803
PP1	I have previously knowingly plagiarised on an assignment.	2.27	1.395
UJPP4	I do not understand the penalties for student plagiarism according to the university policy.	2.24	1.286
UP4	I do not know how to reference a source.	2.22	1.253
DPP4	The department is not concerned with plagiarism.	2.19	1.262
PP6	Plagiarism is an accepted practice because of the competitive nature of academics.	2.09	1.291
UP3	Copying text directly from sources (books, articles, internet etc.) is a means for me to survive the academic world.	2.09	1.252
PP7	It is very easy to plagiarise without my lecturer knowing.	2.07	1.210
TOP1	I have not received any training on good academic writing practices.	2.05	0.710
UJPP3	I do not understand the university's plagiarism policy.	2.01	1.178
TOP4	I have attended workshops offered by the university's writing centre on academic writing.	1.91	0.788
UP2	Information on the internet is freely available and therefore it is acceptable to copy and paste passages without citation.	1.88	1.305
TOP5	I have attended workshops offered by the department on academic writing and plagiarism.	1.87	0.788
PP2	I will continue to plagiarise as long as I do not get caught.	1.56	1.033

Source: research data

In this study, it was necessary to test whether or not there were any significant differences in plagiarism practices based on home language and gender. The results showed that there was a statistically significant  $t_{(287)} = 2.356$ , ( $p=0.019$ ) difference in plagiarism practices between those whose native language is English or other languages (see Table 3). This could imply that, since the language of instruction in the university is English, non-English speakers (English not being their home language) had difficulties writing assignments in English. There were no statistical differences in plagiarism practices between the males and females, implying that gender is not a factor in academic plagiarism.

**Table 3: English language versus plagiarism practices**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
PP	Equal variances assumed	.003	.958	2.356	287	.019	.22984	.09754	.03785	.42183

Source: Research data

A one-way ANOVA was conducted to test the likely influence of the year of study, degree enrolled for, and race, on plagiarism practices as measured by UP, PP, UPP, DPP, TOP and AOT (Table 4).

**Table 4: One-Way ANOVA summary**

Grouping variable	Dependent variable	I (Groups)	J (Groups)	Mean difference (I-J)	Significance (p value)
Year of study	PP	Second year	Third year	-0.358	0.018
		Second year	First year	-0.324	0.003
		Second year	Third year	-0.453	0.005
Degree enrolled	UP	Marketing management	Retail management	-1.800	0.011
		Marketing management	Other	1.323	0.008
Race	PP	Black	White	0.483	0.002
		Black	White	0.244	0.040
	Black	Indian/Asian	0.318	0.043	
	UP	Black	White	0.408	0.039
	AOT	Black	White	0.712	0.000

Source: Research data

Using the year of study (first, second, third, fourth year, B.Tech and fourth-year honors) as the grouping variable, the data revealed significant differences in opinions between PP ( $F_{4, 284} = 4.505$ ,  $p<0.05$ ) and TOP ( $F_{4, 284} = 4.343$ ,  $p<0.05$ ) and UP ( $F_{4, 284} = 3.797$ ,  $p<0.05$ ). Examining the multiple comparisons, the output revealed that for PP there were significant differences between second- and third-year undergraduate students. Second-year students held opinions that were



significantly different from those of first-year undergraduates on the TOP variable. Student opinions were also grouped as per the degree enrolled (that is, logistics management, transportation management, marketing management, retail management and others) and the differences tested using a one-way ANOVA. The results revealed that there were significant differences in UP ( $F_{4, 284} = 4.773, p < 0.05$ ) and UPP (*and*  $F_{4, 284} = 2.957, p < 0.05$ ). Further examination of the multiple comparison results indicated that the mean score of students enrolled for marketing management was significantly different from that of retail management and the other degrees. Based on race as a grouping variable, significant differences were revealed in PP ( $F_{3, 285} = 5.665, p < 0.05$ ), TOP ( $F_{3, 285} = 5.282, p < 0.05$ ) and AOT ( $F_{3, 285} = 5.426, p < 0.05$ ). Specifically, there were significant differences of the mean scores of black and white students on PP, TOP and AOT, as well as black and Indians/Asians on TOP as illustrated in Table 4. In addition, the degree enrolled for as a grouping variable, resulted in the highest mean difference as illustrated in Table 4.

