Exploring Secondary School Students’ Self-Perception and Actual Understanding of Plagiarism

Abstract
Plagiarism has been a growing concern among institutions and academics in recent years. To address the problem, and to alleviate the growing trend of this academic misconduct, the perceptions of students of plagiarism should be considered. This study explores students’ self-perception and actual understanding of plagiarism, and the relations between them. Survey responses were collected from 433 students in a Hong Kong junior secondary school. Focus group interviews were conducted with 44 of the students and five teachers. Results reveal that students show different understanding towards ‘obvious’ and ‘obscure’ plagiarism, with misunderstanding or misconception more likely arising over obscure plagiarism. This study also reports that students’ self-perception on their understanding of plagiarism differed across grade levels, and their academic performance of inquiry-based learning has a relation to their self-perceived and actual understanding of plagiarism. Implications for improving the teaching and learning of plagiarism are discussed.

Introduction
The ease of accessing information has given rise to the easy copying and editing of available resources (Comas-Forgas and Sureda-Negre 2010), and plagiarism, one of the most common forms of academic dishonesty, has become a major focus of scholars’ research on academic misconduct (Jones, 2011; Comas-Forgas, 2010). It has been reported that 24.5% of students have admitted that they sometimes or frequently copy text without citation (Scanlon and Neumann., 2002), and that 26.2% of scripts submitted by the undergraduates involved certain degrees of plagiarism (Walker, 2010). Plagiarism has been primarily studied in higher education (Glendinning, 2014), although it is, unsurprisingly, found to be even more rampant among secondary/high school students (Newlon, 2009; Sisti, 2007). Older studies (e.g. Dant 1986) have shown that up to 50.7% of secondary students surveyed claimed to have copied encyclopedias in their assignment. Similarly, McCabe (2005) reported that 60% of secondary school students admitted having plagiarized in their academic works.

The prevalence of plagiarism in secondary schools prompts the need to address the causes and factors contributing to plagiarizing behaviors among secondary students. Inquiry-based learning, along with problem-based learning and game-based learning, is one of the widely adopted pedagogical approaches in recent decades (Mokhtar et al., 2008; Rodríguez-Triana et al., 2017). Secondary school students are often required to complete research-oriented assignments involving significant information seeking, compiling, and argumentative writing.
For example, the school-based assessment items of the Hong Kong Diploma of Secondary Education (HKDSE) are set out to “include a variety of learning outcomes that cannot be assessed easily through public examinations” (Hong Kong Examinations and Assessment Authority, 2013). In inquiry-based learning, students are required to develop information literacy and demonstrate academic integrity, exemplifying the importance of proper information use of secondary school students. Therefore, students’ abilities in inquiry-based learning that necessitate the use of information are highly relevant to their understanding of plagiarism.

Since students in junior secondary school are forced to change the habits developed in lower grades, they might need time to adapt to the different style of teaching and learning in secondary schools. Inquiry-based learning, inclusive of information literacy, and academic integrity could be new and challenging for them. On the other hand, training in inquiry-based learning gets students better prepared for the drastic change in learning styles later when transitioning to university. Those who are underprepared for the appropriate use of information may risk committing plagiarism and other academic misconduct. In light of this, there is a need to investigate secondary school students’ understanding on information use, in particular, plagiarism, and thereupon help inform teachers and instructional designers about the urgency in improving students’ knowledge of plagiarism.

One cause of plagiarism is a lack of understanding of plagiarism (Appiah, 2016). Students’ confusion towards plagiarism can be attributed to the obscurity of certain plagiarizing behaviors. Plagiarism is a complex issue and there is no universally accepted standard for identifying plagiarizing behaviors, especially those that are less straightforward. For instance, duplication of content or material without acknowledgment of the source might be understood as “verbatim copying” instead of “plagiarism” (Dobrovsk and Pokorny, 2007). In another study, 73% students considered “copying from a book without crediting its source” as acceptable when being surveyed on their awareness of plagiarism in high school (Madray, 2007).

To better understand how plagiarism is perceived by students, this study explores the relationship between students’ self-perception and actual understanding of plagiarism. 433 secondary school students filled a questionnaire on perceptions about their understanding of plagiarism which also contained a test assessing their actual understanding. Results are compared and analyzed to investigate whether students’ self-perceived understanding matches their actual understanding, and to explore and compare their understanding of different types of plagiarism acts. This study will also discuss whether students’ grade levels and academic performance in inquiry-based learning bears a relationship with their
perceptions and understandings of plagiarism.

