ORAL-PERFORMANCE LANGUAGE TASKS FOR CSL BEGINNERS IN SECOND LIFE

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The aim of this study was to determine the effects of different types of language tasks performed in Second Life (SL) on the oral performance of beginners of Chinese as a Second Language (CSL), focusing on oral accuracy. The 30 CSL beginners who participated in this study were randomly divided into two groups (n = 15 per group), required to perform two different types of language tasks: information-gap and reasoning-gap. During the study, both the Mandarin oral accuracy and the learning motivation of both groups were measured and analyzed to determine to what extent performing the two different task types could contribute to the two dependent variables (i.e., accuracy and motivation). All the learners improved significantly in oral communication competence, with those performing the reasoning-gap task improving significantly more than those performing the information-gap task. It was also found that almost all the learners exhibited positive learning motivation and appreciated the task-based learning activities designed in SL. Both groups made significant improvement in the affective dimension. Furthermore, the reasoning-gap group received significantly higher scores in the educational-context-related dimension (attitude toward SL as the Mandarin Chinese learning environment) than the information-gap group did.

Language(s) Learned in Current Study: Mandarin Chinese

Keywords: Computer-mediated Communication, Speaking, Learner Attitudes, Task-based Learning and Teaching, Virtual Environments

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INTRODUCTION

Mandarin Chinese is one of the six official languages of the United Nations and is the most-used language worldwide (Lewis, Simons, & Fenning, 2013). Although the learning of Chinese as a Second Language (CSL) has increased in popularity (Ramzy, 2006), the Chinese language is considered to be one of the most complex and difficult languages to learn (Moser, 1991). Since linguistic knowledge is not the unique index of communicative competence, the ability to use the linguistic knowledge appropriately in a given sociocultural context is also important (American Council on the Teaching of Foreign Languages, 2012; Council of Europe, 2001). Thus, helping CSL learners effectively acquire the target language and sequentially be competent to use the language in real-world situations is important.

Obviously, learning by rote, often employed in context-reduced or teacher-centered classes, is not an effective approach to helping CSL learners successfully overcome the language barrier (Ginsberg, 1992). On the contrary, the task-based approach (TBA) has been shown to be effective in enhancing CSL

learners' communicative competences (both form and fluency; e.g., Zeng, 2006). A form-focused output could especially force learners to move from semantic processing to syntactic processing and consequently ensure greater linguistic accuracy (see Loewen, 2005). Thus, the TBA is able to enhance inter-peer interactions (Yue, 2009) and consequently helps CSL learners improve their linguistic accuracy while they are engaged in the meaning-focused second language (L2) lessons (Lan, Kan, Hsiao, Yang, & Chang, 2013). Additionally, it is apparent that group collaboration is essential for successfully completing tasks using inter-peer interaction in the TBA. According to Donanto's (2004) arguments, collaboration involves a meaningful core activity (such as completing the task goal in the current study) and the social relations that both view individuals as parts of a cooperative activity and value the contributions of individuals in pursuing the group goal. Given that the essential feature of social interaction in collaboration is especially important to L2 acquisition (Vygotsky, 1978), group collaboration was emphasized in the current study.

Although the TBA has been a common topic of interest in CSL teaching and learning in recent years, some researchers have found that it is not easy for CSL teachers in face-to-face (F2F) classrooms to create authentic contexts for learners to immerse themselves into authentic linguistic environments and carry out language tasks (Zeng, 2006). The lack of real-life contexts not only lowers CSL learners' level of performance, but also lowers their motivation (Lan & Lin, 2016). This obstacle to the creation of the needed contextual environments for implementing the TBA in CSL settings has drawn the attention of researchers to the possibility of using virtual worlds, such as Second Life (SL), in teaching and learning Mandarin Chinese (Grant & Huang, 2010). SL has been known as one of the most popular multiuser virtual environments (MUVEs). The authentically immersive environments provided by SL, where students are encouraged to collaboratively carry out language tasks, help increase task authenticity (Chen, 2010). As argued by Lan et al. (2013), applying the TBA in SL is especially effective in motivating Mandarin beginners and improving their oral communication skills (including accuracy, fluency, and complexity) and social interactions.

At the same time, although different types of tasks have been used and investigated in SL (e.g., Lan et al., 2013), none of them has further examined the effects of various types of tasks carried out by CSL beginners in SL on their oral performance or motivation of CSL learning. Thus, research is needed to explore (a) whether tasks developed in SL would be beneficial to promoting CSL learners' motivation and performance and (b) whether certain task types in SL are able to elicit more intra-group interaction than the others. In summary, this study aims to investigate the effects of different types of tasks completed by CSL learners in SL on their oral performance and motivation.

