

Chapter 11

Integrating Concept-Based Learning into Writing Assessment in Chinese as a Second Language: An Exploration of Students' Perspective



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Abstract Concept-based learning has gained currency in recent years in international school contexts. While there is substantial pedagogical research on concept-based learning, there is relatively little work within the context of exploring L2 Chinese students' conceptual understanding in writing assessments. This study investigated how learners of L2 Chinese demonstrate the three concepts of Audience, Context and Purpose (IBO, 2013b) as applied to L2 writing. Three students in a Hong Kong international school completed an IB Language B (One of the International Baccalaureate (IB) Diploma Programme (DP) subjects is Language Acquisition, which consists of Language ab initio and Language B. While Language ab initio is language acquisition course for students with no prior experience of the target language, or for those students with very limited previous experience, Language B is for students with some previous experience of the target language.) writing assessment task. Their thinking and writing processes, including instances where they apply the relevant concepts, were investigated through eliciting think-aloud verbal reports and stimulated recall. The analysis found a general alignment of students' understanding of the concepts and the definitions in the IB curriculum document, and the students indeed applied the concepts at various stages of their writing processes. However, their conceptual understanding was found to be considerably compromised by their limited lexical repertoire in L2 Chinese. Implications for the IB Language B writing assessment, and suggestions for further research on how to align the assessment of conceptual understanding and language skills, are discussed.

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11.1 Introduction

Among the 52 primary and secondary international schools in Hong Kong (Education Bureau, n.d.), 29 of them adopt the International Baccalaureate (IB) curriculum. Along with ten local schools offering IB programmes (International Baccalaureate Organisation, n.d.), a total of 39 schools provide a different educational experience from the local curriculum in Hong Kong. To develop young people's International Mindedness (IM), the International Baccalaureate Organisation (IBO) has implemented a concept-based curriculum and instructional approach in IB schools. The IB aims “to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect” (IBO, 2020). It emphasises conceptual understanding of IM in the areas of Global Engagement, Multilingualism and Intercultural Understanding.

Erickson and Lanning (2014) explain “*Concepts transfer through time, across cultures and across situation. They are mental constructs that frame a set of examples with common attributes*” (p. 33). Concepts follow these criteria: timeless, universal, abstract and different examples share common attributes (ibid.). IBO's description of concepts aligns with Erickson's definition. They explain that,

Concepts are broad, powerful organising ideas that have relevance both within and across subject areas. Exploring concepts helps students to build the capacity to engage with complex ideas, and discussion of the ‘big ideas’ behind a topic that can help students get to the heart of why they are learning a particular unit or option. (IBO, 2013a, p. 18)

Traditional topic-based curricular approaches focus on facts and skills, with an overarching learning goal of student uptake and retention of learning content. In contrast, concept-based learning consists of three dimensions: facts, skills and concepts. Factual content and skills are tools to develop a deeper conceptual understanding (Erickson & Lanning, 2014). Essentially, then, a concept provides a springboard that stimulates learners' retrieval and utilisation of a nexus of facts and skills; and see interconnections within and across different subject matters.

A strong link has been suggested between teaching through concepts and promoting students' higher-order thinking (Erickson et al., 2017). Through concept-based learning, students develop the capacity to link concrete and abstract thinking, as well as transfer their learning across disciplines and contexts. Erickson and Lanning (2014) further elaborated on the notion of *concepts*, and classify them into macro and micro categories: macro concepts are broad in nature and can be transferred across many different subject areas, whereas micro concepts are more specific and are tied to individual disciplines. In short, concept-based learning aims to develop among students a more comprehensive understanding of disciplinary contents and

interdisciplinary issues; and to facilitate conceptual transfer through time and across cultures and situations (IBO, 2012).

The growing interest in concept-based learning has driven an expanding body of pedagogical research as reviewed in the following section. While there is a growing body of research on concept-based approach to second language learning, there is relatively little work on its application in assessing Chinese as a second language. Moreover, how the learners demonstrate their understanding of concepts through writing lacks discussion. The present study contributes to filling this gap by investigating how L2 Chinese IB students understand the five concepts related to writing, and whether and how they apply such conceptual understanding in their writing process when completing the IB Diploma Language Acquisition—Language B writing assessment task.

11.2 Literature Review

11.2.1 *Concept-Based Learning and Teaching*

The implementation of concept-based learning in various contexts is still at early stages. There has been considerable interest in collecting empirical evidence about the effectiveness of concept-based learning across different subjects, and these studies have generally yielded positive findings. Notably, most of the available research explored the implementation of concept-based curriculum and instruction in the disciplinary areas of Physics, Mathematics and Social Studies. Kung's (2004) study in teaching the concepts of mathematical measurements in a laboratory-based course found that a concept-based curriculum enhances students' understanding of the underlying concepts of measurement as an essential part of conducting an experiment. Sadaghiani and Aguilera (2013) suggested that concept-based curriculum develop students' general thinking skills and understanding that are transferable across subjects. Concept-based learning has also been found to be beneficial to students' L2 learning motivation. Al-Qatawneh (2012) investigated the motivation of students learning English as a foreign language by implementing concept-based curriculum and instruction. The study employed the Course Interest Survey (CIS) to investigate the students' motivation and they were divided into two groups—the experimental group, with a concept-based teaching approach; and the control group, with a conventional method of teaching. The results showed that students' motivation was significantly enhanced and beneficial to different groups of students.

