Student Perceptions toward Computer Supported Collaborative Learning on Chinese Language Learning

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Abstract
The discussions on second language learning in higher education facilitated by computer supported collaborative learning have increased over the past decades.
To generate learners' communications in the target language is the purpose of practicing CSCL for L2 learning. However, few studies have done to understand Chinese L2 learners' perception on computer supported language learning. In this study, computer supported collaborative learning structure was designed to cross the boundary of the languages and cultures.   Forty-eight American high school students worked on CSCL assignments with twenty-seven Chinese-native-speaking college students in Taiwan via communication medias such as Skype, Facebook, and emails. Data from survey, interviews and the instructor's observation were collected, and the results showed that the American high school students agreed that this computer supported collaborative learning activities have increased their confidence of learning Chinese language and their confidence of speaking Chinese language, as well as their future learning motivation of Chinese language.   During the collaboration, the American students also automatically developed strategies for studying and for more efficient communication methods with native speakers.   Furthermore, this study also discusses the problems that the learners encountered during the process and the suggestions for future research.

Keywords: Distance Education, Chinese Language Teaching and Learning, Computer Supported Collaborative Learning, Student Perceptions, Social Interaction

Introduction

Distance education is one of the main streams of current higher education because it offers a platform for rich learning resources. Distance courses could be scaffold by various Internet learning software such as intro-college Internet learning resource platform or chat rooms, or Internet communication software like email, Skype, Facebook, etc. These are generally considered to have the advantages of overcoming the limits of time and space, so that learners could learn anytime and anywhere. However, distance learning has also been questioned for its lack of peer contact and social interaction, and educators are searching for an alternative solution. The blended e-learning system (BELS), believed to be a promising solution, combines multiple teaching and learning methods including traditional face-to-face instruction and synchronous and/or asynchronous online learning (Wu et al., 2010).
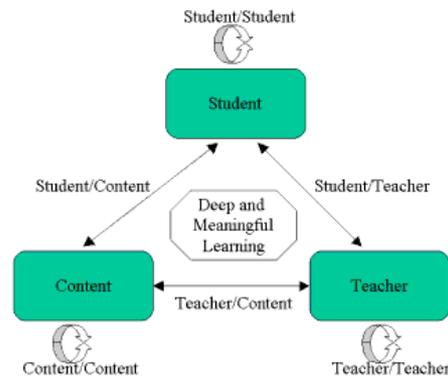
In addition, more and more educators and researchers of Chinese language education found that distance synchronized interaction could provide natural stimulus and environment to a second-language learner from a living environment lack of application of Chinese language (Wu & Tsai, 2008). Therefore, researchers of this study wish to offer a BELS environment and apply computer supported collaborative learning on Chinese language learners and native speakers as a pair and conduct a study of cross-lingual and cross-cultural distance Chinese language learning. Yet, numerous researches on distance education emphasize more on learning effectiveness (Gokhale, 1995; Tian, 2011; Chen & Liu, 2008; Murugaiah & Thang, 2010). Quantity increase of distance teaching and learning does not mean quality learning (Vonderwell, 2003). Consequently, to understand the communication in between learners and instructors and between learners and learners is also important in computer supported learning. This study will explore Chinese language learner perceptions toward cross-cultural computer supported collaborative learning, the relationship between learner perception and learning effectiveness, and the challenges that learners encounter and the solutions.

