Investigating Academic Plagiarism in a Thai Context

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Abstract

In response to one of the research plans in Thailand's 2012–2016 National Research Policy and Strategies report, this paper presents causal-comparative research utilizing mixed-method triangulation covering investigations of academic plagiarism in a university in Thailand. In the four-phase project, valid data were collected from 277 participants – 226 interdisciplinary postgraduate students and 51 native-English and Thai instructors of English during the 2013 and 2014 academic years. Although there was no significant difference in the perception of plagiarism in both groups of science/social science students and high/limited achievers and no significant difference among disciplines in their actual practice of plagiarism, a significant difference in the actual practice of plagiarism was found in the group of high and limited achievers [t(57.94) = -13.74, p < .05, d ≈ 0.80]. It was determined that affective-psychological and environmental-situational factors influenced plagiarism. Alternative measures for plagiarism prevention are suggested based on the study findings.

1 Introduction

With the establishment of the ASEAN Economic Community, doubts have arisen over the readiness of Thailand's educational institutions to produce accredited university graduates. In the globalized education, virtue and morality are regarded as core human values for well-educated students in the 21st century (Gardner, 2007, as cited in Puengpipattrakul, 2013, p. 39). Thailand has launched several national agendas for the ethical underpinning of higher education. "Honesty and academic integrity" have been promoted as desirable characteristics of Thai and global citizens in the Basic Education Core Curriculum (Ministry of Education, 2008, p. 7).

Plagiarism is one of the contemporarily academic challenges nationally and internationally because it undermines academic trustworthiness. The ramifications of the issue of plagiarism in academic writing have been debatable in a variety of academic disciplines (e.g. Phan, 2006; Liu, 2005) as has students' English language proficiency (e.g. Li, 2013a; Plakans & Gebril, 2012) in EFL contexts. On the one hand, there seems to be neither serious action nor a consistent policy for plagiarism prevention in most tertiary educational institutions in Thailand (Limjirakan, Young, & Tontakul, 2010; Thep-Ackrapong, 2005). On the other hand, serious consideration of the importance of academic integrity in Thailand has been stipulated in the 8th National Research Policy and Strategy for the period 2012 to 2016 (National Research Council of Thailand, 2014). Notwithstanding the growth in demand for higher education in Thailand year after year (Office of the Higher Education Commission, 2012), there are only a small number of research studies on plagiarism of Thai students at the undergraduate level (Koul, Clariana, Jitgarun, & Songsriwittaya, 2009; Wiwanitkit, 2008) and the postgraduate level (Srisati, 2003) in the Thai context. Within Thai higher education, students at the postgraduate level have greater exposure to EAP (English for Aca-

demic Purposes) writing, including academic essays, research reports and theses, than those at the undergraduate level. It would be useful to investigate the plagiarism continuum from the perception to the actual practice of plagiarism among Thai university postgraduate students in Thailand.

2   Academic plagiarism: Optimistic or pessimistic judgments

2.1   *Understanding academic plagiarism*

The term "academic plagiarism" is denoted as the act of copying and putting an idea or academic work in a writer's own work without stating the original source of the idea and the work (Phan, 2006; Shi, 2011; Song-Turner, 2008). In this study, affective-psychological and environmental-situational constructs may constitute the act of plagiarism by second-language and foreign-language learners (Check & Schutt, 2012; Harwood & Petric, 2012; Pecorari, 2013). The two constructs are inter-connected as shown in Figure 1.
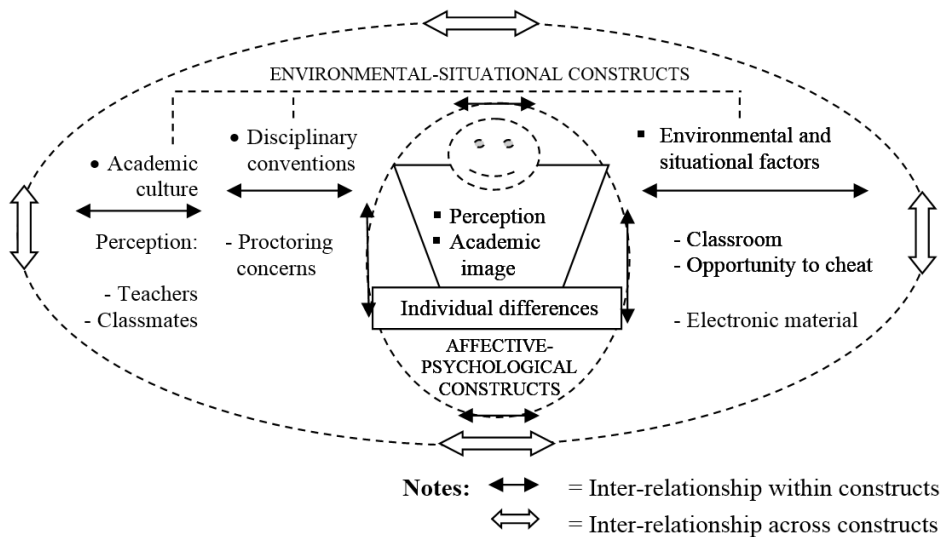

Fig. 1. The synthesis of constructs underlying plagiarism

The affective-psychological constructs in from Figure 1 outlining a learner's inner state of mind cover academic image and perceptions of plagiarism. As regards academic image, according to Harwood and Petrić's (2012), and Shi's (2011) studies on students' citation behaviors in source-based writing, the students' need or desire to gain academic acceptance and credit for being perceived to be participants in scholarly discourse communities is considered a major reason why the students plagiarized. Moreover, to more easily gain academic credibility, student writers need to be sufficiently proficient at reading and writing to understand the source texts and be able to complete source-based writing (Li, 2013a; Plakans & Gebril, 2012; Weigle & Parker, 2012). In addition to literacy skills proficiency, the student writers' English language proficiency is of concern because native and non-native English writers have different levels of difficulties in academic English writing (Wood, 2001).

Next, environmental-situational constructs which are related to contextual variables outside the learner include academic culture, disciplinary conventions, and the availability of electronic material. From Figure 1, in different environmental and situational contexts, teachers from different academic cultures have dissimilar perceptions of textual borrowing or plagiarism (Nelms, 2015; Song-Turner, 2008; Weigle & Montee, 2012). The variations in disciplinary conventions also provide different structures of academic knowledge (Bernstein, 1999). Furthermore, English is also

utilized worldwide in online searches for information. The availability and the development of electronic material also influence the act of plagiarism (Pecorari, 2013; Power, 2009). The fact that some electronic material has copyright restrictions has been claimed as a cause of plagiarism (Pecorari, 2013). This is because an increase in the availability of electronic material and online services provides opportunities for cheating by L1 and L2 students (Schmelkin, Gilbert, Spencer, Pincus, & Silva, 2008; Sutherland-Smith, 2008).

2.2   *Determining academic plagiarism*

In this study, there are two main means of plagiarism detection in students' English language literature reviews: human judgment and electronic detection (Chulalongkorn University, 2011). Human judgment was based on the teachers' and/or raters' common sense and documentation strategies. The use of common sense, or ability from knowledge and experience in a sensible way, influences the validity and reliability of the writing assessment (Li, 2013b; Weigle & Montee, 2012). Next, documentation strategies cover three documentation approaches (i.e. direct quotation, summarizing, and paraphrasing) and the incorporation of source materials through documentation styles (Moore & Cassel, 2011; Ruszkiewicz, Walker, & Pemberton, 2006). Documentation styles include citation and reference styles (e.g. APA and MLA). In addition to human judgment, electronic detection tools (e.g. Turnitin) can be used (Li, 2013b; Stapleton, 2012).