REVIEW OF THE LITERATURE

The Task-based Approach

Long (1985) viewed a *task* as something that people do in their everyday lives. In the context of foreign or second language (FL/L2) teaching and learning, it can be any activity that results in processing or understanding a language. Nunan (1989) argued that two essential elements should be included in a task: the settings and the conditions under which the task takes place. Pica, Kanagy, and Falodun (1993) emphasized the social interaction and meaning negotiation in performing a language task and defined a task as an activity that is oriented toward goals and that involves direct participation by the learners. Following the definitions of language tasks described above, three characteristics of tasks will be emphasized in this study: actual occurrence in daily life, the use of authentic contexts, and the incorporation of goal-oriented collaboration.

Additionally, different task classification schemes, such as form- or meaning-focused (Ellis, 1994, 2003; Long, 1991; Pishghadam, Khodadady, & Rad, 2011), jigsaw or problem-solving (Meng, 2010), and decision making or opinion exchange (Pica et al., 1993), have been used in FL/L2 research. The current

study will adopt the classification of task types given by Prabhu (1987), who proposed that language learning tasks can be classified as information-, reasoning-, and opinion-gap tasks, according to the differences in the approach used to acquire information as explained below. An information-gap task involves information exchange between participating learners. Each member in a learning group is provided with a part of the scenario and is asked to convey it verbally to others to get the whole picture. A reasoning-gap task involves deriving some new pieces of information and getting the final answer by comprehending and conveying the clues hidden in the contexts or the restrictions or conditions given by the teacher. There is a need to look for clues, negotiate for the answers, and discuss the task with all group members to accomplish it. An opinion-gap task involves thinking about and stating personal preferences, attitudes, or feelings in order to perform a given task. According to Pica et al. (1993) and Prabhu (1987), an opinion-gap task is the least effective and has too high a level of unpredictability. Thus, only information- and reasoning-gap tasks will be included in this study.

In addition to the task types, both implementing tasks in FL/L2 instruction and evaluating FL/L2 learners' learning outcomes are indispensable to the TBA. For the former, Willis (1996) suggested a three-stage procedure: (1) pre-task, focusing on the target language input and preparing FL/L2 learners for later execution of the assigned task; (2) task cycle, including planning, executing, and reporting; and (3) post-task, focusing on form correction and focused practice. Moreover, Skehan (1998) proposed a three-dimensional framework to evaluate the output of FL/L2 learners when they are performing the task-executing process: accuracy, fluency, and complexity. The TBA takes accuracy, fluency, and complexity into account; hence, it is emphasized in FL/L2 settings, both in the conventional classroom (Skehan & Foster, 2001) and in SL (Collentine, 2011).

The Task-based Approach to Teaching CSL

Similar to general FL/L2 instruction, the TBA has also drawn the attention of CSL researchers (e.g., Zeng, 2006). There is evidence from numerous studies that the TBA promotes CSL learners' motivation for learning Chinese (Zeng, 2006), their achievement (Huang, 2006), and oral production (Wong, 2012). However, despite these positive findings, the difficulties related to creating authentic contexts are a challenge to implementing the TBA in CSL teaching. In many cases, CSL learners are assigned language tasks that are executed via the discussion and exchange of opinions in a conventional F2F classroom (Lan & Lin, 2016), rather than accomplishing real-life tasks. The limited practice in a conventional classroom does not help students acquire L2 effectively, as argued by Donato and Brooks (2004).

Furthermore, in a study by Lan and Lin (2016) in a conventional F2F classroom, CSL learners tended to thoughtlessly produce oral output without carefully thinking about whether what they said fitted the given contexts while carrying out an assigned task. The lack of real contextual information under these conditions may thus hinder subsequent retrieval of Chinese knowledge among CSL learners in the real-world communication (Crestani & Ruthven, 2007) due to the failure in breaking down the boundaries of the classroom (Al-Shehri, 2011). Given the importance of well-designed instructional contexts to L2 learners' acquisition of the target language via performing language tasks (Byrnes, 2007), exploring the effects of implementing the TBA in SL can contribute to the knowledge pool of the TBA in CSL research and education. In other words, whether the tasks designed to follow the suggestions for F2F classrooms as described in the fore section will also produce similar results in SL is worthy of further investigation.

SL for CSL Teaching and Learning

SL is a MUVE possessing a unique and distinctive feature that fosters the realization of language education purposes (Lan, 2014). It combines network connectivity and virtual reality, provides users with a *virtual yet real* environment in which they can interact socially with others via resident avatars (James, 2005). As remarked by Cooke-Plagwitz (2008), SL inspires language learners to reach learning goals without losing interest and motivation and allows users to speak various languages from different areas in order to orally or textually communicate with others through avatars without spatial or temporal

limitations. These characteristics have turned SL into a notable platform for implementing the TBA in FL/L2 teaching and learning (e.g., Collentine, 2011).

Among the relevant studies on the TBA in FL/L2 learning within SL environment, few of them focus on the learning of Mandarin Chinese. Although some of these studies took Mandarin Chinese as the target language (Grant & Huang, 2010), in-depth investigations on the effects of certain task types on CSL learners' performance or motivation are still in progress. For example, Henderson, Huang, Grant, and Henderson (2012) have explored the effects of the TBA in SL on learning Chinese with few practical findings. They made some general suggestions on affective dimensions, though they did not provide any information on the benefits or effects of applying the TBA in SL on learners' communicative competence. To uncover the potential of the TBA in SL for CSL learning and to provide global Chinese learners with more effective approaches to acquiring the target language, more practical evidence is needed to fill the research gap on the applications of the TBA in SL to enhance the communicative competence of CSL learners.