#### *Factor analysis*

An exploratory factor analysis was conducted on all the factors to establish the underlying patterns among the scale factors. The Kaiser-Meyer-Olkin measure of sampling adequacy equaled 0.701, which is above the minimum acceptable value of 0.6, implying that the sample was adequate for factor analysis (Pallant, 2013). The Bartlett's test of sphericity was statistically significant at 95% ( $p < 0.05$ ) confidence level, indicating factorability of the correlation matrix (Pallant, 2013). Six factors were extracted using the principal component analysis method. The extracted factors explained a total of 60.26% of the total variance. The structure of the extracted factors was observed after a varimax rotation (as illustrated in Table 5).

**Table 5: Rotated Component Matrix**

	Component					
	1	2	3	4	5	6
PP2	.726	.039	.194	.072	-.125	.141
PP7	.686	.112	.063	.117	-.107	.060
PP1	.663	-.104	.146	-.077	.106	.055
PP8	.578	.083	-.156	.327	.152	.147
PP5	.570	.013	.055	.244	.154	-.081
TOP5	-.022	.809	.006	.146	.023	.186
TOP3	-.093	.718	.058	.018	-.075	-.128
TOP4	.190	.699	-.051	-.184	.118	.149
TOP2	.086	.584	-.022	-.040	.315	-.217
DPP5	.055	.013	.858	.011	.040	.145
DPP6	.086	.009	.854	.128	-.002	.101
DPP4	.207	-.015	.560	.265	-.072	.128
UP2	.111	-.029	.148	.788	.018	.023
UP3	.315	-.001	.032	.649	-.101	.129
UP4	.032	-.001	.125	.549	.119	.124
AOT2	.131	.180	-.025	-.003	.844	.041
AOT1	-.058	.009	.009	.086	.835	-.004
UPP3	.079	-.035	.130	.190	.040	.850
UPP4	.146	.054	.238	.094	-.020	.817

Source: Research data

Five factors loaded strongly to component 1, four to component 2, three factors each to component 3 and 4, while components 5 and 6 had only two factors each. Pallant (2020) recommends that retained components should have at least three indicators; however, those with less than three can be retained if eliminating them will negatively affect the content validity of the model. As such, the two factor components were retained owing to their theoretical value to avoid having a content deprived model. The extracted factors formed scales for PP, TOP, DPP, UP, AOT and UPP as illustrated in Table 6. The scale factors were used to conduct a multiple regression analysis.

#### *Regression analysis model*

The PP scale was selected as the dependent variable, while UP, UPP, DPP, TOP, and AOT, were the independent variable scales. Before regression model is developed, the data should meet the regression assumptions. Therefore, the assumptions were test for normality. All the assumptions were satisfied and the

data was ready for regression modelling. The correlations between the variables were conducted and the results are illustrated in Table 6.

**Table 6: Pearson correlations**

Variables	PP	TOP	DPP	UP	AOT	UPP
PP	1.000					
TOP	.091	1.000				
DPP	.258*	-.001	1.000			
UP	.388*	-.010	.312*	1.000		
AOT	.100	.214*	-.004	.062	1.000	
UPP	.263*	.027	.360*	.301*	.024	1.000

Note: \* Statistically significant at 95% confidence level

Source: Research data

The strongest significant positive correlation is between UP and PP, implying that plagiarism practices are impacted by the level of understanding the students have regarding plagiarism and its impact. However, there was no significant correlation between PP and TOP and AOT; thus these two variables were removed from the regression model. Given that there were no independent variables with high correlations above 0.700, multi-collinearity was ruled out, and the data was fit for regression analysis.

Regression analysis was conducted with PP as the dependent variable and UP, DPP and UPP as the independent variables. Regression analysis helped develop the predictiveness of UP, DPP and UPP on PP. The resulting model's R squared of 0.184, reveals a weak predictive capability, as illustrated in Table 7. The results imply that the model can explain 18.40% of the change in plagiarism practices. Although, the model had a weak predictive capability, it reached statistical significance ( $p < 0.05$ ) as shown in Table 8.