**Literature Review**

**Students’ Understanding of Plagiarism**

Studies have found that students are often confused with what is considered an act of plagiarism, and inaccurate understanding of plagiarism is a significant factor that contributes to plagiarizing behaviors of students (Gullifer and Tyson, 2010). The study by Ma et al. (2007) revealed that students do not have a clear understanding of the concept of plagiarism, and some even think that direct copying and pasting is an unproblematic convenient action. Great confusions also are found over certain ‘grey areas’, such as using one’s own previous work without proper citation (Gullifer and Tyson, 2010).

Macatangay (2015) suggested that the unfamiliarity with plagiarism is the most consistent reason why students commit it. He also found that students with a better understanding of plagiarism are unlikely to plagiarize. As it is believed that students’ understanding and perceptions of plagiarism have an apparent relation to the probability of the committing such behavior, there is a need to study how students actually understand the concept of plagiarism before offering suitable instructions and help. Ashworth et al. (1997) suggested that grasping students’ understanding can allow academics to significantly ‘communicate appropriate norms’. To combat plagiarism in students’ work, the UPCC framework (Chu, 2014; Lee et al.; Chu and Hu, 2016) could be used for teaching students to Understand plagiarism, Paraphrase, Cite, and Check their work for originality. This framework suggests that one important element in eliminating plagiarism in students’ work is to enhance their understanding on the concept and what constitutes plagiarism. Again, this adds to the prominence of investigating students’ current understanding of plagiarism.

**Obscurity of Plagiarizing Behaviors**

Plagiarism is a complex issue that involves a large range of incidents other than blatant verbatim copying. So far as being able to define plagiarism as misuse of information, only a minority of students can identify different plagiarizing acts (Koul et al., 2009). It is also possible that though all plagiarizing acts should be considered academic misconduct, students might still perceive certain plagiarizing acts as “less serious” than others (Maxwell et al., 2008). Thus, to study student’ understanding and perceptions of plagiarism, the nature of plagiarizing behaviors could first be differentiated. However, in existing studies investigating students’ perceptions, plagiarism is more often than not seen as a whole, instead of various behaviors of different natures. Previous studies have examined the views of students and teachers on various forms of plagiarism from the perspective of severity. For example, Hudd et al. (2009) conducted a study to examine students’ and teachers’ definitions of plagiarism. A
list of different plagiarizing behaviors were administered to students, as well as full-time and part-time faculty who were asked to rate each item as either a “major violation”, “minor violation”, or “no cheating”. Results reveal an apparent definitional difference between teachers and students, where students tend to show more leniency and consider certain behaviors, such as receiving help for an independent work, as not cheating. The two parties reached a consensus on considering certain items as a major violation, which included word for word copying, plagiarizing in any way using an Internet source, and turning in a paper obtained from a website. Using a similar model, the study by Kwong et al. (2010) also surveyed students and teachers on defining levels of violations of plagiarism including “major violation”, “minor violation” or “no cheating”. Again, results show that students in general view most violations as minor. In a study by Jones (2011), only 50% of students correctly identified the scenarios that involved plagiarism, while only 17% of students perceived ‘turning in a previously submitted assignment’ as a plagiarizing behavior, reflecting students’ misconception towards certain acts of plagiarism. As revealed by Gullifer and Tyson (2010), except for verbatim copying, students show misconceptions and confusion about what plagiarism is constituted of, expressing frustration to understand certain ‘grey areas’ that are not clearly defined.

In a nutshell, students are capable in identifying only some kinds of incidents of plagiarism instead of all instances. Some activities are commonly identified as offences of plagiarism by students in various studies, with examples including blatant copying without acknowledging sources (Hudd et al., 2009; Kwong et al., 2010, Jones, 2011), and turning in others’ work as one’s own assignment (Fish and Hura, 2013; Jones, 2011; Kwong et al., 2010; Gullifer and Tyson, 2010). These appear ‘obvious’ scenarios of plagiarism to students. On the contrary, other behaviors such as using others’ ideas in own assignment without acknowledgment (Gullifer and Tyson, 2010; Fish and Hura, 2013), and turning in assignments previously submitted for other courses (Jones, 2011) are considered confusing behaviors in the “grey area” being not clearly defined; in other words, more “obscure” acts of plagiarism.