3   Methodology

This research project, which had an ex post facto (causal-comparative) research design, employed mixed-method triangulation (Creswell, 2007). The research procedure involved deductive and inductive reasoning (Check & Schutt, 2012) to establish the research questions (Part 4 and Appendix 3). Figure 2 summarizes the applied research design and the study procedure.
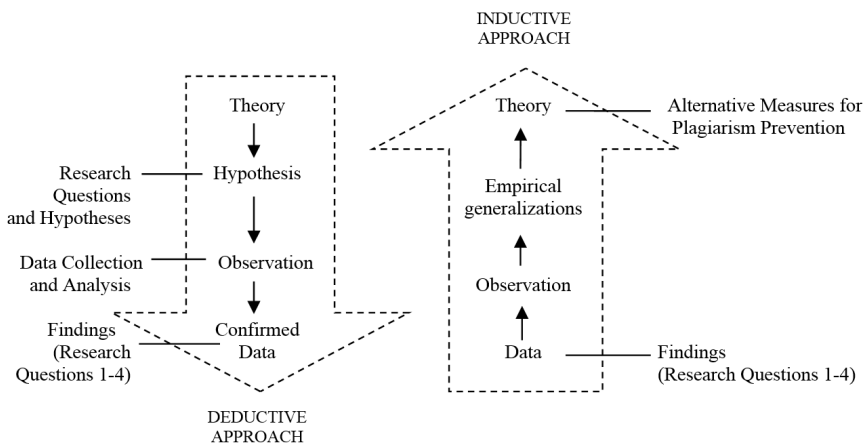

Fig. 2. Applied research design and procedure

3.1   *Research context and purposes*

The project covers the pilot study and the main study, each of which contained two phases, conducted in a public university in Thailand from June 2013 to December, 2014. In this paper, the main study aimed at (i) investigating and comparing the perception of academic plagiarism among Thai postgraduate students from interdisciplinary studies; (ii) evaluating and comparing the students' actual practice of plagiarism; (iii) explaining and identifying contributory factors influenc-

ing plagiarism; and (iv) devising and constructing alternative measures for plagiarism prevention in the Thai context.

3.2   Research data and framework

The research data for the project were collected with the informed consent of the student and teacher participants as shown in Table 1.

Table 1. Data collection

Four phases: Semester/Academic year	Data distribution	Data collection (Complete information for data analysis)	
Pilot study Phase 1: 1/2013	- Step 1: Consent form and learner evaluation form (n = 35)		- IOC validity check (by three experts) - Reliability index (α-coefficient) = .86
	- Step 2: Learner writing test (n = 35) (adapted from Ruszkiewicz et al., 2006: 362) (Appendix 1)		- IOC validity check (by five experts: 2 NE and 3 Thai lecturers of English) - Readability level = 10.8 (https://readability-score.com/text/)
	- Step 3: Learner interview (n = 3)		Three students (i.e. one student per course)
Phase 2: Summer/ 2013	- Step 4: Cover letter and Instructor questionnaire (n = 3: 1 NE and 2 Thai instructors)		- IOC validity check (by three experts) - Reliability index (α-coefficient) = .89
	- Step 5: Instructor interview (n = 3)		One NE and 2 Thai instructors
Main study Phase 1: 2/2013	- Step 6: Consent form and learner evaluation form (n = 295)	Qt	196 returned copies with valid responses out of 219 (i.e. 96 EAP1, 89 EAP2, and 11 EAP3 students) - Science and social science groups - High and limited achiever groups
	- Step 7: Writing test (n = 219)		153 returned copies with valid responses out of 196 (i.e. 51 EAP1, 95 EAP2, and seven EAP3 students)
	Notes - The test was administered in class on the same day and at the same time by course instructors. - The test scripts were assessed by two experienced raters whose inter-rater reliability index was .88 (p < .01) using plagiarism assessment criteria (Appendix 2).		
	- Step 8: Learner interview (n = 6: two groups per course)	Ql	- 3 high achievers (i.e. doctoral $H1_{EAP1}$, Master's $H2_{EAP2}$, and doctoral $H3_{EAP3}$) - 3 limited achievers (i.e. Master's $L1_{EAP1}$, doctoral $L2_{EAP2}$, and Master's $L3_{EAP3}$)
Phase 2: 1/2014	- Step 9: Cover letter and Instructor questionnaire (n = 80)	Qt	48 returned copies (i.e. 14 NE and 34 Thai instructors)
	- Step 10: Instructor interview (n = 19)	Ql	19 teachers from three courses (i.e. 8 NE and 11 Thai instructors)

Notes: 1. IOC = Index of item-objective congruence checklists to test instrument validity.
   2. Qt = Quantitative analysis; Ql = Qualitative analysis
   3. The Thai-version learner-evaluation form copies were distributed to students in EAP1 and EAP2 while the English-version ones were given to those in EAP3.

As summarized in Table 1, in the pilot and main studies of the four-phase project, 413 survey forms were distributed, comprising 330 learner-evaluation forms for students and 83 question-naires for instructors. However, out of the 413 survey forms, only 277 complete and valid respons-es were collected from the participants (i.e. 226 students from three postgraduate English-language writing courses – 30 from the pilot study and 196 from the main study and 51 instructors of Eng-lish – 3 instructors from the pilot study and 48 from the main study).

During the two-phased pilot study, the research instruments that were designed and developed by the researcher were tested for validity and reliability before their actual use in the main study (see Table 1). The research framework for the main study for the 2013 and 2014 academic years is shown in Figure 3.
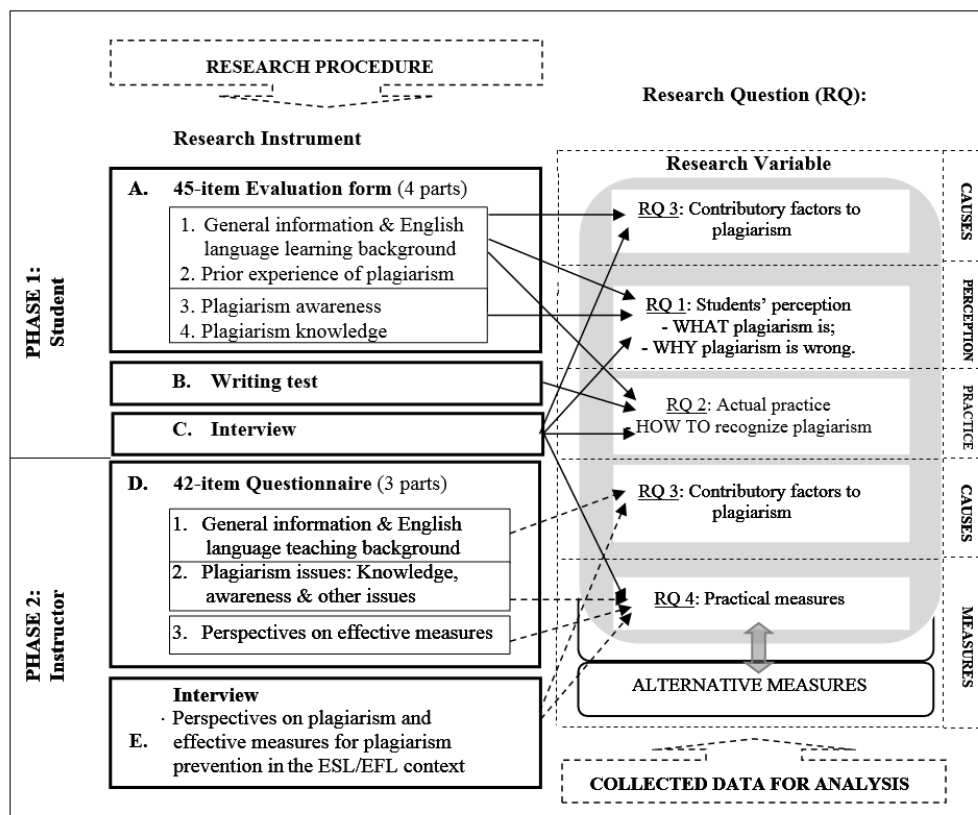

Fig. 3. Research framework

As shown in Figure 3, the participants and research instruments were summarized based on two phases of the main study.

In the second semester of the 2013 academic year, Phase 1 was conducted in three EAP writing postgraduate classes (i.e. EAP1, EAP2, and EAP3). These three courses which were to provide students with the writing skills to produce academic literature reviews covered source-based writ-ing strategies (e.g. paraphrasing, summarizing, quotations, and in-text citations). The EAP1 and EAP2 courses were provided to both English and non-English major Master's and doctoral stu-dents while EAP3 was for English majors (Table 1). To answer the four research questions, three research instruments (i.e. learner evaluation form, writing test, and one-to-one semi-structured interview) were used to collect data from different numbers of the student groups based on major fields of study (i.e. science and social science) and levels of English proficiency (i.e. high and lim-

ited achievers) (Appendix 3). Phase 2 was undertaken in the first semester of the 2014 academic year with 80 Thai (T) and native-English (NE) instructors of English writing courses including those who taught in the three postgraduate courses (i.e. EAP1, EAP2, and EAP3). Valid quantitative data were collected from 48 teachers using a questionnaire while qualitative data were obtained from 19 participants through an interview process (Table 1 and Appendix 3).

