Knowledge and Practice of Research Plagiarism by Postgraduate Students Specializing in Science at Myanmar Universities

NweNwe Hninn[1]*, Thin Myat Nwe[2], Myint Myint Khine[3] and Mya Thet Mon[4]

[1]Professor, Botany Department, Lashio University,Northern Shan State, Ministry of Education, Myanmar.
Email: dr.nwenwehninn65@gmail.com

[2]Professor, Chemistry Department, Kalay University, Ministry of Education, Myanmar.
Email: thinmyatnwe67@gmail.com

[3]Associate Professor, Chemistry Department, East Yangon University, Ministry of Education, Myanmar.
Email: mmkhine.mm@gmail.com

[4]Lecturer, Chemistry Department, Sagaing University of Education, Ministry of Education, Myanmar.
Email: drmyathetmon@gmail.com

*Corresponding author: dr.nwenwehninn65@gmail.com

Abstract

Plagiarism is the use of concepts, words, manuscript and data without acknowledgment of the original source. It has become a worldwide problem, and a contentious matter in university education and research. The study aimed to improve knowledge, skills, and practice of postgraduate students specializing in Science towards research plagiarism in academic writing. Based on the experience of the Science faculty, some graduate students are insufficiently aware of the boundaries of plagiarism. In the interest of preventing an unfortunate problem, this research attempts to clarify what plagiarism is and how it may be avoided. Thus, the prevalence of research plagiarism still remains as an area of interest. Research misconducts such as plagiarism might lead to serious outcomes exhibiting a negative effect on the related Science. In this study, we evaluated participants from different Science disciplines examining both the knowledge and practice towards plagiarism. The present study used postgraduate students and academics from Science specializations to collect data by conducting questionnaire survey with students and follow-up interviews with supervisor academics. A study for duration of 10 months was conducted in selected Universities where volunteers answered questionnaires anonymously. There were following four sections in the questionnaire: (a) demographic data, such as gender and specialization; (b) three statements regarding knowledge; (c) three statements regarding practice; and

(d) ten reasons of committing plagiarism. The sample size of the study was 99 participants, among which 26 were males and 73 females with 80 Science students and 19 Supervisors. Overall, only 67% of the participants were aware of the meaning of plagiarism. When asked on how science students practice or understand research plagiarism, 82% of the respondents are aware of the negative consequences of plagiarism. However, majority of the participants (70%) shared their work with friends before submission and did not consider it any harm to show their work to others regardless of copying. Over 80% of the students reported the lack of research plagiarism workshop. Students also mentioned that there is an insufficiency of training in both research ethics and research writing for them. The results show although they have positive attitude, postgraduate students might plagiarize due to time constraints and lack of knowledge about research plagiarism.

Keywords: Knowledge and practice, Research plagiarism, Postgraduate students, Science specializations, Myanmar Universities

Introduction

Two different acts are considered plagiarism: (i) to borrow someone's ideas, information, or style without citing the source, and (ii) to cite the source but borrow choice words and sentence structure without using quotation marks to indicate the borrowing. It is not enough to name the source; authors must quote the source exactly in quotation marks or they must paraphrase its meaning completely in their own words. There can be multiple reasons for getting involved in academic misconduct of plagiarism include ferocious competitive academic environment, external pressure, poor time management, and the impractical deadlines. Zafarghandi et al. (2012) found that the common forms of plagiarism committed by students included paraphrasing without acknowledging sources, omitting quotation marks in direct quotes, patch-writing, and presenting secondary citation as if the original source had been consulted. Therefore, the developed countries are provided

with better training, superior research environment, and availability of software for detection of plagiarism. Even though, it is not easy to determine the prevalence of plagiarism, but this phenomenon can be better understood by conducting investigations on the knowledge and practice of the participants. When it comes to Myanmar students, it was observed that an increased number of students were not only implicated in copying

