

Seamlessly learning Chinese: contextual meaning making and vocabulary growth in a seamless Chinese as a second language learning environment

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Published online: 1 August 2016
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Abstract Second language learners are typically hampered by the lack of a natural environment to use the target language for authentic communication purpose (as a means for ‘learning by applying’). Thus, we propose MyCLOUD, a mobile-assisted seamless language learning approach that aims to nurture a second language social network that bridges formal classroom learning and informal use of the language. The research context that we have applied MyCLOUD to is Chinese as a second language learning. In this paper, we focus on a corpus-based analysis of 1043 social media items to determine the patterns of the students’ vocabulary usage. By participating in activities over a year, the students gradually developed their propensity to proactively and spontaneously make meaning through interacting with their living spaces. This resulted in the retrieval of a greater diversity of the learnt vocabulary and the application of the language, particularly the use of significantly more “less frequent words” in the informal physical contexts, as compared to those from the formal or online contexts. While such findings affirm the notions of situated learning, authentic learning and contextualised language learning, we stretch the theoretical explication by connecting it with the students’ intentionality in learning, with the “joint mediation” of the contextual affordances (the sources of inspiration for meaning making), social media network (providing students the sense of “communication with a purpose”) and their handhelds (the tool for artefact creation and a reminder of their

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involvements in MyCLOUD) to sustain their activity level and therefore the cumulative development of their linguistic competencies.

Keywords Seamless language learning · Mobile-assisted language learning · Social media · Contextual affordances · Corpus analysis

Introduction

Effective language learning should result in the fluent use of language for self-expression and communication in authentic situations (Kang 1995). This outcome, however, is seldom achieved in the context of second language (L2) learning (Kayi 2006) where teacher-centric and behaviourist-oriented pedagogy dominate the classroom (Plank and Condliffe 2011). When language knowledge is compartmentalised into pre-packaged materials that can be used to drill the students, it misses the complexity and contextualised nature of communication (Canagarajah and Wurr 2011). Sociocultural perspectives on language learning emphasise the need to situate learners in authentic contexts where social interactions take place so that language learning/acquisition and language use co-occur (Swain and Lapkin 2000). However, most L2 learners do not have such an authentic environment which can offer them opportunities to use the target language. This hinders the development of their linguistic competence.

The ubiquity of one-to-one technologies has extended language learning practices beyond the classroom. It opens up the opportunity to design authentic environments for students' communicative needs (Wang 2005). Seamless Language Learning (SLL) has been touted to be an effective learning model that leverages 1:1 (one-or-more-mobile-device-per-learner) setting to facilitate anytime, anywhere learning (Chan et al. 2006; Wong and Looi 2011; Wong et al. 2015b). The affordances of the mobile technology support learning across formal and informal, individual and social and physical and virtual learning contexts. Thus, language learning can occur beyond the classroom, with the mobile affordances enabling students in carrying out the much needed language application activities in authentic settings (Fallahkhair et al. 2007). Over the years, the notion of seamless learning has been adopted by scholars to inform the redesign of language learning practice. A recent literature review placed the emphases on innovative designs of technopedagogical environments (e.g., Lan et al. 2014; Ogata et al. 2011; Strasser and Greller 2015). However, the relatively anecdotal framing of SLL studies, and the descriptive analyses characteristic of previous research are insufficient to advance a more precise understanding of how the various learning contexts trigger and enhance learners' linguistic productions.

With the above-stated research gap in mind, this study investigates the learning growth of primary school students engaged in an iterative SLL process mediated by a mobile- and cloud-assisted Chinese Language learning environment entitled MyCLOUD (My Chinese Language ubiquitous learning Days). MyCLOUD is a mobile-based techno-pedagogical model that involves students in the continuous creation of social media in an online platform for one whole year, drawing upon the multiple sociocultural contexts of students' life to enrich language learning. In particular, this paper focuses on vocabulary growth as reflected in the students' social media. With the aid of a corpus analysis tool, the students' vocabulary usage was analysed in order to discover the usage patterns across the time and

across different learning contexts where individual social media were created. Our intention is to identify and unpack the contextual conditions in which MyCLOUD promoted key learning outcomes.

Literature review

In this section, we will establish the theoretical framework and the basis of the study through a review of the literature with the aims of (i) arguing for the importance of early focus on vocabulary learning, for contextualised learning over decontextualised strategies, and for the need of situating learners in authentic, communicative activities; (ii) explicating the latent roles of learners' encounters in authentic environments (known as 'contextual affordances') in mediating language learning and applications; (iii) elucidating seamless language learning as a viable approach for facilitating a perpetual language learning trajectory that is congruent with both (i) and (ii).

Contextualised vocabulary learning

Studies in both Chinese and English Language learning have shown that vocabulary competency is a key indicator of language competency (Iwashita et al. 2007; Jin and Mak 2012). The increased attention on vocabulary requires language educators to clearly articulate what it means to know a word and how much emphasis a teacher should place on receptive (listening and reading) or productive (speaking and writing) knowledge of vocabulary pedagogically. Channell (1988) defines L2 vocabulary acquisition as: (1) the meaning of an L2 word can be recognised and understood both in and out of (relevant real-world) contexts, and (2) it can be used naturally and appropriately in various situations. Channell's definition underlines the importance of moving beyond the behaviourist word list memorisation and drills (Amirian and Momeni 2012; Horst 2014). While such learning methods may allow a considerable number of words to be memorised efficiently, they have little to offer in addressing the chief language learning goal of expressing oneself in an extensive range of communicative situations (Ang 2014).

This led researchers to shift their attention to learning from contexts in which the target word is embedded (Ang 2014; Nattinger 1988). A well-studied strategy under this topic is vocabulary learning through reading (Huckin et al. 1993). That is, the target words are not taught by direct instruction but embedded in passages to offer context cues for the learners. However, "passive vocabulary" received through listening or reading does not automatically result in the building of "active vocabulary" being used by the learner in speaking or writing situations (Laufer and Paribakht 1998). There are also limited opportunities to use the new words for authentic, communicative purposes (Sun et al. 2010).

Thus, for genuinely comprehensive vocabulary learning, it is necessary to transform one's passive to active vocabulary knowledge. To this end, Nation (2001) proposed a three-stage psychological process for successful vocabulary learning: noticing (a word is highlighted as being salient text input in, say, a reading comprehension activity), retrieving (repeat encountering of the word), and generating (a previously encountered word is used in a slightly different context). The model stresses the importance of coupling of receptive and productive learning, and the learners' generative use of the learnt vocabulary in alternative contexts (Wong et al. 2010). Such a perspective further affirms the significance of learning vocabulary in a contextualised manner (especially in authentic contexts). A

viable strategy to support learners' growth in active vocabulary is to situate them in the authentic contexts and generate social media with text.