4   Results and discussion

This research project, which had an ex post facto (causal-comparative) research design, employed mixed-method triangulation (Creswell, 2007). The research procedure involved deductive and inductive reasoning (Check & Schutt, 2012) to establish the research questions (Part 4 and Appendix 3). Figure 2 summarizes the applied research design and the study procedure.

4.1   Perception – awareness and knowledge – of academic plagiarism: Do the students have a significant difference in their perception of plagiarism in English language learning? If so, to what extent?

The rate of return exceeded 74% (219 out of 295 distributed copies of the learner evaluation form). A total of 196 forms with complete and valid responses were selected for an analysis of the students' plagiarism perceptions (Appendix 4). The investigation of the perception of plagiarism, covering both awareness and knowledge (Research Question 1, Appendix 3), found no statistically significant difference between the participant groups based on their major fields of study (i.e. 125 science and 71 social science participants) and levels of English language proficiency (i.e. 61 high and 135 limited achievers). In other words, there is no significant difference in perception of plagiarism between the participants who were grouped on their major fields of study ($H_0: \mu_{Sc} = \mu_{SSc}$) or levels of English language proficiency ($H_0: \mu_H = \mu_L$). In addition to the statistically non-significant difference in the students' quantitative results, the qualitative findings also showed that most students had a similar perception of plagiarism. The additional qualitative data were gathered by purposive-sampling selection of the group that produced a statistically significant quantitative result. That is, after a statistically significant result for the actual practice of plagiarism in the group of high and limited achievers (Section 4.2) was obtained, six participants were randomly selected on a voluntary basis from these groups. Referring to qualitative findings, most high and limited achievers (approximately 67%) shared similar perspectives on plagiarism in similar directions of incomplete aspects of perception of plagiarism. That is, participants $H1_{EAP1}$, $H3_{EAP3}$ and $L1_{EAP1}$ were aware of, but still confused about and unsure of, the act of plagiarism, while another participant in the limited achiever group, participant $L2_{EAP2}$, admitted her understanding but claimed unawareness of plagiarism.

The statistically non-significant difference in the perception of plagiarism among the participants as a group or within specific groups (i.e. both science/social science and high/limited achiever groups) may be due to the following factors.

4.1.1   Unawareness of the act of plagiarism

The students' lack of awareness of plagiarism is evident from most of their responses on the evaluation form and from the interviews of their experience of plagiarism. On the evaluation form, most respondents revealed their inexperience with the issue of academic plagiarism (90.80% of 196), lack of training on preventing plagiarism (72.40%), and lack of understanding that they were committing plagiarism (64.30%). Additionally, what the participants revealed in their interview responses was consistent with what Dawson and Overfield (2006) found in their study. That is, some students did not always know or realize which case was or was not plagiarism.

4.1.2 Insufficient knowledge and skills for academic and source-based writing

The results showed that most students could not identify six out of the nine cases regarding plagiarism knowledge. Only three items (i.e. Items 36, 38, and 44) were correctly rated in the same range as the suggested answers in the "Plagiarism?" column (Appendix 4). As reported by Eret and Gokmenoglu (2010), and Park (2003), lack of plagiarism knowledge and foreign language difficulties were regarded as factors influencing plagiarism. Power (2009) however insisted that the students who committed plagiarism did not always intend to cheat or to be dishonest since they did not fully comprehend the concept of plagiarism. Similarly, as Sutherland-Smith (2008) found, some students did not intentionally plagiarize but were acquiring knowledge and writing skills that they initially lacked.

4.2 Actual practice of academic plagiarism: Do the students have a significant difference in their actual practice of plagiarism in English language learning? If so, to what extent?

To determine the participants' actual practice of plagiarism (see Research Question 2, Appendix 3), a quantitative analysis was carried out on the relevant valid data in 153 out of the 196 returned learner evaluation forms (see Table 2). The 153 written test-scripts of the students were assessed utilizing plagiarism assessment criteria (see Appendix 2) and Turnitin.

4.2.1 The groups of science and social science participants

A total of 122 female (62.2%) and 74 male (37.8%) postgraduate students were selected for a descriptive analysis of their background information. Most participants were studying science in the Faculty of Science (i.e. 44 students or 22.4%) or social science in the Faculty of Education (i.e. 34 students or 17.3%). The non-significant result in the average writing-test scores of 96 science and 57 social science participants out of the 153 in the present study was not consistent with those in the studies by Bernstein (1999) and Wood (2001) on the influence of writing conventions on disciplinary source-based writing in discourse communities. As Dawson and Overfield (2006) explained, students could perceive plagiarism differently because of their varied demographic backgrounds, academic backgrounds, and mode of study. In the current study, since the majority of the science and the social science groups (i.e. approximately 89%) had both inadequate knowledge and experience of academic plagiarism in common, they might not have fully acquired the discourse structures and rhetorical writing patterns used in their discipline-specific writing (Eret & Gokmenoglu, 2010; Power, 2009; Sutherland-Smith, 2008). As Flowerdew and Li (2007) noted, differences in disciplinary writing between the natural sciences and the humanities are a challenge for those engaged in textual borrowing.

4.2.2 The groups of high and limited achievers

Proficiency in source-based writing is regarded as a necessary literacy skill for university students (Weigle & Parker, 2012; Wette, 2010). An analysis of the high and limited achiever groups' actual practice of plagiarism is shown in Table 2.

Table 2. High and limited achiever groups' actual practice of plagiarism

Participants	Actual practice of plagiarism		t	df	Sig.	Cohen's d	Effect-size r
	Mean	SD					
High achiever (n = 39)	63.26	13.15	-13.74*	57.94	0.00	2.6473	.7978*
Limited achiever (n = 114)	30.95	11.18					

Note: p < .05

As shown by an independent-samples *t*-test in Table 2, the average score for actual practice of plagiarism was significantly higher for higher achievers (*M* = 63.26, *SD* = 13.15) than for limited achievers (*M* = 30.95, *SD* = 11.18), *t*(57.94) = -13.74, p < .05, effect level *d* ≈ 0.80. The high achiever group with sufficient proficiency in writing could be expected to acknowledge a source correctly while the limited achiever group might be predicted to be unable to acknowledge the source in the writing test (Li, 2013a; Plakans & Gebril, 2012).

Table 3 presents the students' actual practice of academic plagiarism in the source-based writing test (see Appendices 1 and 2).

The participants' behavior, as detailed in Table 3, shows whether and how sources were acknowledged. In the writing-test scripts, 11 papers did not document the given source while 142 papers stated the source. However, the finding regarding the 11 participants' failure to employ source documentation, despite their exposure to explicit instruction as revealed in the interview, runs counter to the concept of explicit instruction helping to prevent student plagiarism (Pecorari, 2013). It is also in conflict with the studies that found instructional intervention affected the learners' academic writing ability and anti-plagiarism behavior when writing (Davis, 2013; Li, 2013a & 2013b; Storch, 2012; Wette, 2010). However, consistent with Storch (2012) and Wette (2010), the finding of the current study may be explained by the students' linguistic and discourse skill constraints (Weigle & Parker, 2012) and their lack of sufficient explicit instruction in source-based writing (Davis, 2013; Shi, 2011) as these may likely be contributed to their act of plagiarism.

Table 3. Actual practice of academic plagiarism

Human and electronic detection			Acknowledgment behavior	Number of test paper (153)
Rater	Turnitin		No acknowledgment	11 (≈7%)
			Acknowledged source	142 (≈93%)
Writing score range: (1-100)	Color code (% copied)	Number of test paper (153)		
10-98	Blue (0)	90 (≈59%)	Paraphrasing (+ Direct quotation) (+ Summarizing)	13 (≈9%)
5-33	Green (12-23)	6 (≈4%) ⎫		
18-53	Yellow (26-49)	19 (≈12%) ⎬ 63	▪ Direct quotation	12 (≈8%)
23-45	Orange (59-74)	21 (≈14%) (≈41%)	▪ Summarizing	14 (≈10%)
13-33	Red (75-98)	17 (≈11%) ⎭	▪ Paraphrase (Adapted from Keck, 2006)	121 (≈85%)
Average score	Citation (50)	20.1 (40.2%)		
	Language (25)	7.8 (31.2%)		
	Content (25)	11.1 (44.4%)		

The degree or the amount of plagiarism is specified by color codes in Turnitin (Table 3) to assist teachers and/or raters to understand the extent of plagiarism in the participants' written tasks (if any). Three representations of the degree of plagiarism in the participants' writing-test papers are illustrated in Table 4.