In addition, concept-based learning has potential benefits for students with diverse backgrounds and ability levels. Similar benefits were found in Little et al. (2007) study conducted in elementary and middle school. Students learning through the concept-based approach demonstrated significantly more gains in content learning compared to the control group. It is noteworthy that Twyman et al. (2003) found

that concept-based curriculum is appropriate for culturally and linguistically diverse students and students who have low basic skills.

There is also a growing body of work on concept-based learning of second languages. The majority of research has been conducted in Western countries, where European languages were the target language being learned, for instance, Spanish (Negueruela, 2008; Negueruela & Lantolf, 2006) and French (Swain et al., 2009). Some studies have shown that concept-based learning is an effective approach to help L2 learners acquire accurate and systematic metalinguistic knowledge, which can in turn mediate the development of their communicative abilities (Lantolf & Poehner, 2014; Lantolf & Thorne, 2006). Also, Compernelle et al. (2016) suggested that concept-based learning helped learners develop better conceptual knowledge of sociopragmatics, and enhanced their performance in language production and problem-solving tasks.

However, Sabella (1999) notes the caveat that it is possible for some learners to have a good conceptual understanding but be weaker in facts or skills, while others may be stronger in facts and skills but weaker in conceptual understanding. There remain relatively few studies which investigated the adoption of concept-based learning in learning Chinese as a second language. Available studies to date have mainly focused on concept-based learning of various aspects of Chinese grammar, such as word order (Zhang, 2014; Zhang & Lantolf, 2015), *ba-* construction (Ai, 2015), and temporal grammar (Lai, 2012). However, issues around how concept-based learning might be applied to L2 Chinese writing, and how such learning might be assessed, have remained unexplored. The current study aims to contribute to addressing the research gap in concept-based learning for Chinese as a second language, specifically, whether and how writing assessment may provide evidence of students' development in conceptual understanding. It is hoped to shed light on how to better align assessment with the concept-based curriculum and pedagogical approach.

Examining concept-based learning of L2 writing is of significance. Writing is a complex process as it involves more than sentence structures and grammar (Kao, 2017). Writing in a foreign language adds complexity, as different cultural conventions may be involved in the same genre such as academic argumentation across languages (Xing et al., 2008). For example, the rules of Chinese writing reflect beliefs and values that may not be found in other cultures. Learning the rules of writing in a foreign language is, to a certain extent, a process of discovering the values of the corresponding target language society (Shen & Yao, 1999). While Twyman et al. (2003) found that a concept-based curriculum is beneficial to English language learner who speaks Spanish at home. His study found that the students were challenged by a large amount of information and the requirement of different aspects of learning in concept-based curriculum.

The above-mentioned mixed findings might be attributable to the different contexts of the studies and the languages learned. Chinese, being a character language, lacks close correspondence between the phonological system and the writing system. Consequently, learning Chinese characters brings a lot of challenges to learners. Existing proficiency in the L2 adds another layer of obstacle to processing

learning materials—learners who have limited vocabulary and grammar knowledge in the L2 would find it particularly challenging. Therefore, it can be hypothesised that learners need a threshold level of key vocabulary and grammar knowledge as well as language skills to support their development in conceptual understanding.

11.2.2 Study Context

According to IB, the conceptual understanding in writing assessment is demonstrated in the following aspects, including,

- *The choice of text type is appropriate to the context, purpose or audience.*
- *The register and tone are appropriate to the context, purpose and audience of the task.*
- *The response fully incorporates the conventions of the chosen text type.*

(IBO, 2013b, p. 35)

And the definition of five concepts in Language B are Audience, Context, Purpose, Meaning and Variation. The concepts are defined as follows:

- **Audience:** *Students understand that language should be appropriate for the person(s) with whom one is communicating.*
- **Context:** *Students understand that language should be appropriate to the situation in which one is communicating.*
- **Purpose:** *Students understand that language should be appropriate to achieve a desired intention, goal or result when communicating.*
- **Meaning:** *Students understand that language is used in a range of ways to communicate a message.*
- **Variation:** *Students understand that differences exist within a given language, and that speakers of a given language are generally able to understand each other.*

(IBO, 2013b, p. 24)

11.2.3 Conceptual Framework

Kellogg's model of writing is adopted as a theoretical framework in this study. Similar to some other existing models of writing (e.g. Flower & Hayes, 1980), this model was developed to explain L1 writing. However, Kellogg's model places a greater focus on writing process and linguistic encoding processes, which makes it more applicable to investigating L2 writing. Kellogg's (1996) model distinguishes three main writing processes:

- Formulation
 - Planning (content, organisation)
 - Translation (transforming ideas into linguistic units—lexical and syntactic)
- Execution
 - Motor movements of writing
- Monitoring
 - Reading
 - Editing

Much of existing research into second language writing performance, development and assessment has been focused on the product of writing (see Cumming, 2016; Polio & Lee, 2017), while there has been less attention on the writing processes in which L2 learners engage (e.g. Stevenson et al., 2006). There is now a growing body of research on L2 writing behaviours and associated cognitive processes, and the application of concepts in the L2 writing process may be a worthwhile avenue to explore.