Thus far, previous studies have focused on their perceptions of different plagiarizing behaviors. Yet, not much research has been done to investigate how students perceive their own understanding on plagiarism. Furthermore, another reason behind academic misconducts is academic performance. Past research has found that ‘to get good grades’ is a primary motive that causes students to cheat (McCabe, 2005). It has also been found that poor performance increases the likelihood of cheating (Finn and Frone, 2004). Although research has been done to illustrate a link between academic performances and the tendency to commit plagiarism (Bennett, 2005), little research has studied the relationship between students’ academic performances and their self-perceptions related to plagiarism.
Research Questions

This study seeks to identify how students across grade levels and levels of performance in inquiry-based learning react to different types of plagiarism by classifying plagiarizing acts into “obvious plagiarism” and “obscure plagiarism”. “Obvious plagiarism” refers to obvious violations that tend to be agreed as acts of plagiarism by both teachers and students in previous studies, whereas “obscure plagiarism” involves scenarios that requires more thinking for determining whether each act constitutes plagiarism, and are more likely to lead to confusion and misconceptions. With such classification, this study sets out to examine students’ self-perceptions and actual understanding of plagiarism, and whether these findings differ when these behaviors are categorized into the two forms of plagiarism. Specifically, this study will answer the following research questions:

RQ1: What are the distributions of students’ perceived and actual understandings of plagiarism across grade levels and levels of performance in inquiry-based learning?
RQ2: Are the perceived and actual understandings of plagiarism related to grade level or performance in inquiry-based learning?
RQ3: Is there any correlation between students’ perceived and actual understandings of plagiarism, including “obvious” and “obscure” plagiarism?

Methodology

Research Design

To elicit students’ perceptions and understanding of plagiarism, this study adopted a mixed method for data collection. A paper questionnaire was designed and administered to the students for obtaining their self-perceptions towards their understanding of plagiarism. A test was included in the questionnaire to assess students’ actual understanding. The test was part of an information literacy test adopted in both primary (e.g., Chu, 2012) and secondary (e.g., Siu et al., 2014) school students. Semi-structured interviews were then conducted with students in focus groups and with teachers in individual sessions to gather qualitative data for further analysis.

Participants

A total of 435 students in a local public secondary school in Hong Kong were surveyed as a convenient sample in Fall 2016. 433 valid responses were collected for analysis. The participating students came from three different grades, i.e. Form 1, Form 2, and Form 3
(equivalent to grades 7 to 9 in the U.S. education system). Since inquiry-based learning was embedded in all assessment tasks in the Liberal Studies subject, the students’ letter-grades in this subject were taken as reference for students’ performance levels in their inquiry-based learning abilities for this study. Students getting a letter-grade “A” fell into the ‘high-performance’ group (H), whereas those with a B were in the ‘medium-high performance’ group (MH), C as ‘medium-low’ (ML), and those with a D, E or F in the ‘low-performance’ group (L). Distribution of students according to performance levels are listed in Table 1. As the students conducted an inquiry-based group project in the Liberal Studies subject, the project groups were a natural unit for focus interviews. Forty-four (44) students in 12 inquiry-based project groups with different performance levels across all Forms were invited to participate in focus group interviews, while all five teachers of these classes participated in individual interviews. All interviews were audio-recorded and transcribed for further analysis. Both the questionnaire and interviews were administrated in Chinese as it was the medium of instruction of the school.

<table>
<thead>
<tr>
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<tr>
<td>Total</td>
<td>180</td>
<td>139</td>
<td>73</td>
<td>41</td>
<td>433</td>
</tr>
</tbody>
</table>

Table 1. Distribution of students in different forms and according to performance levels in inquiry-based learning

Instruments
A questionnaire was administered to the students. Part 1 of the questionnaire (see Table 2) required students to report their self-perceptions of their understanding about plagiarism on a 6-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree). A six-point scale was used to avoid indecisive or neutral responses (Croasmun and Ostrom, 2011; Chyung et al., 2017) which were quite common among students in East Asia (Kikuchi and Browne, 2009).

1. 我善於分辨涉及抄襲行為的情況。 = I am good at identifying acts of plagiarism.
2. 我懂得避免抄襲的行為。 = I know how to avoid plagiarizing behaviors.
3. 我了解避免抄襲行為的重要性。 = I understand the importance of avoiding plagiarism.

Table 2. Questions on students’ self-perception on understanding about plagiarism
Part 2 was used to test their actual understanding of plagiarism. Table 3 shows a list of 6 descriptions of plagiarism behaviors given to students to test their actual understanding. Among the 6 statements, statements 1, 3, and 6 exemplify “obvious” plagiarism, since the three scenarios have been regarded as blatant plagiarizing acts in prior studies (Fish and Hura, 2013; Hudd et al., 2009; Kwong et al., 2010; Jones, 2011), while statements 2, 4, and 5 indicate those that are rather “obscure”, meaning these scenarios are considered as harder to identify and may cause confusions (e.g., Carroll, 2002; Fish and Hura, 2013; Jones, 2011). Students were asked to determine whether each statement constituted plagiarism by rating them with the same 6-point Likert scale. Scaled responses were adopted rather than “yes or no” options since there can be a varying degree of seriousness in terms of students’ perception towards a plagiarizing act (Maxwell et al., 2008).