In Table 4, a direct relationship between the writing score and the color code was found in a doctoral $H3_{EAP3}$'s paper which was rated at the highest score of 98 out of 100 and coded blue by Turnitin (i.e. 0% plagiarism detection). In contrast to the first paper, a doctoral $L2_{EAP2}$'s paper and a Master's $L1_{EAP1}$'s paper generated an inverse relationships between the obtained scores and the color codes. The $L2_{EAP2}$'s paper was scored at 20 and highlighted in red by Turnitin (i.e. 98% plagiarism detection) while the $L1_{EAP1}$'s paper was given the minimum raw score of 5 and coded green (i.e. 14% plagiarism detection) by Turnitin. Despite being assigned the lowest score due to the lack of acknowledgement of the source used, this $L1_{EAP1}$ paper was coded green. The paper with a higher percentage of copying surprisingly earned a higher writing score than the one with a greater degree of copying. The green-coded paper scored lower than the red-coded one because the electronic tool may not detect patchwork as well as it does direct quotations. Due to the participant's use of patchwriting (Howard, 1999, as cited in Harwood & Petrić, 2012, p. 84; Nelms, 2015; Pecorari, 2013), electronic detection may not detect all forms of plagiarism. Consequently, it is necessary to use both human and electronic methods of detection.

Table 4. Degree of plagiarism in three participants' writing test papers

Human and electronic detection		Group of achievers	Paper Script
Rater	Turnitin		
Writing score (100)	Color code (% copied)		
98 ◄ - - - ►	Blue 0% plagiarism	High (EAP3)	*According to Edwards (2012), distraction can be viewed in two aspects. To begin with, physical distraction such as sweaty palms and muscle tension is the symtom that one experiencing more intense activities.* *The second kind of distraction involves numbling to and blaming oneself for not being able to write in one's own words. In case that learners are faced with either of these issues, their performance could be declined (p.45).*
20 ◄ - ⫫ - ►	Red 98% plagiarism	Low (EAP2)	*The attention diverted from the task at hand can be categorized into two types. The first type of distraction can be classified as physical and includes an increase in awareness of heightened automatic activity (e.g., sweaty palms, muscle tension). The second type of distraction includes inappropriate cognitions, such as saying to oneself, "Others are finishing before me, so I must not know the material," or "I'm stupid, I won't pass." The presence of either of these two task-irrelevant cognitions will affect the quality of a student's performance (Carl Edwards, 2012)*
5 ◄ - ⫫ - ►	Green 14% plagiarism	Low (EAP1)	*The first type of distration can be classified as physical and includes an increase in awareness of heightened automatic activity (e.g. sweaty palms, muscle tension). The second type of distraction includes inappropriate cognitions, the presence of either of these two task-irrelevant cognitions will affect the quality of a student's performance.*

Since different amounts of plagiarism were found in the test papers of 63 participants (41%; see Table 3), it is questionable whether the participants' difficulty in English proficiency affects their tendency to commit plagiarism. Moreover, although most participants (59%) were grouped in the no-violation of the source content category, it does not mean that they had perfect writing scores. The participants averaged 20.1 out of 50 (or 40.2%) for citation, 11.1 out of 25 (or 44.4%) for content, and 7.8 out of 25 (or 31.2%) for language or grammar. This shows that the participants' overall writing proficiency was poor. As shown in several studies, insufficient proficiency in aca-

demic writing causes problems when engaging in source-based writing (Davis, 2013; Eret & Gokmenoglu, 2010; Flowerdew & Li, 2007; Li, 2013a, 2013b; Wette, 2010; Wood, 2001). As Storch (2012) suggested, students can improve their ability to incorporate and paraphrase sources in their writing when they are exposed to sufficient explicit instruction and have classroom practice in academic writing.

4.3   Factors constituting the act of plagiarism: What are the contributory factors influencing the students' academic plagiarism?

The pertinent factors contributing to the act of plagiarism (see Research Question 3, Appendix 3) can be quantitatively and qualitatively investigated through the responses of the students and the teachers on the learner evaluation form, the instructor/administrator questionnaire, and the interviews of both student and teacher participants. In the project, the 196 students had the same nationality and mother language. However, they were heterogeneous in terms of levels of postgraduate study (i.e. Master's and doctoral degrees), faculties (i.e. 17 disciplinary groups), levels of English language achievement and proficiency, and their prior disciplines and universities. On the other side, the 48 teachers (33.3% male and 66.7% female) included 14 native English and 34 Thai instructors with a minimum of three years' experience in English-language writing instruction at the higher education level. Table 5 summarizes the integration of the key factors affecting the act of plagiarism from both the student and teacher participants' interview responses.

Table 5. Integration of contributory factors influencing the act of plagiarism

Construct	Contributory factors	
	Teacher participant	Student participant
Environmental-situational	-Cultural norms	-Peer pressure from cultural norms -Different disciplinary writing convention -Course instructors -Time pressure
Affective-psychological	-Unawareness-negligence of the act of plagiarism	-Unawareness of academic and source-based writing -Learner's academic image, individual differences, and learner's different judgment and knowledge
	-Insufficient knowledge and language skills	-Insufficient knowledge and skills of English and insufficient language proficiency

In Table 5, the classic concepts of affective-psychological constructs and environmental-situational constructs can be used to explain the contributory factors affecting a writer's act of plagiarism.

4.3.1   Environmental-situational constructs: Cultural norms – peer pressure – academic image

Cultural norms were rated, by both student and teacher participants, as one of the major contributory factors that influenced the act of plagiarism. Participant $H2_{EAP2}$ reported that:

> In my writing class, … I'm not sure if I'm the one of the contributing factors causing plagiarism … when I lent my assignment to my friends … They are my good friends though they may copy my work and I knew that was wrong. (Student $H2_{EAP2}$)

The participant's decision was influenced by peer pressure and cultural norms (Park, 2003). Being generous is necessary for the participant to be accepted in the same community (Harwood & Petrić, 2012; Pennycook, 1996; Shi, 2011). Similarly, the study by Pennycook (1996) showed that students' academic assistance to friends in need is a common practice or cultural norm in Asia. The culturally-influenced behavior of participant $H2_{EAP2}$ may be common among writers who have

sufficient academic writing knowledge and skills. Students who have difficulty in academic writing may resort to memorization to improve their writing. As a limited achiever, $L2_{EAP2}$ revealed:

> I think I did my best in the writing test at that time though I know my English is rather weak. … oh, I think I forgot some writing techniques like paraphrasing that I studied from the graduate English course. ... (Student $L2_{EAP2}$)

A good ability for memorization in Asian academic culture is thought to indicate having a good brain and academic success (Phan, 2006; Pennycook, 1996; Shi, 2011). In a Chinese EFL context, memorizing appears to be a key strategy to attain good grades. These students memorize texts rather than creating them on their own for fear of losing face from writing errors and being perceived as unintelligent (Pennycook, 1996). Consistent with the studies by Harwood and Petrić (2012), and Shi (2011), one driver of the academic performance of both high and limited achievers in the current study was their academic-image concerns. In addition to students' views on cultural norms influencing plagiarism, a native English teacher detailed experiences of academic plagiarism in teaching English-language writing in the Thai context as follows.

> By the time Thai students reach the university system, most of them have been exposed to an educational model where they are not always encouraged to think independently and are at times expected or required to copy a teacher/authority figure's answers verbatim. … (Teacher 10NE)

This common practice of plagiarism in Thai contexts may be consistent with the concept of obedience to academic authority and lack of critical thinking (Kumaravadivelu, 2003; Liu, 2005).

4.3.2   Environmental-situational and affective-psychological constructs: Course instructor – time pressure – individual differences

A course instructor is also an environmental-situational factor influencing students' acts of plagiarism (see Table 5) as can be seen from participant $L2_{EAP2}$'s interview extract:

> … My instructor often reminded me of not trying to copy words and ideas, but trying to think and write by my own. … But I accept that when I have to write,… . Gaining good marks would be the best answer for my instructor's and my own satisfaction. (Student L2EAP2)

According to the interview responses of almost all respondents (i.e. participant $H3_{EAP3}$ and all limited achievers), time pressure was also rated as the main factor contributing to plagiarism.