Motivation for FL/L2 Learning

Motivation shows the amount of willingness one person has towards taking an action. In FL/L2 learning, learners' motivation has frequently been viewed as the most critical factor in successful language acquisition (Dörnyei, 1990, 1998; Gardner, 2000). Without sufficient motivation, learners cannot reach long-term learning goals despite having remarkable abilities. In other words, high motivation can make up for considerable deficiencies both in one's language competence and learning conditions. According to Gardner (2000) and Dörnyei (1998), learners' motivation is affected by different factors, including their attitudes toward the target language. Additionally, Nakanishi (2002) argued that motivation is influenced by two main factors: needs and attitudes. Learners are motivated if they need to learn the target language to achieve a goal or if they want to learn about the target culture and language and communicate with its speakers. Taking a broad view of the relevant research on learners' attitudes toward learning a language in SL, the results are very diverse (e.g., Liang, 2012), with both positive and negative attitudes having been reported. The reason for the inconsistency is also worthy of further research.

The dimensions of FL/L2 leaners' motivation in specific sociocultural, ethnolinguistic, and educational contexts were not identical from study to study due to different measuring focuses. For example, as argued by Dörnyei (1990), motivation is indeed a multifaceted, rather than a uniform, factor and no available theory has yet covered its total complexity. Furthermore, most of the descriptions of learning context have concerned European environment (Dörnyei, 1998). Unfortunately, Mandarin Chinese has seldom been included in those studies; moreover, few studies have investigated the effects of different tasks in SL on CSL learners' motivation. Thus, it is worthy of effort to develop a deeper understanding of the effects of different tasks on the learners' motivation for learning Mandarin Chinese.

In summary, SL technology has great potential to create a learning environment for CSL learners conducting interpersonal oral interaction in task-based learning. Nevertheless, there is still a large gap with respect to understanding its effects on the perception and performance of CSL learners. In order to bridge this gap, the present study focuses on both CSL learners' motivation for learning Mandarin and the accuracy of Mandarin oral production, aiming to answer the following questions:

1. What are the differences in the effects of performing different tasks (information- vs. reasoning-gap) on CSL beginners' Chinese oral communicative accuracy?
2. What are the differences in the effects of performing different tasks (information- vs. reasoning-gap) on CSL beginners' motivation of Chinese learning?

METHODOLOGY

Participants

Thirty CSL learners participated in this study (mean age = 19.46, *SD* = 2.25, range = 19–24); 26 of them were from Indonesia, 2 were from Vietnam, 1 was from the USA, and 1 was from South Africa. All the participants were randomly divided into two groups with 15 subjects each: the information-gap and the reasoning-gap task groups.

The participants studied Chinese for a year to continue their education in Taiwanese universities. Based on the definition of competence provided by the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR; Council of Europe, 2001), all of the participants were at level A1 (and are hereafter referred to as *beginners*). According to CEFR, foreign language learners in A1 level are able to (a) understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type; (b) introduce themselves and others and can ask and answer questions about personal details such as where they live, people they know, and things they have; and (c) interact in a simple way provided the other person talks slowly and clearly and is willing to help. Additionally, none of the participants in the current study had experience in digital language learning or using SL.

Design and Data Analysis

An experimental research design was adopted, with the independent variable being the task type (information-gap vs. reasoning-gap task), and the two dependent variables being oral accuracy in and motivation for learning Chinese. All of the collected data were analyzed by running a two-way mixed design ANOVA to determine how participants performing the information- and the reasoning-gap tasks differed. All the activities and group interactions in SL were also recorded via a type of screen shot software, Fraps, for further analysis.

Instruments

Teaching Packages

Three teaching packages, with the themes of *Where is the gift?*, *Who ate the cookies?*, and *Choosing gifts*, were designed for CSL beginners. Each package consisted of two task types for each of the two groups. For the information-gap task group, the practical information needed to accomplish the task was divided into several parts, each part of which was given to different students. To accomplish the assigned task, all the pieces of information needed to be be combined through information exchange among the participants. In contrast, for the reasoning-gap task group, the clues for accomplishing the assigned task were given to all the members or hidden in the surroundings within the SL environment. All the team members had to observe their surroundings in order to collect the hidden clues and discuss them with one another to successfully accomplish the assigned task. One example of the teaching packages is available here.

Virtual Contexts in SL

Specific virtual contexts in SL were developed by the authors for each teaching package. In the virtual contexts, CSL learners could carry out a task just as what they would in the real world. Figure 1 shows the virtual context for Teaching Package 2, *Who ate the cookies?*

Figure 1. The virtual context used in Teaching Package 2: (a) A house with three bedrooms and a living room; (b) the living room (1st Floor); (c) Daniel's room (1st Floor); (d) Diane's room (3rd Floor); and (e) David's room (2nd Floor).