Do you agree each of the following is an act of plagiarism?

1. 直接在我的功課上貼上他人的文章內容，而未有註明出處。
   Copying others’ work directly onto my paper without citation as if it were my own work. (Hudd et al., 2009)

2. 在改述他人文章的用詞後，於我的功課上使用該部份資料，但未有註明出處。
   Using others’ ideas in my work after rephrasing the wordings without citation. (Carroll, 2002)

3. 在功課上引用在互聯網上找到未有註明出處的資料，並以自己名義遞交。
   Using an idea from the internet with an unknown source as my own work.

4. 在功課上使用老師在課堂上提及過的資料，但未有註明出處。
   Using information my teacher taught me during lesson without citation.

5. 使用自己以往的功課內容，但未有註明出處。
   Reusing my idea in exact wordings from a previous assignment without citation. (Jones, 2011)

6. 以他人的作品作為自己的功課內容。
   Submitting my friend’s work in my name. (Fish and Hura, 2013; Jones, 2011; Kwong et al., 2010; Gullifer and Tyson, 2010)

Table 3. Questionnaire on students’ actual understanding

A semi-structured interview protocol was designed to solicit students’ open-ended responses to their perceptions towards plagiarism. Examples of questions include “what is plagiarism in your opinion?”. The individual interviews with teachers focused on what kinds of acts would be plagiarism in their opinion and how they taught about plagiarism.
Results

Descriptive statistics of students’ responses
Responses to the three questions regarding students’ self-perceptions towards their understanding about plagiarism achieved a high degree of reliability (Cronbach Alpha = 0.811) and were averaged as the measure of a student’s self-perception. Figures 1a and 1b show the distributions across grade levels and across performance levels respectively. The medians of the ratings from all three grade levels were 5.0. The medians of the ratings from the high-performing, medium-high, and medium-low groups were 5.0 while that from the low-performing group was 4.0.

![Insert Figure 1a here]  ![Insert Figure 1b here]

Figure 2 displays the distributions of ratings on the six scenarios of plagiarism (Table 3) across three grade levels while Figure 3 shows the distributions across the four performance levels. Except for the scenario in Q5, the distributions of students’ ratings on each of these plagiarism scenarios appeared to be different across grade levels. Meanwhile, the distributions in all scenarios (Q1 to Q6) appeared different across performance levels.

![Insert Figure 2 here]

![Insert Figure 3 here]

Correlation between self-perception and actual understanding
Results of students’ actual understanding about plagiarism are aggregated and shown separately according to the types of plagiarism, i.e. plagiarism in general (statement 1 – 6), “obvious” plagiarism (statement 1, 3, and 6), and “obscure” plagiarism (statement 2, 4, and 5). Table 4 presents the median values of students’ self-perception and actual understanding of plagiarism and correlations between them. As the data is of ordinal scale rather than numerical scale, Spearman’s correlation was calculated. It was shown that students’ self-perceptions were significantly correlated with their actual understanding in all three classifications ($p < 0.01$). According to interpretation of the Spearman correlation suggested by Xiao et al. (2016), students’ self-perception towards understanding plagiarism in general showed a moderate correlation with their actual understanding of plagiarism in general ($r_s = 0.350, p < 0.01$), and with their actual understanding of obvious plagiarism ($r_s = 0.372, p < 0.01$). The correlation between self-perception towards understanding plagiarism in general and actual understandings of obscure plagiarism, however, was weaker ($r_s = 0.231, p < 0.01$).
Self-perception and actual understanding on plagiarism in different grade levels

Results of the questionnaire and the test across different grade levels (Forms) are summarized in Table 5. As the data are in ordinal scale, the non-parametric Kruskal-Wallis test was conducted to compare each of the ratings/scores among the three grade levels. Significant differences (p < .05) were found only in students’ self-perceived understanding of plagiarism, but not in their actual understanding. Follow-up pairwise comparisons revealed that students in Form 1 had a significantly higher self-perception than students in Form 3 (p = .011*).