word to word data from the internet, senior peers, and class mates with or without their permission but were also caught up with making up false data to exhibit favorable results. Therefore, the aim of the current study was to encourage proper training of students towards plagiarism. According to Zafaghandi et al. (2012), the majority of students committed plagiarism unintentionally because of poor knowledge of plagiarism. According to the literature, students commit plagiarism because of various reasons including pressure to meet deadlines; lack of knowledge among students of what constitutes plagiarism; lack of good academic writing skills; convenience (Internet makes "copy and paste" easy); the high cost of studying; pressure from family; too much academic work; pressure to score high grades; laziness; poor design of assignments by lecturers; and inconsistencies in application of penalties to plagiarists (Park. 2003).Some of the ways suggested by (Devlin. 2006) to control plagiarism include: the need by universities to set clear definitions of what constitutes plagiarism and the corresponding penalties applied to each plagiarism offence, and putting in place a formal policy on how plagiarism should be handled by all university stakeholders including lecturers, students and administrators. There is also a need to have dedicated classes aimed at teaching students rules and standards of academic writing. Other researchers such as Roberts (2008), have suggested that lecturers can play a greater role in dealing with plagiarism by designing assignments that require students to apply high level writing skills rather than "copying and pasting" thereby making it very difficult for them to plagiarize. An agreement has been reached in the literature that educating students on good academic writing skills and raising awareness on the negative effects of plagiarism are the best strategies to deal with plagiarism (Walker. 2010). Some studies have shown that students continue to commit plagiarism after undergoing such training or classes. University's disciplinary committee which has a mandate to suspend or dismiss the student. As already noted, most students committed plagiarism due to lack of academic writing skills and this made lecturers to be lenient to the plagiarists. A comment that follows represents many similar comments made by most academics: "...punishing students for something which they were not taught initially may seem so unfair...". Another comment from an academic agreed that "...as I said already you need to begin to train your students [in good academic writing]". This study makes use of these factors to investigate postgraduate students' knowledge and practice of research plagiarism. Considering

the research gap identified, we formulated three research questions to help answer the research problem as follows:

(i) How knowledgeable are postgraduate students about research plagiarism?

(ii) How do the students practice their knowledge and understanding of research plagiarism?

(iii) Why do postgraduate students commit research plagiarism?

Research Methodology

A study based on a questionnaire and interview survey was conducted on not only students but also supervisors for the duration of 8 months. The questionnaire consisted of 16 comprehensive questions which were specifically designed to determine the knowledge and practice of participants regarding various forms of plagiarism and its consequences. Participants were asked to rate themselves (self-reporting) on a Likert scale as regards to each item hence percentages were calculated based on each item's total. The authors distributed the questionnaire to random students once the regularly scheduled classes ended. Once the aims and objectives of the study were explained, a verbal informed consent was obtained, and the participants were given ample time to fill out the complete form.

Similarly, supervisors were also surveyed with interview by using the same methodology. To encourage truthful responses, the participants were taken into confidence and guaranteed total anonymity with record of only their area of expertise. There were 80 total number of volunteer Science students and 19 research supervisors participated in this study.

2.1 Demographic Profiling

We sent a questionnaire to 100 postgraduate students, of which 80 (80%) questionnaires were returned. Follow up interviews were conducted with 19research supervisors.

Table 1 Demographic data of postgraduate student participants of Science specializations at Master's degree course (n=80)

SN	Demographic Data		Data	
			Number	Percentage
1	Specializations	Physics	11	13.75%
		Chemistry	18	22.50%
		Mathematics	10	12.50%
		Zoology	12	15.00%
		Botany	19	23.75%
		Industrial Chemistry	10	12.50%
2	Gender	Male	21	26.25%
		Female	59	73.75%

Table 2 Demographic data of Science faculty participants (n=19)

SN	Demographic Data		Data	
			Number	Percentage
1	Specializations	Physics	2	10.53%
		Chemistry	5	26.32%
		Mathematics	4	21.05%
		Zoology	3	15.79%
		Botany	4	21.05%
		Industrial Chemistry	1	5.26%
2	Gender	Male	5	26.32%
		Female	14	73.68%

Results

1. Knowledge of Research Plagiarism

Overall, most of the participants are aware of the meaning of plagiarism, this knowledge is not fully applied in practice. Since the literature show that there is no universal definition of plagiarism, we presented students with a list of statements from which they were asked to indicate which statements best describe what they think plagiarism is and is not. Knowledge of the participants about research plagiarism that would improve their writing skills and prevent plagiarism from occurring has been explored through three question items.