Leveraging contextual affordances for seamless language learning

Seamless learning emerged in response to the criticisms against decontextualised and 'controlled' formal curricula in schools. The current literature argues for a change in the culture of learning from separatist to holistic (or 'seamless'), both in the general context of learning practice (e.g., Barab and Roth 2006; Hung et al. 2012) and specifically in the field of language learning (e.g., Levy and Kennedy 2005). Adapted from Sharples et al. (2012, p. 24), Wong (2015) defined seamless learning as, "... when a person experiences a continuity of learning, and consciously bridges the multifaceted learning efforts, across a combination of locations, times, technologies or social settings." (p. 10) The notion of seamless learning was first developed as a special form of mobile learning, due to the proliferations of 1:1 setting and cloud computing. Such technological advancements have become an enabler for learners "to learn whenever they are curious; and *seamlessly* switch between different contexts, such as between formal and informal contexts, between individual and social learning (and between physical and digital realities) ... these developments, supported by theories of social learning, situated learning, and knowledge building, will influence the nature, the process and the outcomes of learning" (Chan et al. 2006, p. 23).

By applying the principle of seamless learning to language learning, "seamless language learning" (SLL) aims to foreground contextualisation, authenticity, socialisation, and learner autonomy (or self-directed learning) which contemporary language learning theorists have claimed to be critical ingredients for successful language learning (e.g., Harmer 2001; Swain and Lapkin 2000; Tedick and Walker 2009). Research has shown that language learning should be situated in authentic and social contexts (i.e., informal learning settings) to make learning meaningful and therefore facilitate the development the linguistic skills for authentic communicative needs.

This notion is congruent with other language learning theorists' proposition that language teaching should shift towards leveraging on contextual affordances that learners can tap onto for creative and self-directed learning (DaSilva Iddings and Jang 2008). Patterns in language development are neither innately pre-specified in language learners/users nor are they triggered solely by exposure to input. Instead, language behaviour emerges from the interaction between the agent and the agent's environment (Ellis and Larsen-Freeman 2006). In particular, van Lier (2000) argued that the environment provides a 'semiotic budget' (p. 252), i.e., the latent opportunities for meaningful (language learning) actions that the situation affords. With his metaphor of a budget, van Lier suggested that the more enriched language learners' contextual affordances are, the more developed their meaning-making processes will be (Ozkose-Biyik and Meskill 2014).

The importance of classroom learning (i.e., formal learning settings), albeit often being criticised as decontextualised learning (e.g., Hung et al. 2012), should not be downplayed. Indeed, through teacher facilitation, classroom language learning may play the essential roles of setting the learning goals, preparing learners for the relatively self-directed authentic and social learning, and consolidating the learners' learning gains, among others (Wong 2013). As a salient characteristic 'inherited' from the general form of seamless learning, SLL espouses the interweaving of such formal and informal learning activities in multiple contexts to constitute the cyclic trajectory of learn-apply-reflect (upon) the target

language (Little 2007), thus becoming a plausible learning approach to fulfil the above-stated advocates of the language learning theorists.

Prior SLL research

To understand the state of SLL research, we performed a literature scan to identify publications from January 2006 to April 2016 on intervention studies where the authors explicitly characterise their work as SLL. Eighteen SLL projects were identified as a result. A promising observation is that all but three projects (Liu et al. 2015a; Ogata et al. 2008; Sun et al. 2015) were designing for SLL practice beyond one-off or episodic periods and instead either facilitated ongoing interventions ranging from 1 month to 2 years (e.g., Underwood et al. 2014; Wong et al. 2010), or developed technological platforms that afforded pervasive language learning (e.g., Chong and Gaol 2013; Yang 2006). A longer-term process of learning is crucial for language learning as the acquisition of language knowledge and skills should be cumulative and integrated into the learners' daily life.

Nevertheless, most of the SLL studies were conducted from learning technologists' perspective which typically prioritise the utilisation of mobile affordances. The way that most SLL researchers see how they facilitate seamless learning is often reduced to carrying out language learning activities across time and locations and repetitively (e.g., Lai 2014; Wei 2012)—but the learning efforts in those spaces are not necessarily bridged and connected together. Explicit effort in bridging the activities will help the learners in intentional learning. In addition, some studies were not associated with any language learning theory (e.g., Foomani and Hedayati 2016; Strasser and Greller 2015; Yang 2006), or loosely related to isolated arguments or instructional strategies advocated by established language learning scholars (e.g., Chong and Gaol 2013; Ogata et al. 2008). Moreover, some SLL designs have resorted to behaviourist learning with the main objectives of retrieval and retention (e.g., the vocabulary game apps developed by Wang et al. (2015), and Redd and Schmidt-Crawford (2011)). Also, whereas almost all of the reported SLL empirical studies had either adopted pretest–posttest designs (e.g., Lai 2014; Ogata et al. 2008) or described the students' learning processes and perceptions in a narrative manner (e.g., Underwood et al. 2014; Wei 2012), none of them performed multiple time frame analysis or cross-contextual analysis on the students' learning outcomes in order to measure the students' learning growth over the time and unpack the roles that various types of contexts could play in supporting the students' language learning journey.

Social media in language learning

Social media, the online communities designed with Web 2.0 technologies, emerges as a new social space in recent years. Besides playing a more important role in the life of the youth (Lenhart et al. 2010), social media are increasingly used for supporting students' communicative and creative endeavours (Greenhow and Robelia 2009). It has the potential to foster language learning for two reasons. First, it provides a 24 × 7 social space where language practices may take place out of classroom. Second, there is the potential to situate language learning in more authentic social contexts through the social networks. Both are critical for authentic language learning where language is learnt via socialisation and utilisation (Gee 2004). Henceforth, social media could provide affordances to design for a seamless integration between classroom-based guided participation and autonomous, socialised learning in the students' daily life.

In the context of language learning, we argue that teachers may promote students' enthusiasm in social media creation as self-initiated learning tasks with the use of the target language that aims to share (on their everyday encounters, thoughts, etc.) with their peers. This is followed by social interactions not only to enrich or challenge the 'meaning' of the student artefact, but also for peer reviews in improving linguistic accuracy. In short, the age of social media offers opportunities for language educators to create effective learning environments.

The study

The research context

MyCLOUD is a seamless language learning environment that facilitates Singaporean children's learning of Chinese as L2. A class of 37 Primary 3 (3rd grade; 9-year-old) students in a typical public school with medium to low academic performances (based on national standard of the students of the same age) in the formal Chinese lesson participated in this study from August 2011 to August 2012, which span across the students' primary 3 and 4 years. The students learned Chinese since Primary 1. Each student was equipped with an Acer Iconia Tab W501 tablet computer as her/his personal learning device. In addition, all students were given 3G broadband access throughout the entire intervention period, which was sponsored by the school. The participating teacher was the Chinese teacher of the class with 8 years' teaching experience. She worked with the researchers in co-designing and facilitating the intervention throughout the entire study. Prior to the intervention, we conducted a parental briefing session to obtain the support from the parents of the participating students.