**Table 7: Model Summary**

Model	R	Adjusted R Square	Std. Error of the Estimate	Change Statistics						
				R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson	
1	.430 <sup>a</sup>	.184	.176	.74761	.184	21.491	3	285	.000	1.796

a. Predictors: (Constant), UPP, UP, DPP; b. Dependent Variable: PP

**Table 8: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.034	3	12.011	21.491	.000 <sup>b</sup>
	Residual	159.290	285	.559		
	Total	195.325	288			

Note: Dependent Variable: PP, Predictors: (Constant), UPP, UP, DPP

The beta values reveal that UP (0.314) had the strongest unique contribution in explaining plagiarism practices in the model. UPP (0.127) makes a less unique contribution, while DPP (0.114) makes the least unique contribution. Statistical significance was observed to identify the variables that make a statistically significant unique contribution. As illustrated in Table 9, only UP ( $p < 0.05$ ) and UPP ( $p < 0.05$ ) made a statistically significant contribution in explaining the plagiarism practices. As such, plagiarism practices are dependent on UP and UPP. The model can be estimated as

$$PP = \beta_0 + \beta_1 x_1 + \beta_2 x_2 \dots \dots \dots (1)$$

Where, PP = plagiarism practices,  $\beta_0$ ,  $\beta_1$  and  $\beta_2$  are constants, and  $x_1$  and  $x_2$  = UP and UPP respectively. Substituting the values from the model, we get.

$$PP = 1.202 + 0.314x_1 + 0.127x_2 \dots \dots \dots (2)$$

**Table 9: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error				Beta	Zero-order	Partial	Part	Tolerance
1	(Constant)	1.202	.139		8.629	.000					
	DPP	.093	.048	.114	1.936	.054	.258	.114	.104	.825	1.213
	UP	.282	.052	.314	5.446	.000	.388	.307	.291	.862	1.160
	UPP	.094	.044	.127	2.166	.031	.263	.127	.116	.831	1.204

Dependent variable: PP

The model indicates that an increase of 0.314 and 0.127 in UP and UPP respectively, results in a unit improvement in student plagiarism practices. The results might imply that the departmental plagiarism policy is ineffective in influencing students' perceptions of plagiarism. It would also mean that the departmental policy has not been communicated effectively to the students.

## 5. Discussion of Results

The aim of the study reported in this paper was twofold; first to ascertain university students' perceptions regarding academic plagiarism and second, to determine the predictors of plagiarism practices among university students. There is a difference in perceptions based on the year of study, black and white students, as well as the degree for which the students were enrolled. The differences between the year of study might be as the result of the number of workshops or training sessions that a student has attended and how they have perceived their effectiveness; however, this was not within the scope of this study. The black students are mostly non-native English speakers and may have challenges with the language and that would influence their perceptions of plagiarism. The differences across the degrees in which the sampled respondents were enrolled might be explained by the variations on how departments implement the policies on academic plagiarism.

The study established that the sampled students understood that plagiarism involves direct copying from printed or online work without proper attribution to the source. This might imply that some students, who engage in plagiarism, do it intentionally (Strittmatter & Bratton, 2016) . However, there could be cases where students plagiarize because they have language problems or they lack proper academic writing skills. Some of the challenges associated with plagiarism can be mitigated with adequate training of academic writing, as well as the use of the writing centres' services offered by the university. The views on the effectiveness of the training of writing skills has also been fronted previously by Bell (2018) and Babalola (2012), who found that the training of high-level writing skills reduces plagiarism. Therefore, it is confirmed that students understand to some extent what plagiarism entails, are cognisant of university-wide workshops on plagiarism, as well as the policies, as established by Singh (2017). On the same note, in cases where the students do not understand plagiarism, Babalola (2012) recommended more effective and focused training as opposed to general plagiarism awareness workshops. Bell (2018) argued that students in universities could better understand academic integrity by the strengthening of library learning commons.

The findings of the study also showed that students were aware of the university plagiarism policy and acknowledged that the use of the similarity testing software helped them improve their academic writing. Awareness of departmental policies and training on plagiarism is recognized, although their effectiveness is not known. Academic departments can enhance students' writing skills when they are proactive by incorporating the awareness of plagiarism in each module, in addition to the university-wide efforts. Information gleaned from the data alludes that university-wide, as well as departmental based plagiarism policies positively enhance the understanding of plagiarism and deter students from engaging in

such activities. Therefore, the presence of policies and guidelines, as well as regular workshops, can help promote awareness and understanding of plagiarism; this is a great step towards minimizing it.