In summary, the theoretical and empirical literature has identified various benefits of concept-based learning. However, the research to date has focused on the effectiveness of the teaching/learning approach. There remain important empirical as well as practical questions on how to align assessment with concept-based learning, such as how assessment may generate evidence of learners' development in conceptual understanding, and conversely, how assessment may affect teachers' and students' engagement in concept-based learning. The review has also identified gaps in research on concept-based learning in the context of L2 Chinese learning, and how conceptual understanding might be assessed. The current study aims to fill these gaps by investigating how L2 Chinese learners demonstrate their understanding of concepts related to language use (e.g. Audience, Context, Purpose) when completing the IB Diploma Programme Language B (Chinese) writing assessment. Specifically, this study addresses the following research questions:

1. How do students understand the concepts in the IB Diploma Programme Language B (Chinese) curriculum as applied in the context of writing?
2. How do students demonstrate their understanding of the concepts when completing the IB Diploma Programme Language B (Chinese) writing assessment task?

11.3 Methodology

11.3.1 Introspective Methods for Investigating Processes During Task Performance

Introspection is a method used in psychological research to investigate cognitive processes and mental states in human beings (Brown & Rodgers, 2002) by means of obtaining verbal reports, or verbal protocols, from the participant whose mental processes are to be examined. Ericsson and Simon (1993) explained that verbalisation of cognitive process can be at three different levels. The first level is the direct vocalisation of heeded information that is naturally encoded in linguistic forms, such as reporting on how to spell a word. The second level involves ‘translating’ information or thought content that is not originally encoded in linguistic forms into a verbal code before reporting it. The third level necessitates additional interpretive or generative processes on aspects that a subject would not normally attend to. An example of this level would be to explain how one arrives at the answer to a question. The present study explores whether and how concepts are applied in the writing processes for the IB writing assessment task among L2 Chinese students, using (a) concurrent think-aloud and (b) retrospective stimulated recall.

11.3.2 Think-Aloud Protocol (TAP)

Think Aloud Protocol (TAP) has often been used as a method in writing research, as it provides researchers with insights into various aspects of the learners’ writing processes (e.g. decision-making, difficulties and revisions). Through TAP, researchers can make inferences about the participants’ ability to evaluate, revise, focus and manage their writing processes, valuable information about L2 writing development that cannot be gleaned from evaluating the writing product alone. For example, L2 writers’ TAP may reveal how they interpret the demands of the task, identify the audience and revise the text. In other words, while the linguistic and textual features of the writing product may reveal some but limited information about learners’ utilisation of the concepts (audience, purpose, context, meaning and variation), TAP can identify learners’ cognitive and metacognitive processes related to the application of concepts in completing the writing task.

11.3.3 Combining Think-Aloud and Stimulated Recall

Concurrent think-aloud and retrospective stimulated recall each has its merits and shortcomings in investigating the cognitive processes participants engage in during

task performance. TAP uses verbal reports to collect information about participants' mental activities or thought processes as they go about performing a task. By analysing the verbal reports, researchers can gain insights into the participants' cognitive processes, which otherwise cannot be directly observed in real time (Van Someren et al., 1994). In addition, a large amount of qualitative data can be obtained from a relatively small number of participants while still providing useful insights. However, a shortcoming of TAP is that verbalisation might interrupt the participant's thinking processes, in particular the third level of verbalisation mentioned above. Stimulated recall has its merits in this regard, as it elicits participants' reporting of their thought processes in performing a task only after the completion of the task. The participant would be shown a video-recording of their task performance, with the playback paused at regular intervals, as the researcher asks the participant to report what they have been thinking or doing at that particular moment. Taking account of each method's advantages and overcoming their limitation, this study adopted a combination of the two methods, with both concurrent and retrospective verbal reporting.

11.3.4 Participants

Purposive sampling was adopted to select the research participants in this study, in order for comparisons to be made among them. Three students, aged between 17 to 18, were chosen from an IB international school in Hong Kong to participate in the study. They were all studying in the IB Diploma Programme (Year 13) Chinese Language B at the time of data collection. The students were from Thailand (Melissa), Hong Kong (Chloe) and Bhutan (Sue), who have been learning Mandarin Chinese for 6 to 10 years. The students were selected based on their Chinese teacher's evaluation of their proficiency level and performance on formative assessments in school. Chloe was at the intermediate level and Melissa and Sue were at lower intermediate level. To ensure that all the students were capable of performing the think-aloud task, the teacher was asked to avoid choosing students who were too shy or did not have an adequate verbal ability for this study.