Research Question (i) : How knowledgeable are postgraduate students about research plagiarism?

Table 3 Students' knowledge (cognitive) of what constitutes research plagiarism (n=80)

SN	The statements best describe what we think plagiarism is and is not.	Responses	
		Agree	Disagree
1	Using ideas of someone without citing the original author	61%	39%
2	"Copy and paste" from books or Internet sources without citing sources	71%	29%
3	Using words of someone without citing the original author	69%	31%
	Average	67%	33%

Findings revealed that (61%) students agreed with the definition of using ideas of someone without citing the original author, (71%) students agreed with the definition of "copy and paste" from books or Internet sources without citing sources and (69%) agreed with the definition of using words of someone without citing the original author (percentages were calculated based on number of respondents of that item). It is a good development that students understand what constitutes plagiarism because according to the theory of social cognitive learning, an aspect of reciprocal causation explains that students' knowledge (cognitive) of what constitutes plagiarism may influence their decision

not to plagiarize (behavior). In fact, Leask (2006) established that lack of understanding of plagiarism concepts increases the chances of students plagiarizing. However, 33% were not aware at all.

2. Practice of Knowledge and Understanding of Research Plagiarism

The use of plagiarism avoiding techniques can be helpful to maintain academic integrity, a better learning environment and intellectual honesty. Thus, students' practice of their knowledge and understanding of research plagiarism has been investigated.

Research Question (ii): How do the students practice their knowledge and understanding of research plagiarism?

Table 4 Students' practice on their knowledge and understanding of research plagiarism (n=80)

SN	Items	Responses		
		Agree	Not Sure	Disagree
1	I am aware of the negative consequences of research plagiarism.	82%	10%	8%
2	I share my research work with friends before submission and did not consider it any harm to show my work to others regardless of copying.	70%	11%	19%
3	I am aware of the university policies, systems and procedures for involving plagiarism matter with an increased awareness.	68%	21%	11%

When they were questioned on whether they were aware of the negative consequences of research plagiarism, 82% of the respondents agreed to the consequences. However, 70% of the participants shared their work with friends before submission and did not consider it any harm to show their work to others regardless of copying. Nevertheless, 68% of them believed that they were aware of the university policies, systems and procedures for involving plagiarism matter with an increased awareness.

3. Reasons of Committing Research Plagiarism

Kwong et al. (2010) informed that students will commit various forms of plagiarism because of various reasons which include laziness, poor time management, lack of good academic writing skills, lack of knowledge of plagiarism, and pressure to score good grades. As reported in the data, students are reported to have committed various forms of plagiarism. The study established that students plagiarized even though they were aware that plagiarism is a serious offence in the academic domain.

Research Question (iii): Why do postgraduate students at University commit plagiarism?

Table 5 Science students' responses towards reasons of committing plagiarism (n=80)

SN	Reasons students commit plagiarism	Responses		
		Agree	Not Sure	Disagree
1	Lack of research plagiarism training workshop	81%	11%	8%
2	Pressure to meet deadlines	52%	22%	26%
3	Lack of good academic writing skills	49%	21%	30%
4	Convenience (Internet makes "copy and paste" easy)	57%	24%	19%
5	High cost of studying	1%	23%	76%
6	Pressure from family	2%	18%	80%
7	Too much academic work	15%	28%	57%
8	Pressure to score high grades	12%	12%	76%
9	Poor design of assignments by lecturers	41%	33%	26%
10	Inconsistencies in application of penalties to plagiarists	6%	15%	79%

The reasons students commit research plagiarism have been shown in the above table. The data concluded that the majority of science students committed plagiarism because of the lack of research plagiarism workshop (81%) followed by convenience to makes "copy and paste" easily from Internet (57%) and pressure to meet deadlines (52%). They mentioned that there is an insufficiency of training in both research ethics and research writing for them. As a part of the postgraduate science curriculum, research writing and research ethics is lacking.