<table>
<thead>
<tr>
<th>Mean Rank</th>
<th>Chi-square</th>
<th>Sig.</th>
<th>KW</th>
</tr>
</thead>
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<td>Form 1</td>
<td>Form 2</td>
<td>Form 3</td>
<td></td>
</tr>
<tr>
<td>Self-perception towards understanding plagiarism</td>
<td>230.97</td>
<td>208.60</td>
<td>188.74</td>
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<tr>
<td>Actual understanding on plagiarism (in general)</td>
<td>212.27</td>
<td>208.36</td>
<td>198.94</td>
</tr>
<tr>
<td>Actual understanding on obvious plagiarism</td>
<td>226.74</td>
<td>200.04</td>
<td>204.12</td>
</tr>
<tr>
<td>Actual understanding on obscure plagiarism</td>
<td>208.78</td>
<td>221.82</td>
<td>201.33</td>
</tr>
</tbody>
</table>

*p < 0.05; *p < 0.01; 0 < |r_s| < 0.1 = very weak relationship; 0.1 < |r_s| < 0.3 = weak relationship; 0.3 < |r_s| < 0.5 = moderate relationship; 0.5 < |r_s| < 1.0 = strong relationship (Xiao et al, 2016)

Table 5. Results according to grade levels

Median values and correlations between self-perception and actual understanding of plagiarism of the three grade levels are presented in Table 6. The self-perception and actual understanding of students were all significantly correlated across all grade levels, with a moderate correlation in Form 1 (r_s = 0.315, p < 0.01) and weak correlations in Form 2 (r_s = 0.176, p < 0.05) and Form 3 (r_s = 0.276, p < 0.01).

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Self-perception</th>
<th>Actual Understanding</th>
<th>Spearman’s r_s</th>
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<tr>
<td>1</td>
<td>5.00</td>
<td>5.00</td>
<td>.315**</td>
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Table 6. Correlations between self-perception and actual understanding of plagiarism in different grade levels

<table>
<thead>
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<th>Grade</th>
<th>Self-perception</th>
<th>Actual Understanding</th>
<th>Correlation</th>
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<td>.176*</td>
</tr>
<tr>
<td>3</td>
<td>5.00</td>
<td>4.50</td>
<td>.276**</td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01;

Self-perception and actual understanding on plagiarism in different performance levels of inquiry-based learning

Results of the questionnaire and the test across different performance levels of inquiry-based learning are summarized in Table 7. Students in the school were divided into four performance levels as previously mentioned. A Kruskal-Wallis test was conducted to compare the differences among the four groups, and the results showed significant differences in all ratings and scores across performance levels. Follow-up pair-wise comparisons revealed that students from the lowest-performing group had significantly lower self-perceived understanding of plagiarism than the highest-performing group (\(p = .014^*\)). These lowest-performing students also had significantly lower actual understanding of plagiarism in general than the highest-performing group (\(p = .001^{**}\)), the medium-high performance group (\(p = .020^*\)), and medium-low performance group (\(p = .000^{***}\)). Particularly for actual understanding of obvious plagiarism, these lower-performing students had significantly lower scores than each of the three other groups (\(p = .000^{**}\)). For students’ actual understanding of obscure plagiarism, however, the only significant difference occurred between the medium-high performing students and the medium-low performing students, with the latter having higher scores.

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>Mean Rank H</th>
<th>Mean Rank MH</th>
<th>Mean Rank ML</th>
<th>Mean Rank L</th>
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<td>Self-perception on plagiarism</td>
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<td>129.43</td>
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<tr>
<td>Actual understanding on obvious plagiarism</td>
<td>223.40</td>
<td>215.48</td>
<td>204.69</td>
<td>95.51</td>
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<td>.000**</td>
</tr>
<tr>
<td>Actual understanding on obscure plagiarism</td>
<td>220.33</td>
<td>190.54</td>
<td>239.14</td>
<td>185.92</td>
<td>10.253</td>
<td>.017*</td>
</tr>
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</table>

*p < 0.05; **p <0.01;

Table 7. Results in different performance levels of inquiry-based learning

Correlations between the self-perception and actual understanding of plagiarism of students across the four performance levels are demonstrated in Table 8. The self-perception and actual understanding of students in the low-performing group were moderately correlated (\(r_s\),
= 0.345, \( p < 0.05 \)) and the correlations in the high-performing (\( r_s = 0.230, \ p < 0.01 \)), medium-high (\( r_s = 0.197, \ p < 0.05 \)) and medium-low (\( r_s = 0.294, \ p < 0.05 \)) were weakly correlated.