11.3.5 Writing Task

The writing task in this study was designed by an experienced teacher and examiner of IB Language B. The task was written to the specification from IB, and was checked by another experienced IB Chinese teacher. There were three questions in the task prompt (written in Chinese), and the participants were required to answer one of the questions by writing 300—480 Chinese characters (See Appendix 1).

11.3.6 Procedure

The data collection was conducted in June 2020. Each participant completed the writing task individually—engaging in think-aloud during task performance and stimulated recall on task completion. The entire procedure was conducted in English through video-conferencing with the researcher online—due to the COVID-19 situation, face-to-face data collection was not possible. At the beginning of the research session, the researcher explained to the participants the setup for the task, read the instructions and explained the procedures to the participants. The participants were assured that all the data collected would be kept confidential and used for research only. To familiarise the participants with the think-aloud procedure, they first watched a demonstration video about TAP, and then completed a practice task. The practice task was to write an email to their teacher requesting an extension for assignment submission.

The participants were told to complete the writing assessment task as they would do when they are assessed and that their task responses would be graded by a Chinese teacher. For the think-aloud during task performance, the participants were asked to read aloud the question prompt and what they wrote, and report what they were thinking about. Prompt questions such as ‘What are you thinking now?’ or ‘Why do you say that?’ were used to elicit more information about the thinking processes of the participants. Immediately after completing the writing task, the participants were engaged in a stimulated recall session. They were asked to explain how they understood the five concepts in the writing assessment. Moreover, based on the performance of the task, the participants were asked to recall how they applied their knowledge of the concepts in the writing process and any other considerations.

Each research session took approximately 1.5 h, a total of 5 h and 34 min of recordings is collected. The researcher recorded the entire session, including the writing process and the participants’ verbal reports, using two recording devices. The writings of the three participants in the TAP are the product of the task, with around 1000 Chinese characters for the three essays. The third author and the Chinese teacher of the participants who are also experienced IB Language A examiners graded the writing in a detailed way.

In terms of ethical considerations, the study is approved by the Education University of Hong Kong’s Human Research Ethics Committee (Reference number: 2019-2020-0081). Also, consent for the participation in the study was obtained from the head teacher, the Chinese teacher and the participants in advance.

11.3.7 Coding and Data Analysis

All verbal reports from the think-aloud and stimulated recall were transcribed and coded using NVivo 12. As the present study aims to explore whether and how students demonstrate their understanding of concepts in the IB writing assessment, a

coding scheme was developed, combining the writing processes of *Planning*, *Translation* and *Editing* in Kellogg's (1996) framework; and the five concepts in the IB writing assessment, namely, *Audience*, *Context*, *Purpose*, *Meaning* and *Variation* (See Table 11.1).

The coding procedure was as follows. First, a preliminary coding scheme was developed by the first author and the third author based on Kellogg's framework and the IB writing assessment guidelines. Then, the verbal reports of one participant were coded by the first author, and attempts were made to identify the participant's application of the five concepts in her writing process. Three iterations of coding were carried out for this set of verbal reports, and discussions to clarify and refine the coding schemes were held between the first and the third author until a consistent understanding of the coding scheme has been achieved, with no further change to the scheme. Since the five concepts are not mutually exclusive in the context of writing, some segments of the verbal reports were coded with two concepts, which showed the interrelatedness of concepts such as Audience and Purpose. To ensure coding reliability, the same set of verbal reports by one participant was double coded by the second author, who is familiar with the think-aloud method but did not participate in

Table 11.1 Coding scheme

Code			Example
Writing process	Planning	Organisation	I was thinking about what to write after the introduction
		Content	I was thinking I would elaborate more on the camping experiences
	Translation	Lexical retrieval/choice	I was thinking how to write 'invite' in Chinese
		Syntactic encoding/choice	I was thinking of using 'want to' but it didn't suit in this sentence
		Editing	NIL
Concepts	Audience		If I say 小孩子, I'm going to make them look like a kid, but they're teenagers. So, I will use 年輕人
	Context		I should say I lived beside here so they're (the teenagers) more connected
	Purpose		The purpose is to introduce your free sports activities to them
	Meaning		洗手間, 洗手 is for washing hands. 廁所 is toilet. 洗手間 sounds better, 廁所 sounds too informal
	Variation		NIL

Table 11.2 Student participants' application of concepts when completing the writing task

Concepts	Frequency	Percentage
<i>Audience</i>	26	18.8
<i>Context</i>	51	37.0
<i>Purpose</i>	42	30.4
<i>Meaning</i>	19	13.8
<i>Variation</i>	0	0

the data collection process. An agreement rate of 88.7% was achieved, with disagreements resolved through discussion. The first author then coded the remainder of the data.

11.4 Findings

This section presents the findings in relation to the student participants' understanding of the concepts *Audience*, *Context* and *Purpose*,¹ and whether and how they demonstrate or apply their conceptual understanding when completing the writing assessment task. Where relevant, the comments from the two examiners who graded the students' essays will also be included, providing insights into whether the students' conceptual understanding as demonstrated in the TAP is reflected in the writing product.

The participants' verbal reports from the think-aloud and stimulated recall procedures were coded according to the five concepts. The following table presents an overview of their use of concepts as they completed the writing assessment task.