Online Test of Chinese Oral Communicative Accuracy

The test comprised two equivalent forms, the aim of which was to evaluate the CSL beginners' oral communicative accuracy and their knowledge of the most misused syntactic forms of the Chinese language that were taught in the experiment:

1. The comparative structure: A 比 B… (*A is more…than B*)
2. the 把, or *ba3*, structure: 把字句, a grammatical construction, carrying the function word, 把, followed by an object and a verb, forming a subject-object-verb sentence as in 我把麵包吃了 (*I ate the bread*)

The test items focused on listening and speaking: one category of the items asked the CSL beginners to listen to a word or a sentence and then choose the corresponding picture, while the other category

required them to listen to a question and then record their answers orally. Both test forms were first evaluated and confirmed by three Chinese Mandarin experts and were then uploaded on an online testing system developed by the authors. The online test system was programed by PHP (a widely-used open source general-purpose scripting language), connected to a database programed by MySQL (a widely-used relational database management system) to record all the test scores. The Appendix shows an example of the test items.

Chinese Learning Motivation Questionnaire

The questionnaire was adapted from Dörnyei (1990; 1998) with the aim of measuring both intrinsic and extrinsic motivation of CSL learners as well as their attitudes toward SL as a Mandarin Chinese learning environment. It comprises three dimensions. The first dimension is labeled as *affective*, including four sub-dimensions: pleasure experience, self-satisfaction, goal-related, and self-concept-related. The second dimension is labeled as *pragmatic*, focusing on evaluating the external factors of CSL learners' purposes. The third dimension is labeled as *educational-context-related*. A complete version of the questionnaire along with some explanation can be found here.

Procedure

The study lasted for nine weeks, with a 1-hour session once a week, from March 1, 2013 to the end of May, 2013. Figure 2 shows a flow of the experimental procedure. A pre-test, including the online test of Chinese oral communicative accuracy and Chinese learning motivation questionnaire, was administered to all of the participants in the first week. In the second week, a training session on SL operations was held to ensure that all of the participants were familiar with the domain of SL. All the activities focused on using SL without introducing any target Mandarin learning-related contents to avoid the possible influences on the post-test. Then, from the third week, three teaching packages were taught by two CSL teachers over a period of six weeks, with each package lasting two weeks. All three teaching packages were provided in virtual forms in SL without any conventional instruction or printed materials. In addition, in the first week of each package (i.e., Weeks 3, 5, and 7 of the study), the basic language skills necessary for subsequent task accomplishment were taught, including Chinese words and sentence patterns. In the second week of each package (i.e., Weeks 4, 6, and 8 of the study), the participants had to perform the assigned task through collaborative learning with group members. To balance the possible effects caused by the teachers, the two CSL teachers regularly switched the teaching classes. Additionally, in order to keep all the participants more actively involved, the 15 participants in each group were further divided into three teams of five participants. Moreover, the tasks assigned to different groups (information-gap and reasoning-gap tasks) were similar, and had identical goals but with different information available. In the last week, after the 6-week treatment, a post-test was administered which was equivalent to the pre-test.