<table>
<thead>
<tr>
<th></th>
<th>Self-perception</th>
<th>Actual Understanding</th>
<th>Spearman’s ( r_s )</th>
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<td>H</td>
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<td>.294*</td>
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<tr>
<td>L</td>
<td>4.00</td>
<td>4.00</td>
<td>.345*</td>
</tr>
</tbody>
</table>

* \( p < 0.05 \); ** \( p < 0.01 \)

Table 8. Correlation between self-perception and actual understanding of plagiarism in different performance levels of inquiry-based learning

Interview responses

Out of 44 student participants in the focus groups, 19 spoke about what constituted plagiarism and other student participants generally agreed with their description. The majority of these students, regardless of which grade level or performance level, mentioned “copying others’ work”, though with different variations or elaboration on this act, mainly including “copying without making modifications or adding their own opinions” (Student participants #4), copying “a lot of content [from a source] at one time” (Student participant #28), and copying “without citing the source” (Student participant #34). A few students described plagiarism in a more indirect way. For example, two students described plagiarism as “taking others’ contribution” (Student participant #18) and “treating it [others’ work] as our work” (Student participant #7).

Five teachers of the Liberal Studies subject of the participating school were interviewed. All of them taught plagiarism as part of the topics on information literacy. When asked how they taught about plagiarism, it was generally agreed that their teaching on information literacy (including but not limited to the concepts of plagiarism and techniques of avoiding it) was “not very structured” (Teacher participant #2) and not taught “systematically” (Teacher participant #4). It was pointed out that before teaching they had to “digest [the instructional content about information literacy] to have a better understanding of information literacy” (Teacher participant #2). Notably, a teacher commented that plagiarism means “copying 100% of others’ opinions into it [one’s own writing]” (Teacher participant #1) and another teacher shared that he would consider the content of students’ work committing plagiarism “if there were no citations” (Teacher participant #4). Despite junior forms having “more potential in learning” (Teacher participant #1), teachers expressed difficulty in teaching about
plagiarism or information literacy “in a formal lesson” (Teacher participant #5) since they were not “within the syllabus” of the school (Teacher participant #2) and information literacy was hardly involved in any other other subjects “unless they [students] worked on [inquiry-based] projects” (Teacher participant #4).

Discussion

Self-perception vs actual understanding on plagiarism

Results demonstrated that students were able to identify some plagiarism behaviors correctly, but not all (median scores of the six plagiarizing scenarios ranged from 3 to 6). Such a finding corresponds with the study by Jones (2011) where only 50% of students were able to identify all plagiarism scenarios accurately. Results of the correlation analysis reveal that a moderate correlation can be found between students’ self-perception and actual understanding of plagiarism in general ($r_s = 0.350, p < 0.01$, Table 4), suggesting that students are able to make a correct judgment of their knowledge in plagiarism to a certain extent. Yet, since the correlation coefficients were weak to moderate in the whole sample (Table 4), results also imply that there is a gap between students’ self-perceived and actual understanding. As their ratings of the plagiarizing scenarios (i.e., actual understanding) were consistently lower than those of self-perception questions, students were likely to have overestimated their knowledge on plagiarism. The overestimation was more severe for students in Forms 2 and 3 (as the correlations were weaker for them, Table 6). Interestingly, Form 1 students demonstrated relatively stronger correlation than their seniors in Form 2 and Form 3 (Table 6), implying that the students who freshly graduated from primary education were more self-aware of their own understanding about plagiarism.

On the other hand, students with the lowest performance level of inquiry-based learning, had lowest ratings in both self-perception and actual understanding. Previous educational research (e.g., Liu et al., 2005) on performance-based streaming of students showed that lower-ability stream students had more negative “academic self-concept” when compared with their higher-ability stream counterparts, particularly in the Asian context. This tendency helps explain the under-performing students’ poor self-perception. Therefore, while all students would benefit from more help in identifying plagiarism behaviors, help and encouragement from both teachers and peers should especially go to students with lower academic performance.

Impact of obscurity of plagiarism – “obvious” vs “obscure” plagiarism

Results also show that for “obscure” plagiarism items, only a weak correlation with self-perception on understanding plagiarism in general ($r_s = 0.231, p < 0.01$, Table 4), while correlation between students’ self-perceived understanding of plagiarism in general and
actual understanding of “obvious” plagiarism is moderate. Students faced larger difficulty in identifying obscure plagiarizing behaviors (e.g., Q5 as an obscure plagiarizing scenario got the lowest scores across grades and performance levels, see Figures 2 and 3). It also implies that students’ judgments of their own knowledge of plagiarism were more different from their actual understanding on the obscure scenarios than that on the obvious ones. During the focus interviews, when asked about what plagiarism constituted, students often responded with “copying from others without indicating sources”, as in the more “obvious” plagiarizing scenario (Q1 in this study). These illustrate that students tended to equate plagiarism as the act of blatant copying, disregarding other less obvious plagiarizing acts, corroborating the survey findings that “obscure” plagiarism was less likely identified as plagiarism.