As shown in Table 11.2, *Context* was the most frequently applied concept, followed by *Purpose* and *Audience*. The three concepts are included in the rating criteria for the IB Language B Language Acquisition writing assessment. It appeared that the participants did not apply the concept of *Variation* at all in the writing assessment. Note that the frequency does not suggest the relative importance of the concept, but merely an indication of how often the participants employed the different concepts while completing the writing task.

For the students' task responses (the texts), the score for each assessment criterion awarded by the two examiners is presented in Table 11.3:

¹ The two concepts *Meaning* and *Variation* are not included in the writing assessment criteria for IB Diploma Programme Language B (Chinese). Therefore, the current analysis focuses on the three concepts—*Audience*, *Context* and *Purpose* that assess in the writing.

Table 11.3 Analytic scores of the students' task responses

Criterion (full score)	Melissa		Chloe		Sue	
	Examiner 1	Examiner 2	Examiner 1	Examiner 2	Examiner 1	Examiner 2
Language (12)	5	6	6	7	5	7
Message (12)	8	6	8	9	5	7
Conceptual Understanding (6)	2	2	4	5	4	4

11.4.1 Audience

The students understood the concept of Audience as “*who you are talking to*”, “*the target audience*”, “*the people who are intended to read and interpret the text*”, as they reported during the stimulated recall. They also considered Audience in relation to text type. For instance, the target audience of a diary is oneself, and more specifically, a future self who will be reading the diary. As reflected in the TAP, all three participants identified the audience of their text. In planning the content of the text, the participants pondered and projected the characteristics, prior knowledge and previous experience of the audience. For example, when Sue and Chloe were writing the diary, they not only considered the audience to be simply ‘oneself’, but also a student who had no camping experience—indeed, an aspect of the audience and context extracted from the task question. Similarly, Melissa projected the possible background characteristics of the teenagers—the target audience in question one, that they are living in the neighbourhood, from a lower socio-economic background and not very educated. These audience characteristics informed both the content and the language of her writing (see below).

The TAP provided evidence of the students' application of the concept of audience in the process of ‘translation’, specifically, as they considered alternative lexical choices more or less appropriate to the target audience. Melissa explained her decision of addressing the teenagers as “年青人” instead of “小孩子”, the former being “*not too rude, not too praising and just neutral*”. Extracting from the contextual information provided on the task question (providing free sports activities), she inferred that these teenagers had little money and did not want to sound condescending—“*look[ing] down on them*”. As she crafted the content of the text, she also applied two concepts together, namely, Audience (the teenagers), and Purpose (persuading the teenagers to join the sports activities provided):

Because I feel like if I show that I know what they are thinking and I think in their ways, they might feel like I care more or I have done my research and I understand them which will make my argument more persuasive.

Nevertheless, these considerations in relation to Audience and Purpose within Melissa's writing process had only limited effects on the final writing product. Her text was scored 2 (lower range) in conceptual understanding by both examiners. Examiner 1 commented that “*the young pupils from low-income backgrounds should be further specified*”, while Examiner 2 remarked that there were difficulties for the

reader in identifying the text type, even though the register and tone were occasionally appropriate to the context:

There are difficulties in identifying the text type in this essay as it does not show any relevant features of the text type.

The language used to advertise free sports facilities are not well articulated.

Sue, in responding to question two, also adjusted the language she used in consideration of the audience as ‘herself’. She began the text with “我回來了!”, and highlighted her use of the exclamation mark as because “*it is colloquial and talking to herself.*” During the stimulated recall, she elaborated on her thinking behind her planning of content at the beginning of the text—omitting some contextual details by choice:

I talk immediately about this experience after that because I’ve, I am the person writing it and it’s writing to myself so I already know, I don’t have to elaborate much.

Overall, it can be seen that the participants demonstrated an understanding of Audience in line with the definition in the IB document—as they varied the content and language of their writing in consideration of the reader(s) with whom they are communicating. Their application of this concept is seen at different stages of the writing process, most notably when planning for content and when translating ideas into words, although only with limited success.

11.4.2 *Context*

The students considered *Context* to be a very important concept. As Sue explained during stimulated recall,

Context is really important in terms of text because it gives a background information about everything you are reading about [...and] everything is really interlinked to the context.

She expressed the view that the text type and the tone of the text are both connected to the context of the writing, which guided her use of colloquial language that is more relatable to students and more relevant to student experiences.

The think-aloud verbal reports suggested that the students applied the concept of Context in their writing mainly in planning the content of their texts, and they did so through extracting contextual information from the task question and projecting possible scenarios within the general situation described in or inferable from the task question. For instance, Chloe noted that the question included the word ‘weekend’ (周末), and planned the content of her diary accordingly:

It is weekend, two nights. Okay, my narrative needs like at least three days. I was going to talk about how the first day was really bad...