Table 6 Research supervisors' interview responses towards reasons of plagiarism that students commit (n=19)

SN	Items	Responses		
		Agree	Not Sure	Disagree
1	Fail to detect students' acts of plagiarism by academic staff	23%	19%	58%
2	Poor time management	62%	20%	18%
3	Lack of good academic writing skills	47%	22%	31%
4	Lack of knowledge of research plagiarism	71%	16%	13%
5	Pressure to score good grades	17%	32%	51%

Majority of the student participants believed that they could manage their research easily along with having sufficient time to write about the topic. However, data show that most students (62%) could not manage their time. Some reported that there are over 40%students who were likely to lack the good academic writing skills.

A study by De Jager and Brown (2010) categorized students copying from each other as intentional plagiarism whereas copying without citing sources was categorized as unintentional because students plagiarized due to ignorance or incompetence. In this study, findings from students established that most students plagiarize because of lack of research plagiarism training workshop and convenience to make copy and paste easily from the Internet while some students plagiarize due to the pressure to meet deadlines. However, supervisors think that lack of academic writing skills (to cite, paraphrase, summarize or write references), poor time management and lack of knowledge of research plagiarism are reasons that students commit. It was also revealed during follow-up interviews with supervisor academics that students commit plagiarism because most academic staff fail to detect students' acts of plagiarism. This study established, during follow up interviews with academic staff, that lecturers fail to detect every case of plagiarism due to workload because most lecturers handle big classes within a semester. Ryan et al. (2009) observed that it is difficult for lecturers to detect cases on plagiarism in large classes where lazy students are fond of making benefit from friends without making any contribution.

Similar findings were reported by De Jager and Brown (2010) and they categorized students copying from each other because students plagiarized due to ignorance or incompetence. In Botswana where Batane (2010) found that students plagiarized after seeing that their friends were not caught, and hence concluded that academic staff do not take issues of plagiarism seriously. An environment created by teachers' behavior can encourage or discourage students' decisions and behavior (Bandura. 1999). This means that if academics create an environment that detects and punishes plagiarism, they can influence students' decision and behavior not to plagiarize. This is the reason some higher education stakeholders advocate for the design of assignments that will prevent students to just "copy and paste". According to follow-up interviews with academic staff, one common reason students commit plagiarism is because of the ease of "copying and pasting" online content. Many lecturers observed that students are always under pressure to meet due dates, score good grades or any other pressure and they resort to the content available on the Internet where they just "copy and paste". Many previous studies have explained that the avalanche of information on the internet makes plagiarism conveniently easy and tempting for students (Walker. 2008)

and some students will "copy and paste" because they want to save time for other assignments and do other personal things (Batane. 2010).

Discussion

Findings reveal that students rated themselves as generally good in paraphrasing, summarizing, citing and referencing sources and they are aware of the negative consequences of research plagiarism. However, it was reported from the interviews with academic staff that students were not good at paraphrasing, summarizing and citing and they are lack of good academic writing skills. Findings from follow-up interviews corroborated the findings from students because the academic staff confirmed that students are not taught how to cite or reference using software. According to data, although most students rated themselves to be good at referencing and citation, an analysis of their written papers (theses) showed failure to adhere to rules and standards of academic writing. Likewise, in this study, we conclude that students who plagiarized because of lack of research plagiarism training workshop and pressure to beat assignment deadlines did it intentionally whereas those who plagiarized due to lack of good academic writing skills did it unintentionally. In order to understand

research plagiarism, there is a need to understand some rules and standards of academic writing because the literature shows that students commit plagiarism because of their failure to adhere to rules and standards of academic writing. The study established that many students plagiarized because they lacked academic writing skills as reported by students and academics. The problem is that postgraduate students with diverse backgrounds, that is, from universities that may not have exposed students to good academic writing skills with perhaps a different referencing style from that in a department or faculty. In addition, the level and depth of academic writing at postgraduate level is quite different from that required at undergraduate level. Training is important because according to social cognitive learning theory, which is informing this study, its element of modeling emphasizes the need for guidance which helps transmit language, mores, social practices, and adaptive competencies. Modeling focuses on how well new behavior is learned when the more experienced demonstrates the activity first then allows the learner to practice (Bandura. 1999). In this context, students need to be taught good academic writing skills by academics because currently, their writing is based on trial-and-error experiences, which according to (Bandura. 1999) is very costly

and unacceptable.