The learning process and environment design

Our effort of designing the MyCLOUD learning process and environment was informed by the notion of SLL. The learning process is iterative and yet non-linear, which consists of the following three activity types:

- (1) In-class learning engagement: These are learning activities facilitated by the teacher in the formal lessons, such as identifying and learning new vocabulary in the Chinese textbook passages (the "noticing" stage in Nation's (2001) three-stage process), and small-group social media co-creation activities ("retrieval" in Nation's process). This is to prepare them for subsequent activities (2) and (3).
- (2) Personalised contextual learning: Encouraged by the teacher, individual learners proactively create and share social media (photo(s) and text) pertaining to their daily encounters, often by utilising the target vocabulary ("generation" in Nation's process).
- (3) Online peer learning: In the online social network, the students carry out peer review and/or online interactions by replying to the social media created during activities (1) and (2). In addition, the teacher often presented selective social media in the formal lessons for further discussion and improvement (another "retrieval" activity in Nation's process).

Note that the teacher in general did not make activities (2) and (3) mandatory. The rationale will be further explicated in the Discussion section.

To facilitate the above-stated learning process, we designed and developed the MyCLOUD platform with the following main components (see Fig. 1 for the screen captures),

- *Mictionary* Mictionary refers to ‘Mobile dictionary’, a space where students record the vocabulary that they encounter in and out of class. It serves as students’ personalised vocabulary learning e-portfolio where (s)he is required to build most of the content on his(her) own, such as adding the social media that utilise the vocabulary on the corresponding ‘vocabulary page’ or pooling relevant online resources.
- *My e-Textbook* The digitised textbook passages are linked to a web-based text-to-speech service powered by Microsoft Bing for the platform to read them aloud. Students can highlight unfamiliar vocabulary and this will add the vocabulary to Mictionary.
- *MyCLOUDNet* This is a social network for students to share social media, and respond to others’ social media. The students may either directly post their social media here; or the social media that they created in Mictionary will be duplicated to here.

Each student was given an account to access to all the above-stated components of the platform. In essence, My e-Textbook belongs to the formal learning space while MyCLOUDNet is a social, informal space. Mictionary is the means of bridging the two spaces by linking to My e-Textbook and MyCLOUDNet. If a student creates an artefact and add it to a vocabulary page in Mictionary (individual, formal-informal bridging space), the artefact will also be automatically duplicated to MyCLOUDNet.

This paper analyses the vocabulary growth and the vocabulary usage patterns of the 1043 artefacts that the students posted on MyCLOUDNet over the 13-month intervention. While there are interesting data regarding the students’ interactions via the reply feature, an in-depth analysis of the student interactions is beyond the scope of the paper. We only focus on students’ vocabulary use. As this was a longitudinal intervention with the emphasis on the students’ self-directed artefact creations over time, it is not possible to find a control class to make comparison. Therefore, we adopted single group design (Hersen and Barlow 1976) with intra-group repeated measurements of key outcomes (see below)

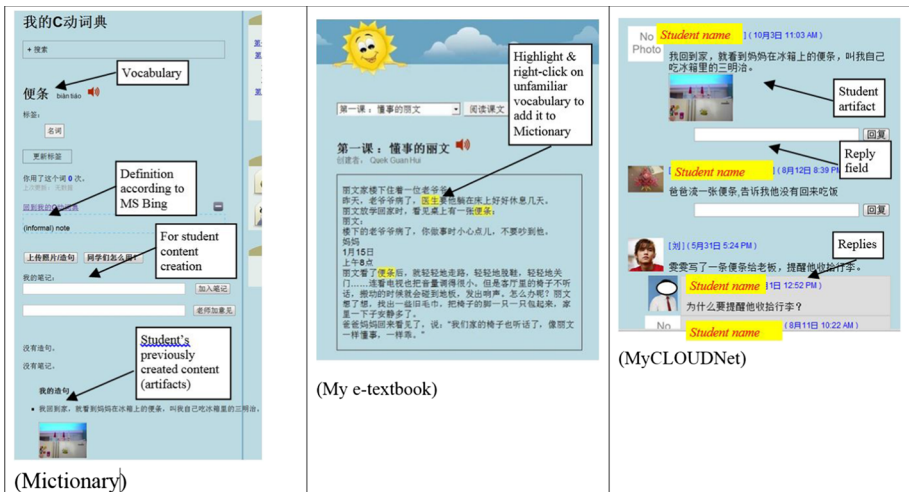


Fig. 1 Screen captures of the main components on the MyCLOUD platform

across the time and across the learning contexts where the artefact creation activities were carried out. Guided by the following research questions, we seek to understand the effects of MyCLOUD for students' vocabulary learning,

RQ1: Would the quantity and quality of student artefacts, number of new words used and the use of lower-frequency words increase over time?

RQ2: How did the students' performance (in terms of the quantity and quality of student artefacts, number of new words used, and the use of lower-frequency words) vary across different learning contexts which their artefacts were based on? Which contexts did they perform better and how such findings may inform the learning design?

Data analyses

We copied the social media artefacts created and posted by the students on the MyCLOUD platform over the stated period of study to a Microsoft Excel file for further analysis. To address RQ1, we divided the 13-month intervention period into four stages for comparative analysis, with three months in each stage (except for four months in stage 1). This enabled us to measure students' progress in artefact creation across time. For RQ2, we classified the student artefacts according to where the photos were taken. This is because our key interest was to analyse how differently the contextual affordances of various learning spaces may trigger word utilisation. The four categories are classroom, home, other locations, and (based on) existing online photos (note that other than taking their own photos, the students were allowed to search for and download online photos for artefact creation). For artefacts based on 'ambiguous' contexts, we clarified with the students who created the artefacts. Further analysis with "classroom" artefacts being classified under "formal artefacts", and "home", "other location" and "online photos" being grouped together as "informal artefacts" for comparison was also carried out. Figure 2 depicts the taxonomy of these contexts.