Notice how she projected the duration of the camping trip based on the contextual information given in the task question. Also, particularly noteworthy is how she planned the development of her narrative from negative to positive experiences during the camping trip, aligning it to the requirement of the task question (finding the experience challenging but enjoying it). Chloe remarked how she ‘plotted’ an off-putting first day with bad weather according to how people generally feel about rain: “*Well, actually I like the rain, but I feel like people would not like it raining on a camp*”. She then further projected possible scenarios or encounters within the context of a camping experience and built those into the developing narrative:

I am thinking of a narrative plot twist because all of our things are wet, there wouldn't be a way for us to cook. But since the camping ground, we could potentially meet another friendship group who are very friendly and we can eat together.

Thus, Chloe demonstrated an understanding of Context by planning the text content according to the general situation (a camping experience), extract contextual information from the task question (‘weekend’), and project plausible events and experiences to incorporate in her narrative. Importantly, she planned the progression of these events in alignment with the task’s requirement (a challenging yet enjoyable experience).

11.4.3 Purpose

The student participants generally showed a good grasp of the concept of Purpose, as reflected in their explanations of the concept during stimulated recall. Sue described Purpose as “*the aim of the text, the main message that the authors want to get across.*” The participants were also able to link Purpose to text type, stating that, for example, “*the purpose of an advertisement is to persuade, to make consumers buy the product*”. In explicating how the concept of Purpose guided her writing for Question 1, Melissa remarked:

The purpose is to show when I want them [the teenagers] to come, so I used ‘hope to see you soon’ to convey the purpose of wanting them to come as well as [announcing our] free facilities.

This aligned with the description of Purpose in the IB document, whereby the language used in the text “should be appropriate to achieve a desired intention, goal or result when communicating”.

In the processes of planning content (for the next sentence) and translating the idea into words, Melissa applied her conceptual understanding of both Purpose and Context:

What is the word for make friends?交到朋友, make friends. Yeah, I should find the word for make friends...你要發現朋友, 發現is discover friends, it's not making friends.你也想交朋友?親密 is close friend, but 親密 it won't fit with sports.更多的朋友,你也想交更多的朋友嗎?

She considered the desire to make more friends as likely for the teenagers (Context), and the benefit of making more friends to be relevant to the Purpose of persuading the teenagers to come to use the free sports facilities. In choosing between lexical alternatives, not only did she demonstrate an awareness of collocational (in)appropriateness (“發現朋友”), she also took account of contextual appropriateness (“but 親密 it won’t fit with sports”). Here, it is noteworthy how Melissa demonstrated her understanding of the concepts in ruling out inappropriate lexical options during her writing *process*. However, such evidence of her conceptual understanding would have been lost in the writing *product*—the text graded by the examiners.

11.4.4 Demonstration of Conceptual Understanding Constrained by Language Proficiency

Given that the students generally displayed a competent grasp of the concepts (evidenced by their explanations during stimulated recall), and demonstrated using the concepts in the writing process (evidenced by verbalisations of their thought processes during TAP), it might be rather surprising how all three students received low to mid scores (see Table 11.3) for conceptual understanding in their task responses. The students’ TAPs revealed some ways in which the application and demonstration of their conceptual understanding were constrained by their developing proficiency in L2 Chinese, particularly their limited vocabulary knowledge.

Firstly, students’ decisions on which topic/question to respond to were influenced by their vocabulary knowledge. At times, a topic was ruled out due to the presence of unfamiliar vocabulary items in the question. For instance, Melissa reported:

I think this [question one] is the best because I don’t know what’s the second, there’s a word which looks like snow, but I don’t know what it is. And there’s the third one is 網絡 something 世界 and I don’t know what it is.

The participants had to ensure that they were able to decode the keywords and fully understand the question. None of the participants chose question three, two of them reporting that they did not understand “cyber bullying” (網絡霸凌) in Chinese, the central theme of question three. Participants’ decision-making on topic choice was also influenced by their perceived adequacy in vocabulary knowledge related to each topic/question. Chloe reported, “*I don’t really know how to talk about sports in Chinese*” after reading question one, which concerned promoting free sports facilities to teenagers.

The participants’ decision to opt for a particular topic/question was also influenced by their familiarity with the text type options available, and their perceived ease or difficulty of lexical retrieval related to a specific text type. A case in point was Chloe’s decision-making process. Even though she was interested in the topic of cyber bullying (question three), she opted out of it. Instead, she chose the less familiar

topic of camping experience (question one) where diary—a text type she is confident in—was an available option:

I don't know how to talk about camping, which I could kind of avoid the topic of camping and just preface that my friends are going camping and talk about other stuff that could happen on a camping trip [...] because the diary is the easiest one to write, the only structure is write the date and then write whatever you want, which is something I like to do because you don't get your marks docked off if you have the incorrect text type or writing structure.

Sue expressed a similar view that there are text types which are easier than others:

Usually interviews are easier to write and blogs as well, brochures have more like a specific structure and that might be a bit more difficult to come up with the vocabulary.