It is a common finding in various studies that students are often confused over what plagiarism is actually constituted of and they express frustration towards grey areas of plagiarism that have not been clearly defined (Carroll, 2005; Gullifer and Tyson, 2010). While even university students might not have a clear recognition of such obscure plagiarizing acts (Dobrovsk and Pokorny, 2007), it is unsurprising that junior secondary students who presumably have less learning experience and exposure to academic knowledge would also have this kind of misunderstanding or misconception. Although these students have just graduated from their primary school education, it is never too early to equip them with correct understanding of plagiarism. In particular, more emphasis should be placed on non-obvious acts of plagiarism which one could easily be off guard, and the consequences could linger till the students enter their tertiary level of studies. Unlike tasks in secondary schools which are usually more structured and rigid, in tertiary education students will receive fewer instructions and will be required to be more independent to manage and complete their assignments (Sears, 2004; Smith et al., 2013). Thus, if students in their years of secondary education could become knowledgeable about different kinds of plagiarizing behaviors, they would likely adapt better to their university studies where all work must strictly be plagiarism-free.

Grade levels, performance levels in inquiry-based learning, and understanding on plagiarism

Results show that students in different grade levels perceived their own understanding of plagiarism differently, while their actual understanding of plagiarism showed no significant difference (Table 5). As revealed in teachers’ interviews, the school had no curriculum or any systematic training on plagiarism at the time of this study. While all students would largely lack knowledge of plagiarism, Form 3 students, being the most experienced among the junior secondary students in inquiry-based learning, would be more aware of the complexity of plagiarism or information literacy than those in lower forms, and thus recognized the need for
more knowledge on plagiarism. In contrast, since Form 1 students have just joined secondary school, they were likely the least informed batch of learners in terms of the complexity of plagiarism and showed over-optimism regarding their knowledge on this topic. Meanwhile, there were no significant differences across the grade levels in students’ actual understanding of plagiarism. Students’ open-ended responses from interviews also corroborated the quantitative findings, in that students from different grade levels commonly referred to plagiarism as ‘verbatim copying’.

Results also show that students with different academic performance in inquiry-based learning had different understanding levels of plagiarism. Students who had better abilities in inquiry-based learning are found to have a better understanding of the concept of plagiarism. In contrast, students with lower inquiry-based learning abilities show weaker actual understanding (Table 7). While previous research found that students with higher confidence in their academic performance tend to cheat less (Cizek, 1999) and low academic performances increases the likelihood of cheating (Finn and Frone, 2004), the results of this study introduce the idea that students with lower academic attainment tend to have an insufficient understanding of the concepts of plagiarism.

The results of this study imply that more effort and attention should be devoted to help not only students with weaker abilities in inquiry-based learning, but also those in better-performing groups to understand plagiarism, especially plagiarizing behaviors that appeared to be obscure to students (as shown in Table 7, both MH and L groups had relatively lower mean ranks on obscure scenarios). This indicates that students’ abilities in inquiry-based learning might not be consistently related to their understanding of obscure plagiarism. Test results of this study also produced interesting findings regarding the cross-performance correlation between self-perception and actual understanding of students. Students with either the best or the poorest performances in inquiry-based learning seemed more conscious of their knowledge of plagiarism. It is somewhat surprising that under-performing students were more aware of how much they understood plagiarism than other students (as indicated by the highest correlation in Table 8). This seems to echo the confidence issue among lower-performers (Cizek, 1999). Measures should thus be taken to not only improve students’ understanding of plagiarism, but also help them become aware of their improvement through assessment and providing feedback. On the other hand, medium-high performers have the poorest awareness on their actual understanding, overestimating their understanding plagiarism (Table 8). Overconfidence is also an issue that might demotivate learners. Therefore, assessment and feedback are again important to help students obtain a correct perception of their understanding of plagiarism.
Teachers’ understanding on plagiarism

Apart from investigating students’ perceptions and attitudes on plagiarism, one other important point to consider is the perspectives of teachers and institutions, because of the critical role of teachers in equipping students with correct knowledge and attitude. In this study, both students and teachers indicated there was a lack of instructions on what constitutes plagiarism. This calls for more attention in educating students about the concepts of plagiarism. In particular, it is suggested that schools and teachers should pay more attention to the teaching of obscure plagiarism behaviors and provide more guidance along with examples regarding such behaviors. For instance, with consent, works from previous cohorts of students could be adopted as examples for demonstrating different scenarios of plagiarism. Well-defined guidelines and examples students can relate to themselves would be useful to help students understand academic misconduct better, thus reducing the chances of plagiarizing.