The text component of the 1043 student artefacts were imported to a Chinese corpus analysis system known as "Lingjoin Text Mining & Semantic Parser" (Goh et al. 2014). Co-developed by the Singapore Centre for Chinese Language (SCCL) and Lingjoin Zhongke Software (Beijing) Ltd., the system performs automated word segmentation, word class tagging, and computing the tokens of individual words on an imported corpus. We then processed the preliminary vocabulary statistics and generated the following sets of statistics with the aid of Microsoft Excel:

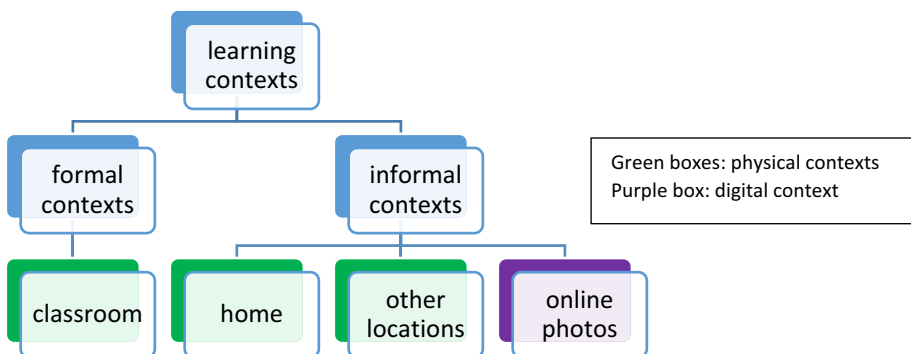


Fig. 2 The categorisation of the learning contexts

- (a) Types and tokens: The vocabulary types (number of unique words) and tokens (total number of words) used in the 1043 artefacts are determined as low-level indicators of the richness of vocabulary usage.
- (b) Lexical Frequency Profiles (LFP): One of the major determinants of vocabulary use in linguistic production is the vocabulary size of the language learner/user. Measures of lexical richness attempt to quantify the degree to which a varied and large vocabulary is used in spoken or written texts (Laufer and Nation 1995). Laufer and Nation (1995) developed a measure known as Lexical Frequency Profile (LFP), which counts the number of word tokens in a text and distributes them among four frequency bands which are derived from standardised word frequency lists, including the first 1000 and the second 1000 frequent word families, academic words, and other (low frequency) words. Studies found that learners who used higher percentages of high-frequency words in their texts scored lower in the vocabulary tests, and vice versa (Nation 2001). Use of low frequency words in free writing is an indicator of richness in one's vocabulary, as low frequency words are typically domain-specific terms or more difficult words.
As there is no single authoritative Chinese word list available, three existing Chinese word lists were adopted as bases for independent LFP analysis on the student artefacts. The first list, "CPT", was generated according to both the word frequencies and their difficulty levels based on a Taiwan-based corpus (Tseng 2013). The word list contains 8000 words, divided into five bands, with (from high- to low-frequency) 500, 500, 1500, 2500 and 3000 words respectively. The second list "HSK" is similar to CPT but it was based on a China-based corpus (Lu 2012). The list contains 8822 words, divided into four bands, with 1033, 2018, 2202 and 3569 words respectively. The third list, "SCCL Word List", was generated according to word frequencies based on a corpus comprising of linguistic artefacts of K-12 students in Singapore (Goh et al. 2014). Nevertheless, there is no banding in this list of 10,283 words. Indeed, the principle of the original LFP measure is to calculate the frequency percentages of the first 1000 words, the next 1000 words, and other words, based on the selected word list. The specification of numbers of words in the first two bands of analysis is however not a hard rule (Laufer and Nation 1995). For the purpose of analysing the student artefacts, the bandings were essentially referencing the original bandings of CPT and HSK—(1) for CPT, the first two bands are the first 1000 words (combining the original bands 1 and 2) and the next 1500 words (the original band 3) respectively; (2) for HSK, the first two bands are the same with the origins (with 1033 and 2018 words respectively); (3) for the SCCL list, the first 1000 words and the next 2000 words were taken for bands 1 and 2 (similar to HSK).
- (c) New words used: We identified the new words used by the students in each of the last three stages (i.e., words that had not been used in previous stages). This set of statistics is an indicator of whether the students continued to push their boundaries of active vocabulary sets in their MyCLOUD learning journey.

Furthermore, a rubric was employed to assess the quality of individual artefacts. Involving the teacher, we developed and validated the rubric (Appendix) to assess an artefact in three areas: task completion, expression (context) and language (accuracy of linguistic usage). Based on this rubric, each artefact was graded on a scale of 0–5. Two researchers graded all 1043 artefacts independently. The Pearson correlation value (.91) indicates good inter-rater reliability. Differences were resolved through discussion and the

scores of all the artefacts created within individual stages were then calculated as the primary indicators of the artefact quality. More details including the validation process of the rubric is given in (Liu et al. 2015b).

Findings

Comparisons across the four stages

Tables 1 and 2 present the statistics of overall and stage-by-stage artefact creation activities and vocabulary use. One-way repeated measures ANOVA was conducted in order to examine whether there were differences on the relevant measures across the four stages of the MyCLOUD intervention. The results show that there were significant increases in number of artefacts, mean artefact score, word types and tokens, and number of new words used in the last two stages as compared to the first two stages (refer to the pairwise

Table 1 One-way repeated measures ANOVA on student artefact statistics across the four stages

	Total	Stage 1 (1)	Stage 2 (2)	Stage 3 (3)	Stage 4 (4)	<i>F</i>	Partial ETA square	Pairwise comparisons ^a
Number of artefacts								
Total	1043	77	151	443	372	19.7**	.354	3 > 1**, 2**
Mean	28.2	2.1	4.1	12.0	10.1			4 > 1**, 2**
SD	20.6	2.6	4.2	10.1	10.3			
Mean artefact score								
Mean	3.28	3.11	3.01	3.20	3.60	11.46**	.469	3 > 1*
SD	.32	.20	.37	.34	.54			4 > 1**, 2**, 3*
Word types								
Total	1864	125	494	995	1287	69.9**	.660	2 > 1**
Mean	166.9	6.3	26.7	76.4	91.1			3 > 1**, 2**
SD	110.2	5.8	18.3	54.4	63.8			4 > 1**, 2**, 3**
Word tokens								
Total	14,949	544	1957	5833	6615	13.14**	.267	2 > 1**
Mean	404.0	14.4	51.8	154.4	182.4			3 > 1**, 2**
SD	399.1	31.9	60.1	152.6	262.2			4 > 1**, 2**
New words								
Total	–	–	429	668	642	13.14**	.400	3 > 2**
Mean	–	–	27.0	67.7	65.1			4 > 2**
SD	–	–	27.4	52.6	65.7			

* $p < .05$; ** $p < .01$

^a Pairwise comparisons of means with Bonferroni post hoc tests

Table 2 One-way repeated measures ANOVA on the LFP statistics across the four stages