> ... Hmm, I think, supposing my work is found plagiarized, I guess it could be from some of my carelessness like forgetting a citation style or missing quotation marks and so on. … This could happen in exam since time is limited. (Student H3EAP3)

As asserted in the study by Pennycook (1996), time pressure brought about students' unintentional plagiarism through patchwork plagiarism, particularly when the students had difficulties in English language writing. Consistent with Pennycook's (1996) study, the act of patchwriting in the current study may be explained by the interview response of a limited achiever,

> … Well, I myself haven't tried both programs yet because I don't have time to do so. … umm, at that time while I was writing my version in the test paper, I found that time was almost up. I then decided to mix and match some parts of texts from the original source. (Student L3EAP3)

The use of patchwriting is optimistically viewed as a developmental transition in the writing process and is frequently found in most novice writers' papers (Nelms, 2015; Pecorari, 2013). As stated by Howard (1999, as cited in Harwood & Petrić, 2012, p. 84), patchwriting is "a time-saving strategy to compensate for students' skills, linguistic shortcomings and difficulties with managing their reading load."

In addition to insufficient knowledge of source-based writing, one limited achiever, $L2_{EAP2}$, reported the following:

> I think I did my best in the writing test at that time though I know my English is rather weak.… . I knew that there were many paraphrasing techniques but when I was tested in the class, I felt a kind of nervous and excited and also afraid of being unable to finish my writing in time. (Student L2EAP2)

The sensitivity of the participant's individual differences (i.e. negative attitude and anxiety to time pressure in the test) is another likely affective-psychological factor contributing to plagiarism (Park, 2003; see Table 5).

4.3.3 Affective-psychological constructs: Insufficient knowledge – awareness – skills of academic English writing

Both teacher and student participants in the current study consider that a writer's insufficient English knowledge and skills would increase the chances of the writer engaging in plagiarism. Some Thai instructors of English in the current study had similar views:

> Personally when I write in Thai, I am a hundred percent sure that I'm not plagiarizing, so it might help if teachers teach students to fully understand the reading passages before writing their own. (Teacher 5T)

> Sometimes, students are aware of plagiarism and its penalty. They have been told by the teacher that it's a "crime", and they normally try their best to avoid it. Unfortunately, a large number of them still commit such a crime because they do not have enough knowledge and skills to avoid it. … (Teacher 7T)

As Park (2003) stressed, plagiarism occurs when learners have inadequate academic ability and a poor understanding of quoting, paraphrasing, and citing techniques. Similarly, Wheeler's (2009) survey study was conducted with 77 first-year Japanese university students (i.e. 29 from the faculties of science and pharmacy, 25 from economics, and 23 from agriculture and veterinary medicine) at Hokkaido University. It was found that the real cause of the students' plagiarism was a lack of understanding of the act of plagiarism in their academic culture rather than cultural values that tolerated plagiarism.

A writer's carelessness or lack of awareness (Table 5) was another cause of unintentional plagiarism (Sutherland-Smith, 2008). As participant $H3_{EAP3}$ viewed:

> ... Hmm, I think suppose my work is found plagiarized, I guess it could be from some of my carelessness like forgetting a citation style or missing quotation marks and so on. … (Student H3EAP3)

The carelessness of a participant is considered to be a lack of awareness of academic writing requirements (Table 5) which leads to unintentional plagiarism (Sutherland-Smith, 2008). As Wiwanitkit (2008) found, student writers lacking plagiarism knowledge thought wrongly that it was acceptable to copy some of a person's work in their medical writing. Similarly, some native English and Thai teachers also had experiences of their students' lack of awareness and negligence which led to acts of plagiarism.

> From my experience, many students are unaware that plagiarizing is a violation. Copying and cheating are standard practice. Indeed, I get the impression many students are taught to copy and regurgitate information, without intellectually engaging with the issues at all. (Teacher 2NE)

> In one of my courses a student regularly "googles" the passages in the textbook. I have found several texts have come from online sources and are used without indicating sources. (Teacher 3NE)

> I think one reason leading to plagiarism is the students' negligence of the extent to which plagiarism covers. (Teacher 9T)

4.4 Alternative measures for plagiarism prevention: What are alternative measures for academic plagiarism prevention in the Thai context?

4.4.1 Quantitative results: Instructors' questionnaire responses

In the quantitative data analysis of the 48 instructor/administrator questionnaires on practical measures for plagiarism prevention (Research Question 4, Appendix 3), statistically significant differences were found for knowledge (Table 6) and awareness of plagiarism (Table 7 and Appendix 4), perspectives on plagiarism issues and practical measures for plagiarism prevention (Table 8). Tables 6, 7, and 8 of analyses of variance showed that the knowledge, awareness, and perspectives on plagiarism issues of the native English instructors were significantly different to those of the Thai instructors at the .05 level, respectively.

Table 6. A significant difference between native English and Thai instructors' knowledge of plagiarism (Item 11)

Item no.		Sum of Squares	df	Mean Square	F	Sig.	N	SD	Std. Error	95% Confidence Interval for Mean	
										Lower Bound	Upper Bound
11	Between groups	5.485	1	5.485	7.927*	.007	14	.61125	.16336	2.3614	3.0672
	Within groups	31.828	46	.692			34	.90404	.15504	1.6552	2.2860
	Total	37.313	47				48	.89100	.12860	1.9288	2.4462

Note: p < .05

Table 6 indicates that out of nine cases (Items 7 to 15), there was a statistically significant difference between the native English participants and the Thai participants' perspectives of plagiarism for only one case, Item 11 (i.e. "*Students don't have to cite the source stating a fact in their papers if it's something that most people would already know.*") (F = 7.93, p < .05). The native English and Thai instructors in the current study were from different discourse communities, and may perceive "common knowledge" (e.g. facts and famous statements) differently in their students' written tasks (Phan, 2006). Li (2013a) stated that differences in "common practice" were derived from power relations among disciplines including teachers and students. In Vietnam, memorizing famous quotes shows respect for authority and politeness in writing (Phan, 2006). However, Swales and Feak (2007) explained that borrowing common knowledge or commonly-used academic English words and/or phrases is not considered plagiarism and suggested that using quotation marks is technically needed with famous quotes other than commonly-used phrases and/or expressions in any discipline to avoid the offense of plagiarism.

Table 7. A significant difference between native English and Thai instructors' awareness of plagiarism (Item 24)

Item no.		Sum of Squares	df	Mean Square	F	Sig.	N	SD	Std. Error	95% Confidence Interval for Mean	
										Lower Bound	Upper Bound
11	Between groups	6.188	1	6.188	4.952*	.031	14	1.02711	.27451	2.5498	3.7359
	Within groups	57.479	46	1.250			34	1.15161	.16799	1.9511	2.7548
	Total	63.667	47				48	1.16388	.19750	2.2454	2.9213

Note: p < .05

As for the awareness of plagiarism by native English and Thai instructors, a significant difference was obtained, from Table 7, for the statement "*Download a graphic without the author's permission but the source is cited.*" (Item 24: F = 4.95, p < .05). This result may be due to the ambiguity concerning acceptable online source-use among instructors in Thai academic institutions. The widespread availability of electronic material (Pecorari, 2013; Power, 2009) and of online writing-service websites (Check & Schutt, 2012) does not mean that this material is exempt from copyright and hence it usually needs to be cited (Check & Schutt, 2012; Pecorari, 2013). Still, a misperception about free-to-use online material in academic writing occurs not only among ESL and EFL students but also among academics (Park, 2003; Pennycook, 1996; Schmelkin et al., 2008; Sutherland-Smith, 2008). An analysis of the seven-item Likert-scale questionnaire indicated no significant difference in the way the native English instructors and the Thai instructors of English writing perceived the given plagiarism issues (i.e. academic competition, environment and situation in language classes, opportunistic cheating, and intentional cheating). In terms of perspectives about measures for plagiarism prevention, the results from the analysis of four given measures for plagiarism prevention showed a significant difference, in Table 8, for the statement "*Raising students' awareness of the values of academic honesty.*" (i.e. Item 41: F = 9.40, p < .05). This significant result was derived from the instructors' own experience of teaching influencing their perception of plagiarism (Pecorari, 2013), and their different cultural backgrounds affecting their decision about preventing plagiarism (Kumaravadivelu, 2003; Liu, 2005).

Table 8. A significant difference between native English and Thai instructors' perspectives on measures for plagiarism prevention (Item 41)

Item No		Sum of Squares	df	Mean Square	F	Sig.
41	Between groups	13.628	1	13.628	9.400*	.004
	Within groups	66.685	46	1.450		
	Total	80.313	47			

Note: p < .05

4.4.2 Qualitative results: Instructors' and students' interview responses

The students' other comments on academic plagiarism in their English language learning also suggest some alternative measures for plagiarism prevention (see Section 5).