Plagiarism practices in higher education is a concern to educators. As such, the goal has been to establish the factors fuelling the practices to curb it. In contributing to the discourse, two predictors of plagiarism practices among university students were identified as the understanding of plagiarism and the understanding of the university-wide plagiarism policy. Understanding plagiarism involves appreciating what plagiarism entails, being conscious that copying without proper attribution to the source is not acceptable, knowing how to reference correctly, and appreciating the use of software to detect plagiarism. Students are also expected to be aware of university-wide policies and penalties relating to academic plagiarism. We argue that when students have the knowledge of plagiarism, the policies and penalties to be faced if guilty, are likely to impact positively on the plagiarism practices. This implies that the university students would be forced to be more conscious of their writing skills and likely to minimise academic dishonesty. The required level of understanding can only be achieved through university-wide training workshops on plagiarism, including the promotion of library learning commons (Bell (2018). Singh (2017) claimed that the high prevalence of plagiarism can be reduced by teaching students how to reference correctly and improve their analytical skills to be better academic writers. Mohamed et al. (2018) argued that plagiarism can be fought successfully by universities if only they formulate the right policies and laws governing the processes and promote these to students and staff. The guiding principles, as stated by Mohamed et al. (2018), are likely to create a positive behavior change where students would want to avoid plagiarism by learning the best practices. Prior studies identified other factors that fuel plagiarism; these include gender, academic pressure, lack of comprehension of content knowledge, lack of support from instructors and a lack of analytical skills (Jereb et al., 2018). Therefore, educators in higher education should provide an environment that empowers students to understand what plagiarism entails and how to avoid it, as well as policies to guide them.

## **6. Conclusion**

The major finding of this study was the identification of the predictors of plagiarism practices. The predictors are identified as how well students understand what plagiarism is, as well as the university-wide policies and penalties on plagiarism. Policies are cross-cutting and when well-developed and implemented are likely to instil academic discipline, as well as discourage plagiarism. Based on the findings, one can assume that when students understand plagiarism they are likely not to engage in it, and that policies act as a guide on how to avoid it. Minor findings allude that the sampled students have an understanding of what plagiarism is, are aware of university-wide policies on plagiarism as well as the workshops on avoiding plagiarism. The understanding is expected to go beyond merely copying without correct attribution, to include aspects related to copying of ideas and presenting works that lack originality. The understanding would also be as result of the efforts of the department through workshops and relevant policies to guide students. Therefore, academic

departments are called to do more to create awareness of plagiarism policies and conduct workshops for students and staff as a way of developing non-plagiarism behavior. In addition, non-plagiarism behavior could be developed effectively by including plagiarism in teachings in every module to guide and create awareness.

The findings have implications for university managers. To achieve the level of proficiency where university students do not engage in plagiarism, requires effort from instructors but more from managers or administrators. For instance, universities especially in non-native English regions, may have to invest in writing centres, where students can get quick guidance on their writing. The institutions must also invest in the best plagiarism detection tools, given the increased use of the internet by students. In addition, university management must create an enabling infrastructure where the policies regarding plagiarism can be implemented smoothly to deter academic dishonesty among students. The investments will allow universities to prevent plagiarism as opposed to curing it.

The study collected data from a single university, and at a single point in time. Therefore, the findings and the conclusions made in this study, might not be generalized to all universities. The study can be expanded by collecting data from multiple universities and different regions or countries and to compare the results. Another opportunity is available through a longitudinal study to get a picture of how student perceptions on plagiarism change over time. A future study might also explore how the internet influences plagiarism practices, as well as the effectiveness of the existing policies on plagiarism.