Taken together, Chloe and Sue's comments reflected how their choice of question/topic *as well as* text type were largely dictated by their familiarity with the discourse conventions of particular text types and the perceived adequacy of their vocabulary knowledge vis-a-vis the various text types. While this seems perfectly sensible from a self-efficacy perspective or as a test-taking strategy, this runs contrary to a key dimension of demonstrating conceptual understanding, which is through selecting a text type most appropriate to the relevant Audience, Context and Purpose, as intended in the assessment task design.

The way in which the students' limited lexical repertoire constrained the demonstration of their conceptual understanding was most evident at the stage of translating ideas into words. The TAPs revealed frequent instances where the students encountered difficulties in lexical retrieval, either in terms of retrieving the Chinese word for a particular idea, or recalling how to write the relevant word in Chinese characters. For instance, in writing her text for question two (camping experience), Sue was keen to include the idea of a campfire, reflecting her conceptual understanding of Context when planning the text's content. However, she was unable to retrieve the Chinese word for campfire:

I am not too sure how to say campfire, maybe I will just say fire. I am not sure if this will make sense though.

Her text finally read “做一個火” (‘made a fire’). Not only was the expression grammatically incorrect in Chinese, but it also fails to convey the more specific and contextually relevant meaning of a ‘campfire’.

Consider another example from Chloe's TAP, which illustrates how her attempt to demonstrate her conceptual understanding of *Context* was compromised by her failure in retrieving the Chinese word for ‘dripping wet’:

我們剛到露營場時開始下雨, 我們 Oh now I'm thinking about [...] how to say like we were all like dripping wet, but I can't translate it from English to Chinese...that's not working in my head, so now I don't know how to write. So now I've thinking of another word to replace... I need to make an executive decision about how I'm going to write this sentence. 我們全部的東西都滴濕, 都濕了。

Failing to retrieve the Chinese word for “dripping wet”, Chloe resorted to an alternative way of presentation—that all *their belongings* were wet. While it still

made sense with reference to the same context, she was unable to communicate her original, intended meaning. The following shows a similar example in Chloe's TAP:

I'm thinking about how to write the word 'miracle' in Chinese, which is a word I'm not going to know, so I'm trying to find like an alternative for that, because I thought about 突然, but that sounds a bit weird if I say suddenly we met a group of other people who had food. I think that sounds a bit dodgy I feel. 但我們突然... But then I can't think of any other alternative.

It is noteworthy that Chloe was planning a 'plot twist' in her narrative by presenting a miraculous turn of events, where another group arrived at the site and offered to share food with Chloe and her friends. Nevertheless, she reported not knowing the Chinese word for 'miracle' and used the word 突然 (meaning 'suddenly') instead. She commented how "that sounds a bit dodgy". However, due to her limited vocabulary knowledge, she was unable to communicate her intended meaning and had to compromise by changing the content.

In sum, we see how all three participants demonstrated how they understood and applied the concepts of Audience, Context and Purpose in their writing *process*, yet, their developing proficiency in L2 Chinese, particularly their limited lexical repertoire, placed considerable constraints in demonstrating their conceptual understanding in the writing *product* (the task response).

11.5 Discussion and Conclusion

This study explored whether and how L2 Chinese students in a Hong Kong international school are able to demonstrate an understanding of the concepts of *Audience*, *Context*, *Purpose* in the IB Language Acquisition writing assessment. The data analysis found a general alignment between the students' understanding of the concepts (*Audience*, *Context* and *Purpose*) and the definition of the concepts in the (IBO, 2013b). All the participants demonstrated a good grasp of three concepts (i.e. *Audience*, *Context* and *Purpose*), as evidenced by their explanations during stimulated recall. The think-aloud protocols further provided evidence that the students apply, and therefore demonstrate an understanding of, these concepts in their writing process when completing the assessment task. As shown in the analysis above, all three concepts of Audience, Context and Purpose featured prominently in the students' planning of the text's content, and to some extent, the organisation of the text (e.g. how many days of camping events to write about; what contextual details to include/exclude given the audience; how to start the text as a diary entry). There was also evidence of the students applying the concepts in the process of translating ideas into linguistic units, as seen in verbal reports of deciding between lexical alternatives (e.g. different terms of address appropriate for the teenager audience; different words for 'making friends' and 'close friends' and whether they are appropriate for the context).

An interesting observation concerned how the students applied the concepts (e.g. *Audience*) in their thinking or writing processes both within the context of the task/

question and the context of the assessment. The participants varied their language to take account of the person(s) they were writing to, thereby the imagined audience related to the task/question. Meanwhile, they also considered the actual audience of their text, the examiner and invoked word choices or content ideas they perceived would get them a higher score. Notably, these decisions at times took precedence over considerations of authenticity. For instance, Chloe decided to write about a family they met at the campsite and had cake together, which she commented to be an unlikely situation in real life.