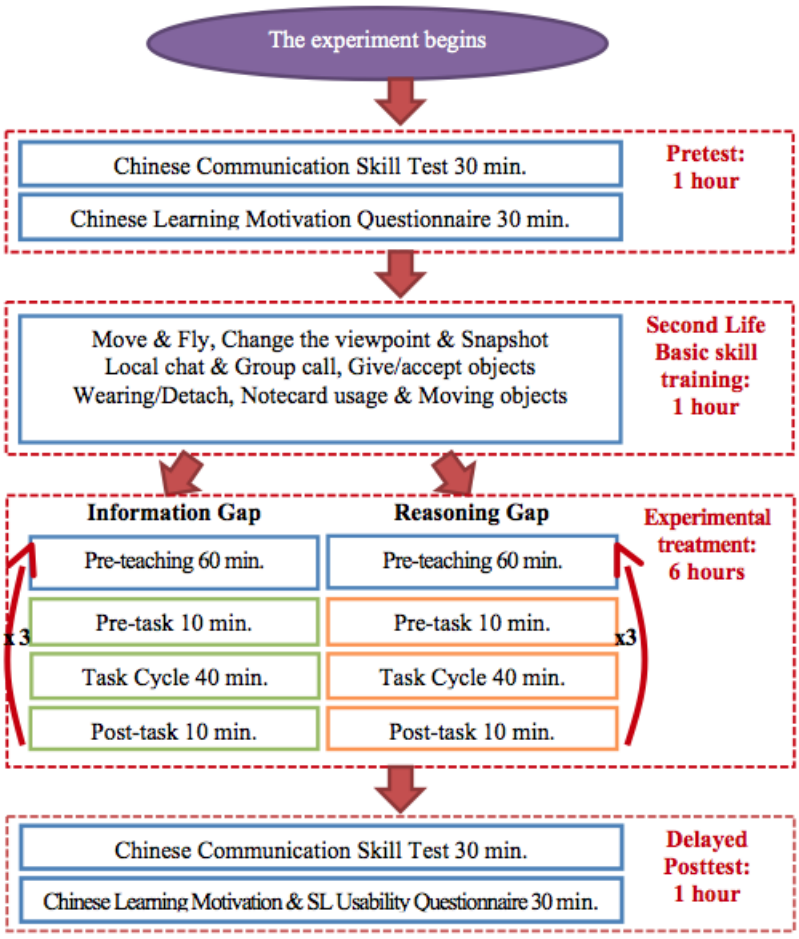

Figure 2. The experimental procedure.

RESULTS AND DISCUSSION

Comparison of Chinese Oral Communicative Accuracy

Table 1 lists the descriptive statistical findings of the online test scores of Chinese oral communicative accuracy for the two task groups. Two-way (Test × Group) ANOVA revealed that the interaction between group and test was insignificant ($F(1,1) = 1.98$, $p = .17$). Thus, the magnitude of difference did not vary according to different levels.

Table 1. *Data for the Online Test of Chinese Oral Communicative Performance*

Group	Pre-test		Post-test	
	Mean	*SD*	Mean	*SD*
Information-gap task ($n = 15$)	28.33	14.62	45.00	10.74
Reasoning-gap task ($n = 15$)	30.40	12.24	53.13	8.12

A main-effect analysis was conducted to compare the differences between the two groups and the two tests (pre- and post-test; see Table 2). There were no statistically significant differences between the two groups with respect to the Chinese oral communicative accuracy pre-test scores ($F(1, 1) = 0.18$, $p = .678$),

but there were differences in the post-test scores ($F(1, 1) = 5.47$, $p = .027$). Thus, the reasoning-gap group performed significantly better than the information-gap group in the post-test. Furthermore, the main-effect analysis revealed significant differences between the pre- and post-test scores for both groups (reasoning-gap group: $F(1, 1) = 66.79$, $p = .000$; information-gap group: $F(1, 1) = 25.48$, $p = .001$), suggesting that both groups benefited from carrying out tasks in SL and consequently both made significant improvement in the post-test. These findings indicate that, although both groups made significant progress from the pre- to post-test, the extent of that progress was greater for the reasoning-gap group than of the information-gap group.

Table 2. *Main-Effect Analysis of Task Types and Chinese Oral Communicative Performance*

Factor	*SS*	*MS*	*F*	*p*
Task group				
Chinese oral communicative performance at pre-test	32.03	32.03	.18	.678
Chinese oral communicative performance at post-test	496.13	496.13	5.47	.027
Oral performance test				
Information-gap task	2083.33	2083.33	25.48	.001
Reasoning-gap task	3876.04	3876.04	66.79	.000

The percentages of the teams that successfully performed the assigned tasks in the two different task groups were also examined. It was found that at the very most, only one third of the participants in the information-gap group successfully performed the assigned tasks of the three teaching packages (Teaching Package 1: 0 of 3 teams; Teaching Packages 2 and 3: 1 of 3 teams). In contrast, in Teaching Package 2, all the three teams in the reasoning-gap group successfully accomplished their missions (Package 1: 1 of 3 teams; Packages 2 and 3: 3 of 3 teams).

While observing how CSL learners carried out the assigned tasks in SL, the authors found that although the teams in the information-gap group did exchange information during the task performing process, the communication purposes were not always successfully achieved. Each individual usually solely focused on exchanging the collected information with their team members, piece by piece, without making further efforts on integrating what they had observed, as shown in the transcript below. The transcript has been extracted from the talks during a practice task, aimed at preparing the participants for carrying out more difficult detective tasks in which they were asked to figure out who ate Watson's cookies. Additionally, the goal of the practice task was to identify the difference between two rooms.

One team in the information-gap task group:

A: 我們有鞋子。
We've got some shoes.

B: 你那裡有餅乾嗎?
Huineng, any cookies over there?

A 我們有鞋子。
We've got some shoes.

B SA 你那裡有餅乾嗎?
Huineng, any cookies over there?

A 我們有餅乾。

Yes, here're some cookies.

B SA! **你們那裡有兩本書嗎**?

Any two books over there?

A ??????? **看到，我們有四本書**。

??????? I saw them. We've got four books.

B **我們有兩本書**。诶, **四本**.

We've got two books. Yes, four.

A **那你們有沙發嗎**?

What about sofa?

B **沒有**。**我們有桌椅**。

No. We've got some chairs and desks.

A **你們有一個..木櫃嗎**?

Did you see a ...wooden cabinet?

B **有一個..木櫃，然後木櫃上面有兩雙鞋子，一個藍色一個灰色的**。

Yes, here's one...wooden cabinet. And on top of the wooden cabinet are two pairs of shoes: one in blue and the other in gray.