	Overall mean (SD)	Stage 1 (1) mean (SD)	Stage 2 (2) mean (SD)	Stage 3 (3) mean (SD)	Stage 4 (4) mean (SD)	F	Partial ETA square	Pairwise comparisons ^a
SCCL list								
Band 1	80.9 % (4.7 %)	82.8 % (9.6 %)	79.4 % (15.5 %)	78.9 % (7.8 %)	72.6 % (16.4 %)	5.3*	.128	1 > 3*, 4*
Band 2	8.0 % (2.7 %)	3.2 % (2.4 %)	5.4 % (6.5 %)	6.1 % (2.6 %)	7.4 % (8.4 %)			
Others	11.1 % (3 %)	14.0 % (8.2 %)	15.2 % (12.9 %)	15.1 % (6.7 %)	20.0 % (10.7 %)			
CPT								
Band 1	73.9 % (5.6 %)	75.9 % (9.6 %)	68.5 % (14.8 %)	65.1 % (7.9 %)	58.5 % (14.9 %)	18.18**	.336	1 > 2**, 3**, 4**
Band 2	8.3 % (2.9 %)	6.2 % (3.0 %)	10.8 % (8.4 %)	10.1 % (4.0 %)	10.1 % (6.8 %)			2 > 4**
Others	17.8 % (4.2 %)	17.9 % (9.0 %)	20.7 % (12.7 %)	24.8 % (7.9 %)	31.4 % (14.3 %)			
HSK								
Band 1	71.1 % (5.2 %)	79.8 % (11.8 %)	72.2 % (18.9 %)	70.5 % (7.3 %)	65.7 % (14.3 %)	9.23**	.204	1 > 3**, 4**
Band 2	9.5 % (3.7 %)	3.1 % (3.1 %)	13.8 % (18.4 %)	10.2 % (4.5 %)	8.9 % (5.3 %)			
Others	19.3 % (3.8 %)	17.1 % (10.7 %)	14.0 % (9.3 %)	19.3 % (7.0 %)	25.4 % (14.4 %)			

^a Pairwise comparisons of means with Bonferroni post hoc tests

* $p < .05$; ** $p < .01$

comparisons column in Table 1). These are strong indicators of students’ growth in terms of artefact quality and the diversity of vocabulary use over the time. Taken together, the data indicate that students grew in terms of artefact quality and the diversity of vocabulary use over the time. Figure 3 gives examples of the artefacts created by the same student over the four stages.

Repeated measures ANOVA were also performed on the LFP statistics in Table 2. In order not to overwhelm readers with too much statistical detail, only the comparisons of the percentages of band 1 (higher frequency) words are presented—we favour *lower* percentages of the use of band 1 words as that means the students had not been over-reliant on these relatively simple and commonly used words, but were more inclined to present their thoughts and experience in with a greater diversity of vocabulary (i.e., more use of Band 2 and Band 3 words). As seen in Table 2, the students’ LFP across the four stages according to the three different word lists show a fairly consistent pattern—there were little differences between Stages 1 and 2, but a significant decrease in the proportions of high frequency words used in Stages 3 and 4 as compared to the earlier stages. These results indicate that students relied less on more frequently used words (Band 1 words) and perhaps used more difficult and complex words (Band 2 and others) as they progressed through time.

Comparisons across the artefacts created in different contexts

Table 3 summarises the statistics of students’ context-by-context artefact creation activities and vocabulary use. The results indicated that the majority of artefacts were created either in-class or at home (thus greater amounts of word types and tokens). This probably reflects typical young students’ living circle that is generally limited to school and home.

Stage 1	Stage 2	Stage 3	Stage 4
			
<p>我的爸爸在看报纸。 “My father is reading newspaper.”</p>	<p>我的妹妹安静的读书，她读得津津有味。 “My sister is quietly reading a book with relish.”</p>	<p>这是我的午餐，我吃不完了。妹妹说我的脸白白，想要吐的样子。 “This is my lunch. I can’t finish it. My sister says my face is pale, like I’m going to throw out.”</p>	<p>这是妈妈和爸爸的房间，我和妹妹也在这里睡觉。有一天，爸爸和妈妈买了新的床。他们买了新的床给我，妹妹和他们自己。我和妹妹的是双架床，我睡在上面，妹妹睡在下面。妈妈和爸爸的是高高的床，他们说不可以上面跳，可是妹妹每次跳在上面。每天晚上，妹妹会去我的床睡觉。可是妈妈叫她下来，让我睡觉。 “This is mom and dad’s room. My sister and I are sleeping here as well. One day, dad and mom bought new beds for me, sister and themselves. Sister and I are sleeping on a double deck bed; I’m sleeping on the upper deck, and my sister is sleeping on the lower deck. Mom and dad’s bed is tall. They said we shouldn’t bounce on the bed; but we are still doing so. Every night, sister would sleep on my bed; but mom told her to get down so that I can sleep.”</p>

Fig. 3 Examples of artefacts created by the same student in the four stages (with English translation)

Table 3 One-way repeated measures ANOVA on statistics of student artefacts across different spaces

	Overall	Class (<i>forma</i> l) (1)	Home (2)	Other locations (3)	Online photos (4)	Home + other + online (<i>informa</i>) aggregated (5)	F	Partial ETA square	Pairwise comparisons ^a
Number of arte-facts									
Total ^b	1043	294	462	147	140	749	14.06**	.281	1 > 3**, 4** 2 > 3**, 4**
Mean	28.2	8.0	12.5	4.0	3.8	20.2			
SD	20.6	5.8	13.2	2.6	4.7	16.5			
Formal vs. informal									
Mean artefact score							28.24**	.440	5 > 1**
Mean	3.28	3.14	3.35	3.53	3.25	3.36	3.23*	.152	3 > 1*
SD	0.32	0.42	0.32	0.58	0.56	0.37	10.3**	.223	5 > 1**
Formal vs. informal									
Word types									
Total ^b	1864	792	1129	598	524	1624	13.15**	.268	1 > 3**, 4** 2 > 3*, 4**
Mean	166.9	70.7	80.9	38.8	26.8	146.5			
SD	110.1	49.7	82.3	26.9	36.9	110.9	32.9**	.478	5 > 1**
Formal vs. informal									
Word tokens									
Total ^b	14,949	4105	6865	2174	1805	10,844			
Mean	404.0	111.0	185.5	58.8	48.8	293.1			
SD	399.1	89.9	283.9	43.6	66.8	321.8	7.88**	.180	1 > 3**, 4**
2 > 3*, 4*							19.2**	.348	5 > 1**

* $p < .05$; ** $p < .01$

^a Pairwise comparisons of means with Bonferroni post hoc tests

^b Class total

Nevertheless, the total artefacts from all the informal contexts were about 2.5 times more than the in-class artefacts. The results imply that extending language output activities beyond the classroom helps students overcome the constraints of the classroom and continue their language learning beyond the school. The relatively rich and authentic daily experience and encounters provide the students more inspirations and triggers for vocabulary use, resulting in the improvement of the richness and quality of the artefacts created. Figure 4 gives examples of artefacts that a student created in these four types of learning contexts.

Analyses of variance tests were also performed on the LFP statistics as shown in Table 4. We compared differences across contexts (class, home, other location, and online photos) The LFPs of the students according to the three word lists are again fairly consistent, with the proportions of the Band 1 word usage in the in-class artefacts significantly higher than those of artefacts created at home or in other locations respectively; but there is no significant difference between those of in-class artefacts and artefacts created based on online photos, according to the LFPs based on CPT and HSK lists. Note that the homes and the other locations are physical contexts while online photos are digital media to the students. The results indicate that informal physical contexts trigger students’ use of less frequent words.