Perhaps the most significant finding in this study is how the students' ability to demonstrate their conceptual understanding is mediated (often constrained) by their developing L2 Chinese proficiency, specifically vocabulary knowledge. The TAP extracts presented above illustrated how the communication of ideas, otherwise well-thought out in relation to Audience, Context or Purpose, was often compromised by gaps in the students' lexical repertoires in L2 Chinese. We have seen instances where the students had to resort to alternative word choices, not because of their appropriacy for particular audiences, contexts or purposes, but as a result of difficulties in lexical retrieval—specifically, the written form of the words. For example, Sue could not recall the Chinese characters of 'situation' (情況) and replaced the word with 'challenge' (挑戰) instead. This may help explain why, while the TAPs provided plenty of evidence for the students applying the different concepts in their writing processes, this did not match up with their scores on conceptual understanding as awarded by the two experienced examiners. This also echoes the finding in Sabella's (1999) study, where some learners had good conceptual understanding but were inadequate in facts or skills. Another important way in which the students' limited L2 linguistic knowledge constrained a genuine demonstration of conceptual understanding is how they selected a particular text type for their task response according to their familiarity with the relevant discourse conventions or their confidence in using the relevant vocabulary. Such decision-making runs contrary to the intended assessment task design, whereby the selection of one text type (out of three) to respond to the task question should be based on, and therefore would serve as evidence for, students' conceptual understanding of the Audience, Context and Purpose relevant to the task question.

Students' understanding of concepts and the ability to apply them in their thinking across disciplines and contexts is one of the key elements within concept-based learning (Erickson, 2007). A main aim of this exploratory study was to investigate whether and how the writing assessment task is able to capture students' conceptual understanding in learning Chinese as a second language. Through examining students' understanding and application of concepts in completing the writing assessment task using TAP and stimulated recall, this study found that the students in a Hong Kong international school sampled in this study had a competent understanding of the concepts related to writing, namely Audience, Context and Purpose. They applied these concepts at various stages of their writing process, such as planning the content of the text, the organisation of the text, and translating their ideas into words (cf. Kellogg, 1996). Importantly, however, it was evident in this study that the students' demonstration of their conceptual understanding in the writing assessment

task is moderated by their language proficiency, most notably their developing yet limited vocabulary knowledge in L2 Chinese. This has had a considerable impact on their writing product, ranging from macro aspects such as which text type they choose to micro aspects such as word choice.

It must be acknowledged that the findings of this study were based on a highly limited sample of three students in a Hong Kong international school, partly due to difficulties in data collection during the COVID-19 outbreak. Nonetheless, the think-aloud methodology provided insights into the students' writing processes, in particular their consideration of the relevant concepts while writing. Moreover, the triangulation of the students' verbal reports and the examiners' scores for their texts revealed how there might be aspects of conceptual understanding demonstrated in the writing process which are lost in the writing product, and identified L2 vocabulary knowledge as constraining the demonstration, and therefore the assessment, of students' conceptual understanding.

Based on the findings of this study, some implications for the IB writing assessment and potential avenues for future research are outlined. Firstly, as we found that students' demonstration of their conceptual understanding was limited by their L2 knowledge (e.g. understanding vocabulary in the task questions; familiarity with particular text types), one implication for task design is the need to consider the language level of the task prompt—e.g. including glosses for vocabulary items likely to be difficult/unfamiliar to the students, or providing bilingual versions of the task question/topic. Secondly, and more importantly, it would be useful for researchers and test developers alike to consider the potential impact of L2 linguistic knowledge on students' development and demonstration of conceptual understanding within concept-based curricula. Students' conceptual understanding constantly develops within and across disciplines in a concept-driven curriculum. However, as seen in this study, their articulation in assessment as learning outcomes in language subjects is mediated and constrained by the developing (yet limited) linguistic repertoire of the student's L2. Indeed, there may be a threshold of proficiency students need to reach before they can readily demonstrate conceptual understanding in their writing. More research is needed to shed light on this and the implications for how conceptual understanding can be assessed beyond the writing product alone. Relatedly, future research could also explore alternative, innovative ways to assess students' conceptual understanding in different (e.g. internal vs. external) assessment contexts. It is hoped that the present study would stimulate more conceptual and empirical work on assessing concept-based learning in second or foreign languages.

11.6 Reflective Questions

Question 1: Through relevant research, how does concept-based learning in writing practices impact and affect students?

Question 2: Through the exploration of specific performance of students, could concept-based learning really achieve its present teaching goals?

Question 3: Through relevant research results, consider how to further promote and elevate the teaching effect of concept-based learning in teaching Chinese as a second language?

Appendix 1: Writing Task for the Think Aloud Protocol (TAP)

选一道题。从此题的选项中，选用合适的文本类型完成写作。字数在300-480个汉字之间。

你发现一些住在附近的年轻人，因为没有钱而不能参加体育运动。你在本地的体育中心安排了一些免费的体育活动。你想向社区的居民介绍这些体育活动的内容及说明要参加的原因。

访谈	博客	传单
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你和一些朋友周末去了露营。这是你第一次参加露营活动，虽然遇到了一些困难，但意外地，你非常喜欢这次的经历。谈谈你在这次露营中遇到的困难和你喜欢这次露营的原因。

演讲稿	日记	传单
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学校的网络霸凌事件越来越多。你是学生会主席，希望说明网络霸凌会带来的伤害，并提出几个解决的方法，在下次学校集会时向同学发表。

演讲稿	日记	访谈
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