## 7. References:

- Alhadlaq, A. S., Dahmash, A. B., & Alshomer, F. (2020). Plagiarism Perceptions and Attitudes Among Medical Students in Saudi Arabia. *Sultan Qaboos University medical journal*, 20(1), e77-e82. doi:10.18295/squmj.2020.20.01.011
- Ali, A. (2016). UK universities in 'plagiarism epidemic' as almost 50,000 students caught cheating over last year. *The Independent*. Retrieved from <http://www.independent.co.uk/student/news/uk-universities-in-plagiarism-epidemic-as-almost-50000-students-caught-cheating-over-last-3-years-a6796021.html>
- Arce Espinoza, L., & Monge Nájera, J. (2015). How to correct teaching methods that favour plagiarism: recommendations from teachers and students in a Spanish language distance education university. *Assessment & Evaluation in Higher Education*, 40(8), 1070-1078. doi:10.1080/02602938.2014.966053
- Babalola, Y. (2012). Awareness and Incidence of Plagiarism among Undergraduates in a Nigerian Private University. *African Journal of Library, Archives and Information Science*, 22, 53-60.
- Bartley, G. B., Albert, D. M., & Liesegang, T. J. (2014). Choosing Our Words Carefully: Plagiarism in the Internet Age. *Ophthalmology*, 121(4), 807-808. doi:10.1016/j.ophtha.2013.12.031
- Baruchson-Arbib, S., & Yaari, E. (2004). Printed Versus Internet Plagiarism: A Study of Students' Perception *International Journal of Information Ethics*, 1(6).
- Bayaa, M. S. S., Ablordeppey, E., Mensah, N., & Karikari, T. (2016). Academic dishonesty in higher education: Students' perceptions and involvement in an African institution. *BMC Research Notes*, 9, 1-13. doi:10.1186/s13104-016-2044-0

- Bell, S. (2018). Addressing student plagiarism from the library learning commons. *Information and Learning Science*, 119(3/4), 203-214. doi:10.1108/ILS-10-2017-0105
- Chien, S.-C. (2017). Taiwanese College Students' Perceptions of Plagiarism: Cultural and Educational Considerations. *Ethics & Behavior*, 27(2), 118-139. doi:10.1080/10508422.2015.1136219
- Cleary, M. N. (2012). Top Ten Reasons Students Plagiarize & What You Can Do About It. Retrieved from <https://offices.depaul.edu/oaa/faculty-resources/teaching/academic-integrity/Documents/Top%20Ten%20Reasons%20Students%20Plagiarize%2012.pdf>
- Dahiya, S. R. (2015). Academic cheating among students: Pressure of parents and teachers. *International Journal of Applied Research*, 1(10), 793-797.
- Das, N. (2018). Intentional or unintentional, it is never alright to plagiarize: A note on how Indian universities are advised to handle plagiarism. *Perspectives in clinical research*, 9, 56. doi:10.4103/picr.PICR\_140\_17
- de Jager, K., & Brown, C. (2010). The tangled web: investigating academics' views of plagiarism at the University of Cape Town. *Studies in Higher Education*, 35(5), 513-528. doi:10.1080/03075070903222641
- Devlin, M., & Gray, K. (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
- Do Ba, K., Do Ba, K., Lam, Q. D., Le, D. T. B. A., Nguyen, P. L., Nguyen, P. Q., & Pham, Q. L. (2017). Student plagiarism in higher education in Vietnam: an empirical study. *Higher Education Research & Development*, 36(5), 934-946. doi:10.1080/07294360.2016.1263829
- Egan, V. (2008). A Cross-Cultural and Cross-Gender Comparison of Attitudes Towards Plagiarism: The Case of Malaysian and Australian Business Students. doi:10.14456/afbe.2008.6
- Ehrich, J., Howard, S. J., Mu, C., & Bokosmaty, S. (2016). A comparison of Chinese and Australian university students' attitudes towards plagiarism. *Studies in Higher Education*, 41(2), 231-246. doi:10.1080/03075079.2014.927850
- Elander, J., Pittam, G., Lusher, J., Fox, P., & Payne, N. (2010). Evaluation of an intervention to help students avoid unintentional plagiarism by improving their authorial identity. *Assessment & Evaluation in Higher Education - ASSESS EVAL HIGH EDUC*, 35, 157-171. doi:10.1080/02602930802687745
- Eret, E., & Ok, A. (2014). Internet plagiarism in higher education: tendencies, triggering factors and reasons among teacher candidates. *Assessment & Evaluation in Higher Education*, 39. doi:10.1080/02602938.2014.880776
- Evans, J. (2018). South Africa is young and female - Stats SA report. Retrieved from <https://www.news24.com/news24/SouthAfrica/News/south-africa-is-young-and-female-stats-sa-report-20180723>
- Goh, E. (2015). Exploring Underlying Motivations Behind Extreme Cases of Plagiarism in Tourism and Hospitality Education. *Journal of Hospitality & Tourism Education*, 27(2), 80-84. doi:10.1080/10963758.2015.1033101
- Goodwin, J., & McCarthy, J. (2020). Explaining Plagiarism for Nursing Students: An Educational Tool. *Teaching and Learning in Nursing*, 15(3), 198-203. doi:10.1016/j.teln.2020.03.004
- Gullifer, J., & Tyson, G. A. (2010). Exploring university students' perceptions of plagiarism: a focus group study. *Studies in Higher Education*, 35(4), 463-481. doi:10.1080/03075070903096508