Discussion

In this paper, we delineate MyCLOUD, a seamless language learning approach with the aim of nurturing a social network-mediated learning community of L2. MyCLOUD fosters a social network where language learning and applications are interwoven for extended period. In the age of Web 2.0/3.0 where sharing and interactions in such social media spaces have become regular, day-to-day activities for many netizens, the socialising contexts that arise from such activities could be regarded as another form of authentic context which is conducive to the facilitation of the communicative approach of language learning (Wong et al. 2015a).

Class	home	Other locations	Online photos
			
<p>因为我跌倒，所以教练说：“你永远不会游泳！” “I fell down. So my coach said, ‘You will never be able to swim!’” (Note: The student group enacted a scenario that utilised the assigned word “never”.)</p>	<p>这是我的妈妈新买给我的扑满。这个扑满可以行拆除也可以放回的，很好用，也很方便。 “This is a piggybank which my mother bought me. It can be dismantled and then reassembled. It’s very convenient.”</p>	<p>我在门口拍了这张照片。我看到了这两只动物。我觉得那只羊很可怜。因为它旁边的蛇看起来像要吃它一样。这张照片很有趣。 “I took this photo at the front gate. I saw the two animals. I pity the goat, as it seems that the snake is going to eat it. This photo is very interesting.” (Note: Photo taken at Haw Par Villa – a local touristic park with sculptures.)</p>	<p>在我家楼下拍了这些灯笼。 “I took a photo of the lanterns at the downstairs of my home.” (Note: This is actually a photo downloaded from the web.)</p>

Fig. 4 Examples of artefacts created by the same student in different contexts (with English translation)

Table 4 One-way ANOVA on LFP statistics across different spaces

	Class Mean (SD) (1)	Home Mean (SD) (2)	Other locations Mean (SD) (3)	Online photos Mean (SD) (4)	Informal aggregated Mean (SD) (5)	F	Partial ETA square	Pairwise comparisons ^a
SCCL list								
Band 1	87.5 % (7.9 %)	76.0 % (8.4 %)	76.5 % (8.8 %)	77.7 % (10.7 %)	77.3 % (6.6 %)	14.14*	.344	1 > 2**, 3**, 4**
Band 2	7.0 % (5.1 %)	10.0 % (5.1 %)	8.9 % (8.7 %)	15.6 % (14.4 %)	8.7 % (3.5 %)			
Others	5.6 % (3.8 %)	14.0 % (6.7 %)	14.6 % (7.0 %)	34.0 % (36.7 %)	14.1 % (4.8 %)			
Class vs. informal						28.54*	.464	1 > 5**
CPT								
Band 1	78.8 % (9.1 %)	69.7 % (9.2 %)	68.1 % (7.8 %)	71.8 % (13.5 %)	70.6 % (6.9 %)	8.31**	.229	1 > 2**, 3**
Band 2	8.6 % (5.9 %)	8.4 % (4.6 %)	10.2 % (6.5 %)	6.3 % (5.4 %)	8.1 % (3.5 %)			
Others	12.6 % (5.3 %)	21.9 % (7.2 %)	21.8 % (8.8 %)	21.9 % (13.3 %)	21.2 % (5.7 %)			
Class vs. informal						13.82**	.283	1 > 5**
HSK								
Band 1	74.0 % (7.2 %)	68.6 % (8.0 %)	66.5 % (5.4 %)	71.4 % (11.3 %)	69.4 % (5.6 %)	5.61**	.167	1 > 2*, 3**
Band 2	9.9 % (5.1 %)	10.1 % (6.3 %)	9.7 % (5.1 %)	7.7 % (5.2 %)	9.4 % (4.2 %)			
Others	16.1 % (5.1 %)	21.3 % (7.5 %)	23.9 % (5.7 %)	20.9 % (12.5 %)	21.2 % (5.8 %)			
Class vs. informal						7.51*	.177	1 > 5**

* $p < .05$; ** $p < .01$

^a Pairwise comparisons of means with Bonferroni post hoc tests

The year-long intervention period of the MyCLOUD study had resulted in a rich set of data. In this paper, we concentrate on conducting a corpus-based analysis with a particular focus on determining the patterns of vocabulary usage—as vocabulary learning is one of the domain-specific learning goals of MyCLOUD. We employed an existing corpus analysis tool to perform summative vocabulary analysis.

Contextual, productive and communicative language learning as a cumulative social process

Overall, the findings affirm Nation's (2001) arguments that language learning from contexts is a cumulative process which results in small but positive gains in each encounter. In particular, there was a statistically insignificant decrease in the number of artefacts in Stage 4 as compared to Stage 3 ($p > .05$), perhaps due to the one-month school holiday in the middle of Stage 4. Yet significantly more word types were utilised in Stage 4 than Stage 3 ($p < .01$), indicating richer vocabulary in Stage 4. In addition, there was significant increase from Stage 3 (and from the first two stages) to Stage 4 in mean artefact score ($ps < .05$). The four artefacts in Fig. 3, which are fairly representative of most of the artefacts created by the entire class in the respective stages, provides some clues for the rationale behind the stated learning growth. In Stages 1 and 2, the students were new to the social media activities and responded to the activity of sentence making as part of their existing formal curriculum/assessment. They were inclined to compose single complete sentences with proper grammar and correct usage of words, without attention towards the dullness of the contexts. Over time, a handful of learners shared their real-life encounters such as those related to their personal feelings or past experience (e.g., the Stage 3 artefact in Fig. 3) and a new trend of social media creation emerges.

Such peer influences prevailed in Stages 3 and 4 when the sense of “Chinese Language social network” was gradually developed. An evidence of the formation for such a social network is that there were only 40 student replies (i.e., online interactions) in total to 228 student artefacts posted in the first two stages (or 0.2 replies per artefact); yet in the last two stages, the students posted 1808 replies to 815 artefacts posted (or 2.2 replies per artefact). Thus, the students' artefact creations were well-sustained and even elevated (in terms of number of artefacts); and their linguistic/communicative competences seems to progress (in terms of mean artefact score). This also converges with findings on the power of social influence in learning contexts (King 2015; Wentzel et al. 2010).

Leveraging contextual affordances to elevate the language learning outcomes

The more inspiring aspect of this study is the students' vocabulary usage patterns across different learning contexts. Though most of the artefacts were created within the classroom or at home due to the students' natural living style, both the mean artefact score and the LFPs indicate that the quality of artefacts was higher in informal (versus formal) contexts ($ps < .05$), and in 'other locations' (versus classroom) ($ps < .05$). Students were also more inclined to use less frequent words in informal contexts. An additional implication of the LFPs is that the informal physical contexts (homes and other locations) were more likely to trigger the use of less frequent words, as compared to the formal physical context (classroom) and the digital informal contexts (online photos).