In contrast to the information-gap group, the reasoning-gap group successfully achieved the purpose of communication and figured out the answers to the problems through inter-peer information-exchange and meaning negotiation. They first observed each room individually and then integrated what they had observed while sharing the information with their team members. Some of them, moreover, repaired their output while sharing information with their peers, such as the first and the last descriptions listed below that were given by S1 about the comparison results of the shoes in different rooms (Room A and Room B). Additionally, some of them with lower ability even imitated their peers' description to produce their own output, such as S3 in the example task group below. Some examples of collaboration in one team of the reasoning-gap group are as follows.

One team in the reasoning-gap task group:

S1 A 的櫃子跟 B 的不一樣， A 的是書，還有 A 的是～有放…鞋子的

The cabinet in A is different from the one in B. The one in A is a book. And in A...there is ... shoes.

S2 **那**個～哦～哦～，A、A、A 房間的電電腦比～B 房間的電腦貴。

Well, oh, oh. The computer in room A, A, A, is more expensive than that in B.

S1 **還**有，椅子，A 的椅子比較小，比 B 的，比 B 的椅子，A 的椅子比較小比 B 的椅子。

And, the chair. The one in A is smaller than that in B, the chair in B. The chair in A is smaller, compared to that in B.

S3 **哦**，A 房間的餅乾比 B 房間的餅乾少。

Oh, the number of cookies in Room A is smaller than those in Room B.

S2 **哦**那個 A 房間電，哦電視，哦～電視放在前面，然後 B 房間的電視放在～哦

～哦～左邊。

Oh, the TV in A, the TV. The TV is in the front, and the TV in B is placed…oh, oh, on the left.

S1 **是** A 的鞋子它放在櫃子，然後它是 B 的放在它椅子是放在地下。不是，鞋子鞋子。A 的鞋子它放在櫃子的裡面，然後 B 的～鞋子它放在，地下。A、A 的鞋子有兩、兩雙然後 B 鞋子一雙、一雙

The shoes in A are placed in the cabinet, and those in B are placed on the chair, under the floor. No, the shoes, the shoes. The shoes in A are placed in the cabinet. And the…shoes in B are placed…under the floor. There are two, two pairs of shoes in A, A. And one pair, one pair in B.

The results described above not only make up what Rahimpour (2008) argued about the effect of the TBA language teaching on learners' accuracy, but also further support what Lan (2014) found about applying SL in Mandarin Chinese learning benefits CSL learners' oral output in inter-peer interaction and communicative accuracy. Furthermore, the results listed in Table 2 answered the first research question and revealed that in terms of the improvement, the CSL beginners in the reasoning-gap group significantly outperformed those in the other group. Moreover, the inter-peer discussions allowed those with a lower oral level proficiency in Chinese to contribute to the group's goal by producing meaningful oral output about the essential information for solving the assigned problem (like S3 in the transcript example of reasoning-gap task group listed above). Affable inter-peer interactions seemed to inspire CSL learners to think and interact in Chinese, as expressed by one of the CSL beginners, helping them to improve significantly. Eventually, it was revealed that the teams in the information-gap task group neither successfully accomplished all of the assigned tasks nor made as much improvement as their peers in the other task group did.

Interestingly, the present findings conflict with the argument made by Pica et al. (1993), who proposed that the information-gap activity and Jigsaw are the two most effective tasks for L2 instruction and learning. This may be because their study was conducted in conventional L2 instruction settings rather than in a virtual word. In a conventional classroom, the task context is usually assumed to be real. That is, the learning partners usually see each other while performing a task even though they are supposed to be physically in different locations, such as in different rooms or buildings. In contrast, in SL, the CSL learners use their avatars to visit different locations for collecting information and could merely interact with others via text or oral chats without real F2F contact like in the real world. Based on the features of physical immersion and context realization, executing tasks in SL is more like doing so in the real world and it enables learners to deal with the obstacles of creating real authentic contexts in conventional classrooms (Lan & Lin, 2016).

It is interesting that even though the context and the task types of this study are similar to those of the study conducted by Lin and her colleagues (Lin, Wang, Grant, Chien, & Lan, 2014), the results of the two studies are different. Lin et al. found that information-gap tasks inspired beginners of Chinese as a Foreign Language (CFL) from Australia toward more inter-peer interactions in SL than did reasoning-gap tasks. Again, there were some differences between the two studies of Lin and her colleagues and this study. First, although the participants in the two studies were all beginners, those in the study by Lin et al. (2014) were complete beginners, while those in the current study possessed higher Mandarin abilities. Second, the language context in study by Lin et al. was a CFL environment, while in this study, it was a CSL one. Third, the task complexity was different: the task information was divided into two sub-parts in the Lin et al. study while in the current study, it was distributed in four different rooms. In a word, the three components: the participants' Mandarin Chinese abilities, the dominant languages outside the Chinese classroom, and the task complexity are different. Further, Lin et al. (2014) only observed the

quantity of inter-peer interaction without comparing the differences in oral accuracy between the two different task groups. Therefore, the following should be further investigated in future studies in order to better understand how using the TBA in SL impacts both the oral interactions and accuracy of FL/L2 learners: the context difference (FL vs. L2), as argued by Menard-Warwick (2009); differences in the language ability of learners as argued by Duran and Ramaut (2006); and differences in the task characteristics (e.g., complexity, difficulty, and production) as argued by Robinson (2001).