Conclusion

This research regarding plagiarism in the higher education system of Myanmar was sharply limited by the difficulty in recruiting participants. In some cases, this unwillingness to participate may have stemmed from a desire to avoid admitting problems and, due to structural issues, from the lack of resources to address these problems. Within the limited scope of our research, however, it was apparent that university academics and administrators are aware of plagiarism and academic misconduct but the education system still lacks the maturity to acknowledge and deal with the problem effectively throughout the country. Although limited to selected institutions, the study sheds light on the nature and extent of the problems that affect academia and students in Myanmar. The results of our study are, however, reflective of the extent of a problem that exists countrywide within our communities. Answers to our questionnaire revealed that more than half of the respondents did not lack knowledge about the most basic principles that constitute plagiarism. Even better, was our finding that this lack of knowledge appeared to be equally distributed among students. Despite of satisfactory results, in Myanmar, at the postgraduate level there is a lack of

training in research methodology and in the publication ethics. The point of thinking is that despite of getting knowledge easily, now a day, still, there are some candidates, who do not have knowledge about one of the most important factors. When it came to improving skills and avoiding plagiarism, majority of the supervisor participants believed that increasing the number of research assignments would improve the students' skills regarding plagiarism as it would enhance their writing skills. There is evidence to suggest that owing to the lack of language proficiency; most of the students tend to copy word for word from either other people's work or from learning resources. Similarly, in this study, participants reported lack of awareness of Myanmar university students regarding software for plagiarism detection. Plagiarism can only be decreased once its etiology is properly understood. Despite the increased percentage of knowledge regarding plagiarism, more than 80% of the participants still believed that they need some guidance / workshop regarding plagiarism. In Myanmar, the obligatory training workshops for trainees and supervisors held at the university do not effectively deal with plagiarism and writing unethical practices. Majority of the students in our study believed that they need formal training in research ethics in writing. On the other hand, even though most of the students had undergone proper education regarding research writing and research ethics, they also approved the need to further workshops. Even though most of the participants were aware of their university's policies, systems and procedures for involving plagiarism matter, nevertheless, 70% of the participants equally shared their work with friends before submission. Even institutions such as Harvard University USA have reported instances of students and professor's expulsion owing to plagiarism.

Recommendations

Furthermore, to promote a research environment in Myanmar, the revision of postgraduate curriculum should also be considered which could consist of research methodology, referencing and analytical methods. We also recommend increasing the study data on national level, not only to give awareness about plagiarism but also to prepare the new generation, deal with it properly specially in research and post-graduate level. The study concluded that students overestimated their level of ethical and legal academic writing abilities. The danger with students overrating their academic writing is that they may not appreciate deficiencies in their academic writing abilities, and consequently, they may con-

tinue to commit plagiarism unintentionally. Poor understanding of research plagiarism on the part of students put them at a higher risk of plagiarizing. This study has found that students have a conceptual understanding of what constitutes plagiarism, in terms of its definition and forms. According to the study, all students regard plagiarism as a serious academic offence. However, the study found that students admitted having intentionally or unintentionally committed plagiarism. Based on the findings we recommend the followings:

（ i ） Introducing advanced training of information literacy to postgraduate students that teach advanced academic writing such as summarizing, synthesizing and referencing.

（ ii ） Carrying out awareness campaigns about the negative effects of plagiarism to postgraduate students and academics.

（ iii ） Encouraging academic staff to report cases of plagiarism to the university so that they can be dealt with holistically at institutional level.

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