Indeed, the key of such artefact creation tasks in MyCLOUD is to blend the learning process into the students' authentic daily life, with a particular interest in leveraging contextual affordances. We see such activities as the key to reduce the students' passive-

active vocabulary gap (i.e., to assist the students in transforming more passive vocabulary into active vocabulary). However, in the context of this study, our conception of contextual affordances is somewhat different from that of the extant language learning literature. The majority of the literature frames contextual affordances at the macroscopic level, typically entailing the socio-cultural and perhaps socio-economic environments of individual learners which may enable and constrain their entire language learning journeys (DaSilva Iddings and Jang 2008). Instead, we are primarily interested in the contextual affordances from the perspective of situated cognition. The learners' artefact creation activities in their daily life can be characterised as spontaneous meaning making through interactions with their living/learning contexts to trigger the retrieval of the relevant learnt vocabulary to be used in authentic context. In other words, when the learner senses that her in situ encounters with objects, people and/or events are suitable topics for artefact creation, she may appropriate such contextual affordances (or semiotic budget as posited by van Lier (2000)) to mediate her meaning making, which in turn mediate her language learning. In this regard, the totality of meaning making in such activities is not merely linguistic, it is semiotic and semantic.

Indeed, a salient characteristic of our learning design is to leverage such a semiotic budget (van Lier 2000)—that apart from limited teacher-facilitated learning contexts for various in-class activities, we promote and emphasise learner-identified or learner-generated contexts to push the boundaries of the learners' linguistic outputs. Our findings indicate the superiority of the students' linguistic outputs from the informal contexts, particularly physical informal contexts, as compared to those from the formal or digital contexts. Typical classrooms are bounded, 'artificial' and 'standardised' contexts designed for the delivery of formal curriculum. They do not offer rich and diversified contextual affordances that warrant authentic meaning making. Although students may collaboratively imagine and enact scenarios set in contexts beyond classrooms (e.g., the leftmost artefact in Fig. 4), they are more inclined to retrieve meanings or concepts corresponding to their familiar vocabulary and their own world view in constructing such scenarios. Similarly, if a student downloads an online photo to create artefacts, her meaning making is secondary and is often bounded by what the photographer has framed through the lens (e.g., the rightmost artefact in Fig. 4). The physical informal contexts (homes and 'other locations'), however, may offer much more novel and stimulating contextual affordances which are not directly available in the classroom. The students' first-hand experience of the authentic physical contexts could push them to go beyond what they would produce in traditional sentence or text making. For example, the rightmost artefact in Fig. 3 was inspired by the family's purchase of new beds, and how the kids were 'interacting' with the beds and with other family members pertaining to the stated 'subject'.

The 'joint mediation' of in-situ contextual affordances, handhelds and social media for a sustainable self-directed seamless language learning journey

Carrying on from the explication in the previous sub-section, we are cognisant that the availability of the authentic, contextual affordances alone was not a sufficient condition for the students to self-initiate artefact creations in informal contexts. The teacher in this study facilitated in-class small-group artefact creation activities to prepare the students. However, she did not make after-school artefact creation mandatory, and neither use the student artefacts for formal assessments. Otherwise, such moves would "formalise" the informal-oriented learning activities and the students might fall back to the mindset of formal sentence making activities—to compose sentences in some "standard" and "safe" ways to

score high. Consequently, the creative meaning-making would be undermined. It would also compromise learner agency; namely, learner's intentionality. Intentionality represents the power to originate actions for a given purpose. "To be an agent is to intentionally make things happen by one's actions" (Bandura 2001, p. 2). The students ought to possess the sense of agency or intentionality to spontaneously make personal sense out of what they encounter and use contextual affordances in ways that are personally meaningful and relevant (Benson 2001; Mercer 2012). Thus, Mercer (2012) argued that research in language learning should consider more closely which aspects of contexts, possibly in combination, and to what degree may be affecting and being affected by learner agency.

Therefore, in designing the socio-techno-pedagogical environment for such a seamless language learning approach, we saw the need to foster the sustainable condition of "joint mediation" (Wong et al. 2012, p. 417) of multiple tools, particularly the learners' personal handhelds and the social media network, to fuse together the contextual affordances and learners' intentionality. The handhelds that the learners bring along 24/7 not only enable them to create and share social media, but also serve as a reminder of their involvement in such an ongoing and exciting learning journey where they are strongly encouraged to proactively identify authentic opportunities to make meaning with the target language. Moreover, the learners are well-aware that they could share their social media artefacts with their classmates in the social network, thus giving them the sense of audience and therefore the sense of "communication with a purpose" (Littlemore and Oakey 2004) (as compared to traditional sentence making exercises where either the teachers or the examiners were the only audience).

The low-stakes environment and the informality of the social network may also have facilitated students' engagement in artefact creation and meaning making. Students can tinker with their ideas and language without the fear of overt academic consequences. Thus, at the point of time when a learner is on a whim to create and share an artefact based on her/his authentic encounter, it is often due to the joint mediation of the in situ contextual affordances, the personal handheld on hand, and the prospect of sharing the encounter with the social network. Such a joint mediation would effectively reshape the learners' intentionality, resulting in a vastly different way of meaning making that ensues lively, authentic use of the target language and the vocabulary.

Conclusion

The MyCLOUD project is intended to investigate the employment of SLL to address the need of facilitating a contextualised, productive and communicative learning process for L2 learners. A particular learning goal is to reduce the passive-active vocabulary gaps of the students. By carrying out the social media-based activities over a period of 13 months, we observed that the students gradually established their disposition in proactively and spontaneously make meaning through interacting with their living spaces—and that resulted in the retrieval of a greater diversity of the learnt vocabulary and the application of the target language.

A particularly noteworthy finding is the use of significantly more "less frequent words" in the informal physical contexts, as compared to those in the formal or digital contexts. While this finding affirms the notions of situated learning and authentic learning, we stretch the theoretical explication by connecting it with the students' intentionality, with the joint mediation of the contextual affordances (the sources of inspiration for meaning making),

social media network (to provide students the senses of audience and “communication with a purpose”) and the their handhelds (the tool for artefact creation and a reminder of their involvements in MyCLOUD) to sustain their intentionality and therefore the cumulative improvement of their linguistic competences.

This paper contributes to the literature of technology-enhanced language learning by unpacking what it takes to construct an environment of L2 learning/communication that seamlessly connects the formal and informal contexts with the aid of mobile social media. As the practicality of the SSL model (as demonstrated by MyCLOUD) is evident in our study, we argue that it can be adapted for teaching and learning of other second languages, as well as for adult L2 learning (though further translational research may be required to ensure proper adaptation of the model). Furthermore, the implications that we have foregrounded can be applied to the design of seamless learning environments for other subject domains, in which we recommend the creation of the conditions to facilitate the joint mediation of the above-stated tools or elements (contextual affordances, social media space, handhelds). We would also like to recommend for a qualitative ethnographic or case study to further unpack individual students’ situated cognition in situ artefact creation in order to attain a more in-depth understanding in how they could benefit from the contextual affordances. In addition, more studies should be conducted to investigate how ‘informal physical contexts’ could be appropriated by the students in a self-initiated manner rather than relying solely on those prescribed by the teacher in order to support meaningful learning of the relevant subject domains other than language.