Comparison of Chinese Learning Motivation

The scores for both the entire questionnaire and for each dimension were analyzed and compared to investigate to what extent the TBA in SL contributed to the learning motivation of the CSL beginners. Table 3 lists the scores obtained before and after the treatment.

Table 3. *Scores for the Chinese Learning Attitude Questionnaire*

Group	Pre-test		Post-test	
	Mean	*SD*	Mean	*SD*
Whole questionnaire				
Information-gap task	3.08	.27	3.26	.16
Reasoning-gap task	2.97	.32	3.17	.34
Affective dimension				
Information-gap task	3.08	.34	3.15	.45
Reasoning-gap task	3.15	.33	3.33	.23
Pragmatic dimension				
Information-gap task	3.25	.42	3.31	.29
Reasoning-gap task	3.31	.34	3.51	.45
Educational-context-related dimension				
Information-gap task	2.93	.28	2.78	.38
Reasoning-gap task	3.15	.37	3.25	.45

For the entire questionnaire, the two-way (Test × Group) ANOVA revealed that the interaction between group and test was insignificant ($F(1,1) = 0.01$, $p = .920$), suggesting that the magnitude of the difference did not vary according to different levels. Additionally, the difference between the two task groups was not significant either ($F(1,1) = 1.16$, $p = .299$). However, a significant difference did exist between the pre- and post-tests ($F(1,1) = 7.01$, $p = .011$). Thus, a main-effects analysis was conducted. The Chinese learning motivation did not significantly differ between the two groups in the pre-test ($F(1,1) = 0.98$, $p = .326$) and the post-test ($F(1,1) = 0.74$, $p = .393$). Similarly, no significant difference was found in the intra-group comparison (pre- versus post-test in each group; information-gap group: $F(1,1) = 3.67$, $p = .076$; reasoning-gap group: $F(1,1) = 4.28$, $p = .058$). However, an improvement was found between the pre- and post-test in each group.

With respect to each dimension, two-way (Test × Group) ANOVA showed no significant interactions for any of the three dimensions between group and test (affective dimension: $F(1,1) = 0.00$, $p = .982$; pragmatic dimension: $F(1,1) = 0.59$, $p = .448$; and educational-context-related dimension: $F(1,1) = 1.40$, $p = .244$). Thus, a main-effects analysis of all three dimensions was conducted, which demonstrated that there were no significant differences between the two groups at pre-test for all dimensions. However, the

difference in the educational-context-related dimension between the two groups reached a significant level at the post-test ($F(1,1) = 11.59$, $p = .001$). The reasoning-gap group received significantly higher scores than the information-gap group did regarding their attitudes toward SL as a Mandarin learning environment.

As to the comparison of the pre- and post-test in each dimension, both groups made significant improvements only in the affective dimension (information-gap group: $F(1,1) = 75.12$, $p = .000$; reasoning-gap group: $F(1,1) = 79.25$, $p = .000$). Table 4 displays the scores of each sub-affective dimension obtained before and after the treatment, while the results of the further analysis are listed in Table 5. As shown in Table 5, for the inter-group comparisons in each sub-dimension, there were no significant differences between the two groups at pre-test, but significant differences were found in the goal-related sub-dimension at post-test ($F(1,1) = 6.51$, $p = .013$). That is, in the goal-related sub-dimension, the reasoning-gap group had significantly higher motivation than the information-gap group did.

Table 4. *Scores for the Chinese Learning Attitude Questionnaire: Affective Dimension*

Group	Pre-test		Post-test	
	Mean	*SD*	Mean	*SD*
Pleasure experience sub-dimension				
Information-gap task	3.18	.48	3.22	.45
Reasoning-gap task	3.33	.38	3.49	.32
Self-satisfaction sub-dimension				
Information-gap task	3.06	.51	3.25	.42
Reasoning-gap task	3.17	.36	3.37	.33
Goal-related sub-dimension				
Information-gap task	3.01	.47	3.12	.40
Reasoning-gap task	3.21	.29	3.48	.39
Self-concept-related sub-dimension				
Information-gap task	2.80	.51	2.96	.42
Reasoning-gap task	2.63	.41	2.93	.26