5 Applications: Alternative measures for deterring plagiarism continuum – Sowing the seeds of academic integrity

Alternative measures for deterring plagiarism were developed after considering the quantitative and qualitative findings of the study (see Sections 4.1 to 4.4) and related studies (e.g. Harwood &

Petrić, 2012; Liu, 2005; Pecorari, 2013; Phan, 2006; Shi, 2011; Sutherland-Smith, 2008). The findings of the study and the related studies help improve the understanding of the degrees of academic plagiarism (see Fig. 4).
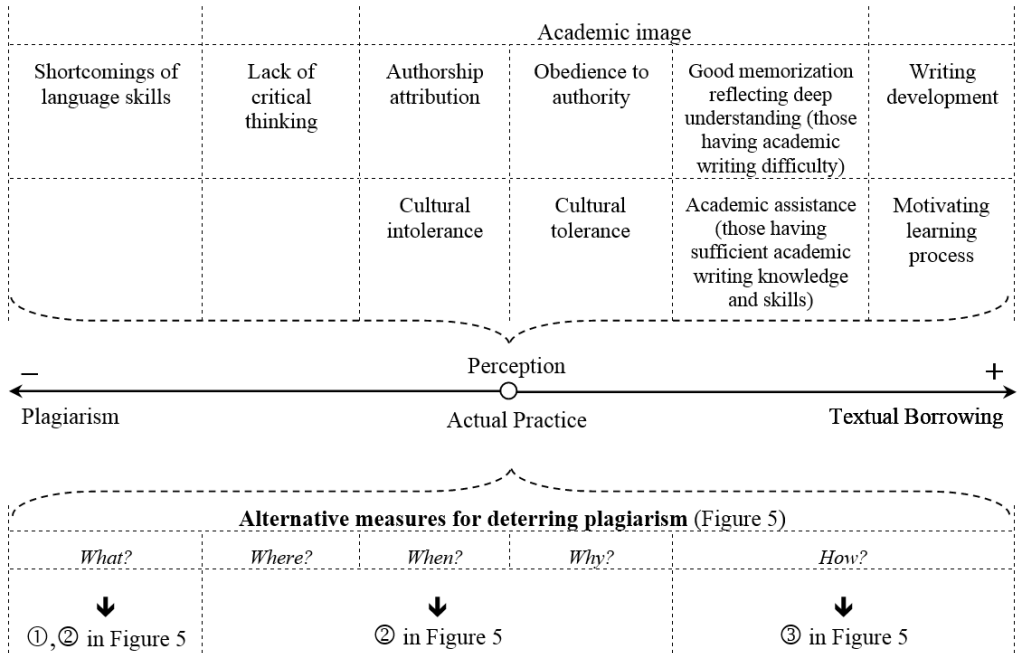
Academic image					
Shortcomings of language skills	Lack of critical thinking	Authorship attribution	Obedience to authority	Good memorization reflecting deep understanding (those having academic writing difficulty)	Writing development
		Cultural intolerance	Cultural tolerance	Academic assistance (those having sufficient academic writing knowledge and skills)	Motivating learning process

−   Perception   +

Plagiarism   Actual Practice   Textual Borrowing

Alternative measures for deterring plagiarism (Figure 5)				
What?	*Where?*	*When?*	*Why?*	*How?*
↓		↓		↓
①,② in Figure 5		② in Figure 5		③ in Figure 5

Fig. 4. Shades of academic plagiarism

What and/or how students perceived frequently ran counter to what and/or how they actually performed in reality. In an EFL and/or ESL educational system where appearance takes precedence over substance, plagiarism may not be a big issue. All quantitative and qualitative findings of the project could be a reflection of the cultural/social, intellectual, and institutional issues of plagiarism in the Thai context. Unless the students know how to think creatively and critically, they are unlikely to be able to avoid plagiarism. Alternative measures for deterring plagiarism (i.e. serial measures covering plagiarism, plagiarism interpretation, and plagiarism education) are proposed   in   Figure   4   and   thus   Figure   5.

Investigating Academic Plagiarism in a Thai Context

① **An Initial Yardstick of Plagiarism**
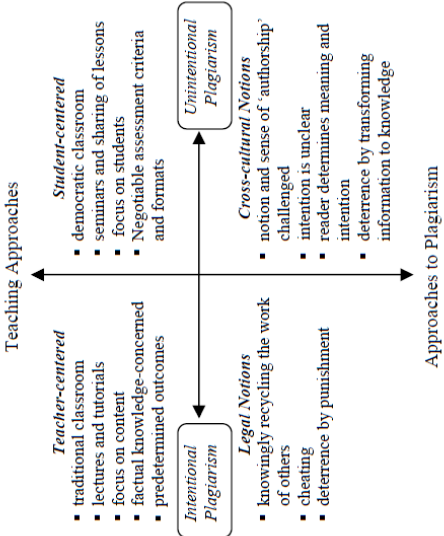(Adapted from Pecorari, 2002, as cited in Sutherland-Smith, 2008)

- An object (language, words, ideas, text),
- which has been taken (borrowed or stolen),
- from a particular source (books, journals, the Internet),
- by an agent (student, person, academic),
- without (adequate) acknowledgement,
- and "*with or without intention*" to deceive
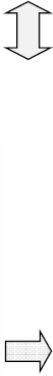
② **Plagiarism Interpretation**
(Adapted from Sutherland-Smith, 2008, p. 29)

The Internet (technology-mediated classroom)

Teaching Approaches

Teacher-centered
- traditional classroom
- lectures and tutorials
- focus on content
- factual knowledge-concerned
- predetermined outcomes

Student-centered
- democratic classroom
- seminars and sharing of lessons
- focus on students
- Negotiable assessment criteria and formats

Legal Notions
- knowingly recycling the work of others
- cheating
- deterrence by punishment

Cross-cultural Notions
- notion and sense of 'authorship' challenged
- intention is unclear
- reader determines meaning and intention
- deterrence by transforming information to knowledge

Intentional Plagiarism | Unintentional Plagiarism

Approaches to Plagiarism

③ **Plagiarism Education: Awareness, Practice, and Prevention**

Question	Research Variable	Purpose	Plagiarism Education Strategy
1.	Perception ■ Awareness	■ Create a sense of intellectual ownership and pride.	■ Establish the value of creative and critical thinking with the provision of some rewards and/or praise if any students can achieve the purpose. ■ Discuss the benefits of crediting sources in academic writing. ■ Assign awareness-raising writing tasks.
	■ Knowledge Actual Practice	■ Develop students' understanding of the offence of plagiarism.	■ Explain to students what (①) and how harmful plagiarism is and will be (e.g. demonstrating ESL and EFL universities' plagiarism cases and penalties).
2.		■ Enhance students' levels of English-language writing proficiency. ■ Familiarized students with process writing and source-based writing.	■ Exemplify types of plagiarism by which the textual content is based on contextual disciplines. ■ Review grammatical knowledge and provide grammar exercises. ■ Training courses for process writing, note-taking, followed by source-based writing.
3.	Causal Factors	■ Build up students' understanding of why the act of plagiarism occurs.	■ Provide consultations for students who have difficulties coping with their own individual differences (e.g. test anxiety) and/or those who need special guidance or help to improve their writing performance. ■ Build students' self-confidence to be able to deal with their affective-psychological and environmental-situational factors.
4.	Measures for Prevention	■ Active and effective cooperation from relevant stakeholders who are: - University and Faculty: - Instructors: - Students:	■ Establish and require the use of plagiarism screening tool(s) (e.g. Turnitin) prior to the submission of a written task. ■ Establish anti-plagiarism policies, knowledge, and assessment in every course curriculum, including in English language writing at the undergraduate and the postgraduate levels. ■ Promote the provision of training courses and practices: academic and source-based writing and the use of available plagiarism screening tools. ■ Teach and train students how to document sources in writing as well as how to quote, paraphrase, and summarize. ■ Practice the source-based writing from the writing courses. Use plagiarism screening tool(s) before submitting written task(s).

Note: Measure directions: Relevant literature review ←→ Findings of this study ([① → ②| ←→ ③)

Fig. 5. Alternative measures for deterring plagiarism

6 Conclusion, implications, and recommendations

This project aimed at investigating the perception and the actual practice of academic plagiarism, contributory factors influencing plagiarism, and preventive measures for plagiarism of Thai postgraduate students from interdisciplinary studies. The findings of the study provide some insights into the following actions for academics, administrators, faculties, educational institutions, and relevant stakeholders in the Thai EFL context:

- Raising awareness and developing knowledge of plagiarism among Thai learners
- Introducing process-oriented writing in sourced-based writing: Once learners internalize the writing process, they do not need to memorize source-based writing techniques
- Promoting an ample amount of explicit instruction in the skills of academic, and in particular source-based, writing through varying proficiency-based writing activities
- Boosting Thai learners' proficiency and literacy in English through the provision of continual training
- Providing consulting services which can respond to learners' individual differences in order to deter plagiarism
- Actively and effectively cooperating in and taking well-rounded and continual measures against plagiarism

Due to the expectation that Thai academic institutions have the potential to produce global citizens, it is essential for all stakeholders to understand, realize and give precedence to the value of "academic integrity" when setting academic norms. Software detection services are not a panacea for plagiarism but can be a screening tool (Li, 2013b; Pecorari, 2013; Stapleton, 2012). An optimal strategy can be consciousness-raising of the sense of ownership in students' initial learning processes and sharpening their skills in academic, particularly source-based, writing. It may also be more effective than using a prohibition approach.