Appendix

See Table 5.

Table 5 The rubric to measure the quality of student artefacts in MyCLOUD (Liu et al. 2015b)

	Task completion	Expression	Language (accuracy of linguistic knowledge)
5	<ul style="list-style-type: none"> • Completed the task in a comprehensive and appropriate manner with detailed description • Good organisation, exhibited some use of structural cohesion devices. Satisfactory level of content coherence 	<ul style="list-style-type: none"> • Consistent use of register appropriate to situational context^a 1. Appropriate field 2. Appropriate tenor 3. Appropriate mode • Consistent and coherent^b, very few errors 	<ul style="list-style-type: none"> • Rich and apt use of vocabulary, with very few errors • Rich array of sentence structures, very few errors
4	<ul style="list-style-type: none"> • Completed the task in an appropriate manner but lacked detailed description. Some inconsistencies present in the flow of text • Satisfactory organization and content but there is room for improvement in terms of structural cohesion • Loose sentence structure 	<ul style="list-style-type: none"> • Consistent use of register appropriate to situation, consistent and coherent, some errors present 	<ul style="list-style-type: none"> • Use of vocabulary and idioms largely apt, some errors present but will not lead to ambiguities in expression • Sentence structures largely apt, some errors present but will not lead to ambiguities in expression

Table 5 continued

Task completion	Expression	Language (accuracy of linguistic knowledge)
3 <ul style="list-style-type: none"> Completed the task but there were some inconsistencies in the flow of text Lack of organization and coherence in some areas, limited use of structural cohesion devices No sentence coherence 	<ul style="list-style-type: none"> Use of register not very appropriate to situation, many errors present 	<ul style="list-style-type: none"> Very few apt use of vocabulary and idioms, frequent errors present which at times lead to ambiguities in expression Mixing languages at times Sentence structure largely simple, frequent errors present which at times lead to ambiguities in expression
2 <ul style="list-style-type: none"> Unable to complete the task, only able to respond by using simple list of words Lack of organization and coherence, no exhibition of structural cohesion devices Fragmentary sentences 	<ul style="list-style-type: none"> Use of register largely not appropriate to situation 	<ul style="list-style-type: none"> Hardly exhibited apt use of vocabulary, frequent errors present which lead to ambiguities in expression Repeated mixing of languages Can hardly form a complete sentence, frequent errors present which lead to ambiguities in expression
1 <ul style="list-style-type: none"> Unable to complete the task, response is largely tangential Lack of organisation and coherence Fragmentary and confusing sentences or isolated use of vocabulary 	<ul style="list-style-type: none"> Use of register not appropriate to situation 	<ul style="list-style-type: none"> Insufficient and inappropriate use of vocabulary, frequent errors present which lead to apparent ambiguities in expression Frequent mixing of languages Unable to form a sentence, frequent errors present which lead to apparent ambiguities in expression
0	Not using Chinese Language at all	

Examples: According to the principle of holistic assessment, a single score is given to each student artefact with respect to its 'holistic' quality across the three criteria

^a Consistent use of register appropriate to situation. That is, to achieve optimal social effectiveness, the expression used must match the context of culture, context of situation, co-text and authors' intention. Halliday posited that 'register' is a configuration of meanings that are typically associated with a particular situational configuration of three social parameters: (1) (**field**): aptness of expression with reference to nature of social action, topic of situation or occasion. (2) (**tenor**): aptness of language, intonation and tone with regard to interpersonal relationships, interacting roles and status of the actors involved. (3) (**mode**): aptness of linguistic expression with regard to the requirements of written language and genre

^b Coherence, as used in the linguistic field, points to the consistency and alignment of text with regard to themes, situation, intention and roles etc

Student artefact	Score	Rationale of score given
 <p>这是妈妈和爸爸的房间,我和妹妹也在这里睡觉。有一天,爸爸和妈妈买了新的床。他们买了新的床给我,妹妹和他们自己。我和妹妹的是双架床,我睡在上面,妹妹睡在下面。妈妈和爸爸的是高高的床,他们说不可以上面跳,可是妹妹每次跳在上面。每天晚上,妹妹会去我的床睡觉。可是妈妈叫她下来,让我睡觉。</p> <p>“This is mom and dad’s room. My sister and I are sleeping here as well. One day, dad and mom bought new beds for me, sister and themselves. Sister and I are sleeping on a double deck bed; I’m sleeping on the upper deck, and my sister is sleeping on the lower deck. Mom and dad’s bed is tall. They said we shouldn’t bounce on the bed; but we are still doing so. Every night, sister would sleep on my bed; but mom told her to get down so that I can sleep.”</p>	5	<ul style="list-style-type: none"> • <i>Task completion</i>: completed the task; detailed and coherent description • <i>Expression</i>: appropriate expression and clear description of the situation • <i>Language</i>: use of vocabulary and sentence structure are apt and almost error free
 <p>这是我的午餐,我吃不完了。妹妹说我的脸白白,想要吐的样子。</p> <p>“This is my lunch. I can’t finish it. My sister says my face is pale, like I’m going to throw out”</p>	4	<ul style="list-style-type: none"> • <i>Task completion</i>: completed the task, good organisation of thoughts • <i>Expression</i>: appropriate expression and clear description of the situation • <i>Language</i>: use of vocabulary and sentence structure largely apt; though the sentence does not read smoothly
 <p>我的妹妹安静的读书,她读得津津有味。</p> <p>“My sister is quietly reading a book with relish”</p>	3	<ul style="list-style-type: none"> • <i>Task completion</i>: basically completed the task • <i>Expression</i>: appropriate expression but lacks details in describing the situation • <i>Language</i>: use of vocabulary and sentence structure largely apt
 <p>我的杯。</p> <p>“My cup”</p>	2	<ul style="list-style-type: none"> • <i>Task completion</i>: basically completed the task albeit incomplete sentence • <i>Expression</i>: incomplete sentence that does not express a clear situation • <i>Language</i>: use of very simple and un-captivating vocabulary, albeit not resulting in difficulty in comprehension

Student artefact	Score	Rationale of score given
我在用iPad做我写 “I'm using iPad do I write”	1	<ul style="list-style-type: none"> • <i>Task completion</i>: incomplete task (no photo; apparently incomplete context described in the sentence); fragmentary and confusing sentence • <i>Expression</i>: containing grammatical error that render difficulty for readers to understand the situation • <i>Language</i>: errors present which lead to apparent ambiguities in expression
(Example unavailable; all the artefacts contain Chinese text)	0	(Not using Chinese at all)

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