- Hopp, C., & Speil, A. (2020). How prevalent is plagiarism among college students? Anonymity preserving evidence from Austrian undergraduates. *Accountability in Research*, 1-16. doi:10.1080/08989621.2020.1804880
- Hosny, M., & Fatima, S. (2014). Attitude of Students Towards Cheating and Plagiarism: University Case Study. *Journal of Applied Science*, 14, 748-757. doi:10.3923/jas.2014.748.757
- Ison, D. C. (2014). Does the Online Environment Promote Plagiarism? A Comparative Study of Dissertations from Brick-and-Mortar versus Online Institutions. *Merlot Journal of online learning and teaching*, 10(2).
- Javeed, A., Khan, A. S., Khan, S. H., & Ghauri, S. K. (2019). Perceptions of plagiarism among undergraduate medical students in Rawalpindi, Pakistan. *Pakistan journal of medical sciences*, 35(2), 532-536. doi:10.12669/pjms.35.2.33
- Jereb, E., Perc, M., Lämmlein, B., Jerebic, J., Urh, M., Podbregar, I., & Šprajc, P. (2018). Factors influencing plagiarism in higher education: A comparison of German and Slovene students. *PLOS ONE*, 13, e0202252. doi:10.1371/journal.pone.0202252
- Kent State University. (2014). Causes of plagiarism. Retrieved from <http://www.kent.edu/writingcommons/causes-plagiarism>
- Lankamp, R. (2009). ESL student plagiarism: Ignorance of the rules or authorial identity problem? *Journal of Education and Human Development*, 3(1).
- Lund, J. R. (2004). Plagiarism. *Journal of Religious & Theological Information*, 6(3-4), 93-101. doi:10.1300/J112v06n03\_08
- McCabe, D. (2005). Cheating among college and university students: A North American perspective. *Int. J. Educ. Integr.*, 1. doi:10.21913/IJEL.v1i1.14
- Mohamed, K., Samat, N. H. A., Aziz, A. S. A., Noor, N. A. M., & Ismail, N. (2018). *Academic plagiarism in Malaysia higher education institutions: legal perspective*.
- Mostrous, A., & Kenber, B. (2016). Universities face student cheating crisis. *The Times*. Retrieved from <https://www.thetimes.co.uk/article/universities-face-student-cheating-crisis-9jt6ncd9vz7>
- Pallant, J. (2013). *SPSS Survival Manual. A step by step guide to data analysis using SPSS*, (4th ed.). England: Open Press University.
- Pallant, J. (2020). *SPSS Survival Manual* (7th Edition ed.). London: Routledge.
- Quispe, T. R., Núñez, E. F. D., Arias, M. G. I., Chávez, D. A., & Cara, M. J. C. (2019). *Attitudes towards Plagiarism in Business Administration Students from Two Private Universities in Arequipa*.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students*. Harlow, United Kingdom ; New York Pearson.
- Singh, N. (2017). Level of awareness among veterinary students of GADVASU towards plagiarism: a case study. *The Electronic Library*, 35(5), 899-915. doi:10.1108/EL-06-2016-0132
- Singh, S., & Remenyi, D. (2016). Plagiarism and ghostwriting: The rise in academic misconduct. *South African Journal of Science*, Volume 112. doi:10.17159/sajs.2016/20150300
- Strittmatter, C., & Bratton, V. K. (2016). *Teaching Plagiarism Prevention to College Students: An Ethics-Based Approach* Connie Strittmatter (auteur), Virginia K Bratton (auteur). London: Rowman & Littlefield Publishers.
- Youmans, R. J. (2011). Does the adoption of plagiarism-detection software in higher education reduce plagiarism? *Studies in Higher Education*, 36(7), 749-761. doi:10.1080/03075079.2010.523457