Table 5. *Main-effect Analysis for Task Types and Chinese Learning Attitude*

Factor	*SS*	*MS*	*F*	*p*
Task group				
Pleasure experience at pre-test	.17	.17	1.00	.322
Pleasure experience at post-test	.56	.56	3.29	.075
Pleasure experience sub-dimension				
Information-gap task	.01	.01	.26	.620
Reasoning-gap task	.18	.18	5.59	.033
Task group				
Self-satisfaction at pre-test	.07	.07	.38	.541
Self-satisfaction at post-test	.10	.10	.51	.476
Self-satisfaction sub-dimension				
Information-gap task	.25	.25	2.43	.141
Reasoning-gap task	.30	.30	2.89	.111
Task group				
Goal-related at pre-test	.30	.30	2.01	.162
Goal-related at post-test	.97	.97	6.51	.013
Goal-related sub-dimension				
Information-gap task	.09	.09	.79	.388
Reasoning-gap task	.53	.53	4.96	.043
Task group				
Self-concept-related at pre-test	.10	.10	.58	.449
Self-concept-related at post-test	.00	.00	.00	.965
Self-concept-related sub-dimension				
Information-gap task	.19	.19	12.56	.003
Reasoning-gap task	.02	.02	1.23	.287

Regarding the intra-group comparison, both groups made significant improvements in some sub-dimensions after the treatment. The reasoning-gap group made significant improvement at post-test in both sub-dimensions of pleasure experience ($F(1,1) = 5.59$, $p = .033$) and goal-related ($F(1,1) = 4.96$, $p = .043$), while the information-gap group did so only in the self-concept-related sub-dimension ($F(1,1) = 12.56$, $p = .003$).

To synthesize what is described above and to discuss the answer to the second research question, it was found that both groups improved in almost all the dimensions with respect to the influence of the TBA in SL on CSL beginners' learning motivation. The positive results could be supported by Deutschmann, Panichi, and Molka-Danielsen (2009), who stated that motivation for the environment itself may influence the engagement and the participation. The findings are also consistent with the results of the previous studies on SL for language teaching and learning, such as those of Chen (2010) and Jee (2010). The attitudes of the students in the information-gap group toward SL as Mandarin Chinese learning environment and the activities run in SL (i.e., educational-context-related dimension) negatively changed after the treatment (see Table 3), due to the poor quality of the Internet connection and the computer

equipment. These problems led to a different result for learners in the reasoning-gap task group. Their attitudes in this dimension positively changed from 3.15 to 3.25. The opposite results between the two groups seemed to be caused by the unsuccessful task execution experienced by learners in the information-task group. Since the experience of success usually provides students with more power to pursue a new goal and keeps them highly motivated (Alessi & Trollip, 2001; Ebata, 2008), the participants in the reasoning-gap group maintained higher motivation while performing the assigned tasks, being less influenced by the network problems.

In summary, some possible reasons for the differences in CSL learners' oral accuracy and motivation across the two task types were proposed in this study. However, further investigation on the effects of different task types on learners' Mandarin Chinese learning is required due to the small sample size in order to obtain more practical evidence. The absence of a control group where the participants could learn the identical materials in the conventional F2F classroom also weakened the power to infer what results would have been obtained if the identical activities had been executed in F2F classroom settings. It is without doubt that further practical investigation is needed in the future studies. Some other topics for further research are suggested as follows: (a) the effects of task complexity on CSL beginners' learning, (b) the correlation between the characteristics of language tasks (types and complexity) and CSL learners' skills, (c) the effects of the language environment outside the classroom on CSL beginners' performances and motivation using the TBA in virtual worlds, and (d) the correlation of CSL beginners' learning styles and their TBA performance and motivation in virtual worlds.

CONCLUSION

This study took a step further in the research on SL for FL/L2 learning and teaching by investigating the differences in the impact of different task types on CSL beginners' oral accuracy and motivation for learning. Some preliminary results were obtained: the TBA in SL benefited both CSL beginners' oral communicative accuracy and their motivation for learning Madeiran Chinese (as far as the affective dimension is involved). However, the differences in the variables of this study (i.e., oral accuracy and motivation) across the two task types should be further investigated, although it was found that the reasoning-gap tasks helped CSL beginners outperform those who were assigned the information-gap tasks. Regarding the TBA in CSL learning and teaching, some important issues for future research were also discussed.

Since task complexity seems to be a factor influencing CSL/CFL learners' preference for SL as a language learning environment and their successful experiences, the language tasks should be tailored to meet the capability of the students in future studies, and practical implications should be provided as suggested by Hismanoglu (2012). Besides, an FL/L2 environment in which the students can learn the target language should also be taken into account because the learning processes in these environments can be the same or different (Ellis, 2008).

In brief, we conclude that the TBA, especially the reasoning-gap task in SL, successfully improved the CSL beginners' motivation and their oral communication accuracy. However, due to the small size of the participants, the limited treatment period, and the lack of control group in this study, further research evidence should be obtained in the future to better answer the questions raised in this study.

APPENDIX. An Example of the Online Test

Audio (without text): "哪裡不一樣?" (What are the differences between the two items?)

The CSL beginners were required to orally record their answers after listening to the question. The answers could be "左邊的櫃子比右邊的高" (The cabinet on the left is taller than the one on the right) or "右邊的櫃子比左邊的矮" (The cabinet on the right is shorter than the one on the left). All the CSL beginners' answers were stored in the system, allowing the teachers/researchers to grade them later.

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