English-language source-based writing, which is stipulated in postgraduate course curricula, should also be taught at undergraduate levels. According to the interview response of participant L1$_{EAP1}$, she misunderstood that source-based writing was only oriented at postgraduate courses ("I think I need to improve my English language writing first before attending this graduate course focusing on the source-based writing."). In addition, since Thai postgraduate students in this study included Master's and doctoral students in the same participant group, it would be useful to examine a longitudinal study of source-based writing development of postgraduate students and compare the development between Master's and doctoral students.

Publication of criteria for acceptable and unacceptable types of textual borrowing should also be undertaken in all university disciplines. Both student and teacher participants revealed this need in the interview through the following thought-provoking excerpts:

> I admit that I feel quite confused with the concept of plagiarism. Faculties and university say that students will be penalized if they plagiarize the source words or ideas. But in fact, I never saw those plagiarized tasks being scored zero or those who plagiarize being penalized… (Student H3$_{EAP3}$)

> … When I have shared plagiarism stories in the past with Thai teachers, they've been shocked that I gave a "zero" grade, they suggested that the students be given a chance to re-do the work, and they often say that we can't expect any better from the students because they have done throughout grade school and high school. … (Teacher 4NE)

The direction and the style of writing examinations to test learners' writing performance in English language education in the Thai context are further issues. It is necessary to ensure that examinations test students' academic integrity as well as creative and critical thinking skills, not rote-learning skills. Another point to be concerned about is the compatibility of teaching and the assessment of writing. Before gaining entry to higher-education institutions where plagiarism is normally prohibited, learners are required to pass institutional examinations and/or international examinations (e.g. TOEFL or IELTS). These types of writing examinations do not test learners' knowledge of source-based writing.

The Internet has become a fundamental tool for teaching and learning. Some Thai instructors of English frequently set assignments requiring or encouraging a "copy and paste from Wikipedia" attitude among their students. The Internet has additionally made plagiarism easier and more acceptable. Formidable challenges face instructors trying to educate their learners about "plagiarism."

Acknowledgements

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Appendices

Appendix 1

Writing test (30 minutes)

<u>Situation</u>: You are assigned to write about The Second Model in a literature review entitled: "**Test Anxiety**", the given details of which are of the three models explaining the origin of Test Anxiety. <u>Directions:</u> Read the information about The Second Model written by PROFESSOR CARL EDWARDS given below.

<div align="center">

The Second Model

</div>

PROFESSOR CARL EDWARDS: The attention diverted from the task at hand can be categorized into two types. The first type of distraction can be classified as physical and includes an increase in awareness of heightened automatic activity (e.g., sweaty palms, muscle tension). The second type of distraction includes inappropriate cognitions, such as saying to oneself, "Others are finishing before me, so I must not know the material," or "I'm stupid, I won't pass." The presence of either of these two task-irrelevant cognitions will affect the quality of a student's performance.

Source: The information is taken from a book, "Educational Research" written by
CARL EDWARDS, published in 2012 on page 45, printed by Upper Saddle River,
NJ: Prentice-Hall.

Use the information written by PROFESSOR CARL EDWARDS you read above (D**O NOT** invent any extra information) to complete the review of this report in the space provided.

Literature Review
<div align="center">

Test Anxiety

</div>

Research on test anxiety had identified three models that explain the origin of test anxiety: **(1)** The problem lies not in taking the test, but in preparing for the test. Kleijn, Van der Ploeg, and Top-man (1994) have identified this as the learning-deficit model. In this model, the student with high test anxiety tends to have or use inadequate learning or study skills while in the preparation stage of exam taking. **(2) The second model** is termed the interference model. The problem for people in this model is that during tests, individuals with test anxiety focus on task-irrelevant stimuli that negative-ly affect their performance.

…………………………………………..……………………………………………………………

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…..……………………………………………………..………………

(3) The third model of test anxiety includes people who think they have prepared adequately for a test, but in reality, did not. These people question their abilities after the test, which creates anxiousness during the next test.

Appendix 2

Plagiarism assessment criteria

Plagiarism?		To what extent?	
Checked through Software	**Assessed by Rater**	**Checked through Software**	**Assessed by Rater**
Turnitin (%) % in plagiarism	A chart of How to Recognize Plagiarism (Source: www.indiana.edu/~istd/practice.html) (See **Note 1** on the next page)	Turnitin (%) Plagiarism color codes: ▪ Red: 75-100% ▪ Orange: 50-74 % ▪ Yellow: 25-49% ▪ Green: 0-24% ▪ Blue: No matches (0%)	Scoring criteria (100) ▪ Citation (50) ▪ Content (25) ▪ Language (25) (See **Note 2** on the next page)

Note 1: The Chart of How to Recognize Plagiarism (www.indiana.edu/~istd/practice.html)

Does the student version take ideas from the original source material?				
Yes				**No**
Is at least one idea taken from the original source material a direct word-for-word quote in the student version?				
Yes		**No**		
Is the direct word-for-word quote missing either quotation marks, or missing an in-text citation, or missing a reference in the student version?		Is the paraphrased idea missing an in-text citation or missing a reference in the student version?		
Yes	**No**	**Yes**	**No**	
The student version is: **Word-for-word plagiarism***	The student version is: **Not plagiarism**	The student version is: **Paraphrasing plagiarism***	The student version is: **Not plagiarism**	The student version is: **Not plagiarism**

*Remarks: Two   prevalent   kinds   of   plagiarism: Word-for-word   and   Paraphrasing

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Note 2: Scoring Criteria (developed by the researcher and adapted from Turnitin)

Rubric	Scale 1 (10)	Scale 2 (20)	Scale 3 (30)	Scale 4 (40)	Scale 5 (50)	Scale 6 (60)	Scale 7 (70)	Scale 8 (80)	Scale 9 (90)	Scale 10 (100)
Citation (50%): ▪ Proper/correct and complete citation and/or quotation (25) **Notes:** (1) In case of the use of quotation, the full score of 25 will be given for *correct citation: -The author's surname, the publication date and the page number are acknowledged for APA and CMS styles. -Publication date can be omitted for MLA style. *Score deduction for errors (e.g. first name use, omitted page number) (2) However, in case of the use of quotations, no score for paraphrase will be given. ▪ Paraphrase (25) **Note:** A paraphrased version without summary is allowed. However, the paraphrased and summarized version of the source text is preferable for the quality of a writing piece.	5	10	15	20	25	30	35	40	45	50
Content (25%): Complete content conveying the relevant scope and/or same meaning as in the original source	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25
Language (25%): No errors [comma splices, run-on, misspelling, word choice, passive voice, subject-verb agreement and tense]	2.5	5	7.5	10	12.5	15	17.5	20	22.5	25