Furthermore, it was also revealed that there were misconceptions and a lack of knowledge towards plagiarism among teachers apart from students. As reflected by interviewed teachers’ association of plagiarism with merely verbatim copying or lack of citations, confusion, or misunderstanding over plagiarism, especially those “obscure” scenarios (Alam, 2004), it is possible that teacher’s knowledge of plagiarism might be inaccurate or limited, to which students’ misconceptions may be partially attributable. Therefore, even before directing attention to students, it is necessary to help teachers learn more about different scenarios and behaviors that should be considered plagiarism. It is suggested that training on plagiarism should be incorporated in professional development of teachers, especially those teaching subjects highly relevant to inquiry-based learning such as Liberal Studies and Integrated Science. Current and proven effective pedagogy such the UPCC framework (Chu and Hu, 2016) could be implemented to strengthen teachers’ understanding about plagiarism and also ensure a more systematic teaching and learning of plagiarism.

Moreover, teachers generally agreed that teaching information literacy skills, which include the ethical use of information, in the secondary school classrooms could be difficult due to lack of curriculum. Relatedly, teachers in recent studies pointed out the absence of official curriculum guidelines on teaching techniques of avoiding plagiarism such as proper citation (Yeung et al., 2018). Therefore, a formal inclusion of the ethical use of information and/or anti-plagiarism should be included in secondary school curricula. In this regard, there is some initial progress. The Hong Kong Examinations and Assessment Authority, an organization targeting mainly stakeholders of secondary education, listed two scenarios of “malpractice” as plagiarism: “presenting work completed by others, in part or in whole, as one’s own work” and “including material copied directly, in part or in whole, from books, newspapers,
magazines, CDs, the Internet or other sources without proper acknowledgement” (HKEAA, 2013). Although the two scenarios are not as complete as those depicted in Q1 to Q6 in our test, this indicates a good starting point which could be followed up on.

In short, to help improving students’ attitudes and perception and to minimize plagiarism, it is suggested that schools and/or education policy makers should first develop clear guidelines for teaching staff (e.g., teachers, librarians, etc.). Through improving teachers’ knowledge of plagiarism and pedagogy in teaching plagiarism, they could effectively teach students to understand plagiarism correctly and steer away from acts suspected to constitute plagiarism.

Limitations

This study involved participants in one secondary school in Hong Kong. As cultural backgrounds may affect student perception of plagiarism (e.g., Maxwell et al., 2008), further studies are needed to explore and compare student self-perceived and actual understanding of plagiarism across different cultures. This study focuses on students’ understanding of plagiarism rather than plagiarism behaviors of students. Future work may be dedicated to the relationship between students’ understanding and their actual plagiarizing behaviors.

Conclusion

This paper reported findings on students’ perceptions and actual understanding of plagiarism in a junior secondary school in Hong Kong. Since the majority of prior studies focused on high school or university students (e.g., Smith et al., 2013), this study could contribute to bridging the literature gap on junior secondary students. In addition, by distinguishing plagiarism scenarios in different obscurity levels, this study reveals that students understood “obvious” plagiarism better than “obscure” plagiarism, suggesting that more training on recognizing “obscure” plagiarism is needed for students and sometimes for teachers as well.

This study also discloses the discrepancy between students’ self-perceived and actual understanding about plagiarism. Findings suggest that students’ self-perceived understanding of plagiarism differed across grade levels, whereas their actual understanding was at a similar level. This study also found that performance levels in inquiry-based learning were related to students’ knowledge of plagiarism as students with lower academic attainment in inquiry-based learning demonstrated weaker actual understanding of plagiarism. Also, it is found that medium-high performers did not have a clear self-awareness towards their knowledge of plagiarism. It is thus suggested more attention should be directed towards not only the lowest but also middle performers. Besides discussions on how to further improve teaching and learning of anti-plagiarism in secondary schools, this study also suggests that
future efforts should be dedicated to developing and implementing effective guidelines and pedagogy (e.g., the UPCC framework in Chu and Hu, 2016) in secondary education, in order to enhance teachers’ and students’ understanding plagiarism. This would be beneficial not only to students’ current studies but also to their higher education in the future.

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