Appendix 3

Research methodology

Research Question	Research Instrument	Data Collection	Data Analysis
1. Do Thai postgraduate students have a significant difference in their perception of academic plagiarism in English language learning? If so, to what extent?	a) Learner evaluation form (Parts 3-4)	(i) Responses from the *instructor/administrator questionnaire* containing plagiarism awareness and plagiarism knowledge (n = 196)	*Quantitative analyses* - Descriptive statistics (e.g. arithmetic means and standard deviations) - An independent-samples *t*-test - The effect-size method
1.1) Do Science and Social Science student groups have a significant difference in their perception of academic plagiarism in English language learning? If so, to what extent?		$(n_{Sc}= 125;$ $n_{Ssc} = 71)$	*Notes:* Sc = Allied Health Science-Architect-College of Population Studies-Dentistry-Engineering-Medicine-Nursing-Pharmaceutical Science-Science-Sports Science-Veterinary Science; Ssc = Arts-Communication Arts-Education-Fine and Applied Arts
1.2) Do the groups of high achievers and limited achievers have a significant difference in their perception of academic plagiarism in English language learning? If so, to what extent?		$(n_H = 61;$ $n_L= 135)$	*Notes:* H = those who gained the scores from a university's standardized test as a prerequisite for postgraduate entry between 57 and 120; L = those obtaining the scores from 1 to 56.
	b) Learner interview	(ii) Interview responses (n = 6)	*Qualitative analysis* - Content analysis
2. Do Thai postgraduate students have a significant difference in their actual practice of academic plagiarism in English language learning? If so, to what extent?	a) Writing test (adapted from Ruszkiewicz et al. (2006: 362)	Writing test scores (n = 153)	*Quantitative analyses* - Raters: Plagiarism assessment criteria (Appendix 2) - An independent-samples *t*-test - The effect-size method - Turnitin program (i.e. percentage of plagiarism)
2.1) Do Science and Social Science student groups have a significant difference in their actual practice of academic plagiarism in English language learning? If so, to what extent?		$(n_{Sc} = 96; n_{Ssc} = 57)$	
2.2) Do the groups of high achievers and limited achievers have a significant difference in their actual practice of academic plagiarism in English language learning? If so, to what extent?		$(n_H = 39; n_L= 114)$	
3. What are the contributing indicators to the students' academic plagiarism?	a) Learner evaluation form (Parts 1-2)	(i) Responses from the *evaluation form* containing students' general information-English language learning background and experiences of plagiarism (n = 196)	*Quantitative analysis* - Descriptive statistics (e.g. frequency, percentage, etc.)
	b) Instructor/ administrator questionnaire (Part 1)	(ii) Responses from the *instructor/administrator questionnaire* containing teachers' general information and English language teaching background (n = 48)	
	c) Learner interview	(iii) Interview responses (n = 6)	*Qualitative analysis* - Content analysis through thematic coding
	d) Instructor/ administrator interview	(iv) Interview responses (n = 19)	

| **4. What are practical measures for academic plagiarism prevention in the Thai context?** | a) Instructor/ administrator questionnaire (Part 3) | (i) Responses from the *instructor/administrator questionnaire* containing perspectives on effective measures for plagiarism prevention (n = 48) | *Quantitative analysis*
 - Descriptive statistics (e.g. frequency, percentage, etc.)
 - One-way Analysis of Variance (F-test) |
| | b) Instructor/ administrator interview | (ii) Interview responses (n = 19) | *Qualitative analysis*
 - Content analysis through thematic coding |

Appendix 4

Participants' perception of plagiarism

Item No.		Perception of Plagiarism	Plagiarism (Suggested Answer)	Evaluation Form Student Total Responses (n = 196)						Item No.	Questionnaire Teacher (n = 48)		
				Yes n (%)	Unsure n (%)	No n (%)	Mean	SD	Scale Interpretation		Mean	SD	Scale Interpretation
Awareness of Plagiarism				**Item no. 20-35: Five-point Likert scale**							**Item no. 16-31: Five-point Likert scale**		
	20	Turn in a paper written by other person(s) as my own work without citing, quoting, or referencing the source(s).	No	5 (2.6)	3 (1.5)	188 (95.9)	1.32	.75	Strongly disagree	16	1.08	0.28	Strongly disagree
	21	Use ideas I got from an instructor or classmate(s), during our conversation, in my paper without citing, quoting, or referencing the source(s).	No	17 (8.6)	50 (25.5)	129 (65.9)	2.12	1.01	Disagree	17	2.27	1.18	Disagree
	22	Copy a paragraph (more than 40 words) from an article, a magazine, a journal, a book, or the Internet site and reference the source.	No	102 (52)	25 (12.8)	69 (35.2)	3.41	1.42	Agree	18	2.44	1.27	Disagree
	23	Cut and paste material from a website into my assignment without crediting the source because any information that is available in electronic form is free and can be used any time.	No	3 (1.5)	10 (5.1)	183 (93.4)	2.57	1.26	Disagree	19	1.33	0.69	Strongly disagree
	24	Copy a sentence (not more than 40 words) from an article and use quotation marks "..." and reference the source.	Yes	109 (55.6)	9 (4.6)	78 (39.8)	3.43	1.82	Agree	20	3.81	1.14	Agree
	25	Copy paragraphs from several different articles into my paper and write sentences to link them together without citing, quoting, or referencing the source(s).	No	20 (10.2)	22 (11.2)	154 (78.5)	1.93	1.06	Disagree	21	1.25	60	Strongly disagree
	26	Change one or two words to make a quote into a paraphrase and then not reference the source.	No	18 (9.2)	36 (18.4)	142 (72.5)	2.04	.97	Disagree	22	1.37	.70	Strongly disagree
	27	Omit citations/references in my paper if I paraphrased an original text.	No	25 (12.7)	21 (10.7)	150 (76.5)	2.01	1.03	Disagree	23	1.46	.71	Strongly disagree
	28	Cite the source when I down-loaded a graphic without the author's permission.	Yes	108 (55.1)	44 (22.4)	44 (22.4)	3.44	1.19	Agree	24	2.58	1.16	Disagree
	29	Omit citations/references of numerical data or graphs because they are facts or common knowledge.	No	14 (7.1)	27 (13.8)	155 (79.1)	1.90	.95	Disagree	25	1.92	.92	Disagree
	30	Omit to cite my previous work when I reused it in my writing in other courses since it is my own work.	No	21 (10.8)	36 (18.4)	139 (70.9)	2.12	1.03	Disagree	26	1.73	.79	Strongly disagree
	31	Commit plagiarism because it only affects me.	No	6 (3.1)	7 (3.6)	183 (93.3)	1.39	.73	Strongly disagree	27	1.21	.41	Strongly disagree
	32	Commit plagiarism because it does not affect others.	No	9 (4.6)	3 (1.5)	184 (93.8)	1.39	.78	Strongly disagree	28	1.19	.39	Strongly disagree
	33	Commit plagiarism though it may be unfair to the university.	No	41 (20.9)	3 (1.5)	152 (77.6)	1.94	1.60	Disagree	29	1.23	.52	Strongly disagree
	34	Commit plagiarism though it may be unfair to the writer of the original passage.	No	34 (17.3)	5 (2.6)	157 (80.1)	1.80	1.49	Strongly disagree	30	1.17	.43	Strongly disagree
	35	Commit plagiarism though it may be unfair to the class whose original opinion(s) deserve credit.	No	82 (41.8)	4 (2)	110 (56.1)	2.61	1.81	Disagree	31	1.35	.73	Strongly disagree

				Item no. 36-44: Three-point Likert scale						Item no. 7-15: Three-point Likert scale			
Knowledge of Plagiarism	36	You pay a person for editing assistance, and he re-writes much of your original paper. You hand in this new edited version to your professor without acknowledging that person's assistance.	Yes	95 (48.5)	75 (38.3)	26 (13.3)	2.42	.93	Agree	7	2.34	.82	Agree
	37	You copy a passage (not more than 40 words) directly from an article you found. You cite the source, but you did not use quotation marks "...".	Yes	47 (24)	48 (24.5)	101 (51.5)	1.05	.70	Disagree	8	2.50	.77	Agree
	38	You copy a short passage from an article you found. You change a couple of words, so that it's different from the original. You carefully cite the source.	Yes	96 (49)	38 (19.4)	62 (31.6)	2.43	.77	Agree	9	2.41	.85	Agree
	39	Citing your sources protects you from accusations of plagiarism by acknowledging that specific information in your paper has been taken from another source.	No	19 (9.7)	23 (11.7)	154 (78.6)	2.62	.46	Agree	10	1.60	.69	Disagree
	40	You don't have to cite the source stating a fact in your paper if it's something that most people would already know.	No	70 (35.7)	39 (19.9)	87 (44.4)	2.35	.73	Agree	11	1.19	.89	Disagree
	41	There are many different citation styles, and you must choose an appropriate one.	No	6 (3.1)	7 (3.6)	183 (93.4)	2.83	.26	Agree	12	1.59	.54	Disagree
	42	It is not necessary to cite sources found on the web.	Yes	187 (95.4)	6 (3.1)	3 (1.5)	1.60	.21	Disagree	13	2.49	.46	Agree
	43	It is not required to cite your source in a graph/bar chart which is derived from your own findings.	No	69 (35.2)	19 (9.7)	108 (55.1)	2.48	.67	Agree	14	1.02	.91	Disagree
	44	It is required to cite your source when using a fact from a source you think, but you are not sure, may be common knowledge.	No	160 (81.6)	23 (11.7)	16 (6.6)	1.54	.43	Disagree	15	1.58	.74	Disagree