Literature

1 Interaction of Distance Learning
Recently, more distance educators find out that "interaction" has been playing an important role in distance learning (Anderson, 2003), and there are numerous researches discuss the interaction between instructors and learners and among learners (Cecez-Kecmanovic & Webb, 2000; Jones & Issroff, 2005; Kreijns et al., 2003; Lee, 2004; Lou, Abrami & d'Apollonia, 2001; Shih, 2002; So & Brush, 2008; Stahl, 2005; Stahl, Koschmann & Suthers, 2006; Summers, Beretvas & Gorin, 2005; Vonderewell, 2003). Anderson (2003) uses Wagner's (1994) definition that defines "interaction" as "reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another" (pp. 1-2). Anderson and Garrison (1998, cited in Anderson, 2003) introduce an interaction model (Figure 1) and divide interaction into three types: interaction between student and teacher, interaction among students, and interaction between student and content. Anderson (2003) concludes some interaction rules as followed: As long as one of the three interactions reaches high degree of interaction, deep and meaningful learning will be supported; and if students have one or more high-degree interactions, they will gain more satisfactory education experience.

Figure 1. Modes of Interaction in Distance Education from Anderson and Garrison, 1998

2 Computer Supported Collaborative Learning (CSCL)

CSCL has been viewed as one of the promising technology-supported education. The connection of computers and Internet provides learners medias, such as emails, chat rooms, forums, net meetings, and messengers, to communicate and cooperate with each other (Stahl, Koschmannm & Shuthers, 2006). Researches show that with rich information and resources, distance computer conferencing could encourage learners to develop social skills, collaborative learning and relationship during the learning process (Anderson, 2003; Lee, 2004). Thus, CSCL is the application of collaborative learning in computer communication media. CSCL is not only an education idea but also an education approach. Educators design a collaborative task as a problem, which requires learners to discipline and apply strategies to solve together. During CSCL, instructors need to interact with learners to guide them through the process. Therefore, how to provoke and maintain the interaction with learners needs to be delicately planned so to coordinate and meet the balance among curriculum, education and technology is an important concern of researchers and instructors (Stahl, Koschmannm, Shuthers; 2006).

Current studies on CSCL application on Chinese language teaching and learning, however, are still very rare. During this era of Internet technology, CSCL should be a proper mode for cross-national and cross-cultural cooperation. This study applies CSCL rationale and model, connects Chinese language learners and Chinese language native-speakers from two different nations to work collaboratively to complete assignments and tasks.

3 Social Presence

During the CSCL process, strategies to increase connection and belongingness is important to learners (So & Brush, 2008). In fact, when doing CSCL, the learner sits alone in front of the computer screen and learns; although he or she seems to have "classmates," they are somewhere out there, which also means "virtual." During this learning process, learners' social presence disappears. So and Brush quote the definition of "social presence" by Short et. (1976) as "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships." That is, the intimacy from face-to-face interaction and prompt immediacy developed during social process may disappear during the process of CSCL. Consequently, more and more distance teaching and learning research projects focus on learner experiences and perceptions, and on that if "social presence"

has any impact on distance learners (So & Brush, 2008).   Study of So and Brush (2008) also shows that students with high degree of collaborative learning have higher social presence.   Vonderwell 's (2003) study also indicates that isolation due to physical distance is a big issue in distance education or online courses.   Lee (2004) further induces many research studies and emphasizes that language learning is not only based on individual learner's production, but also related to the interpersonal interaction during a collaborative activity, because language learning is a developing process, and learners will use the language as a social communication tool and the social interaction as a tool to enhance their knowledge.   Therefore, under the scaffold of CSCL, via peer assistance, learners could solve problems together as well as improve their own language abilities.

4 Student Satisfaction

Another important element to affect the effectiveness of distance learning is student satisfaction.   Enormous research results show that general learners give positive feedback to the effectiveness of distance learning (So & Brush, 2008; Lee, 2004), and student satisfaction is not significantly correlated to age, gender, grade, computer proficiency, but it is correlated to social presence (So & Brush, 2008).   In general, what learners are not satisfied with distance learning includes not clear teacher expectations, tight timeline, too many assignments, malfunctioned software, slow Internet, and not in-time communication (Gaddis et., 2000; Kitchen & McDougall, 1998, cited in So & Brush, 2008).

5 Challenges of Distance Learning

Lee's (2004) study points out some challenges encountered in distance computer-supported language learning.   First of all, learners are from different time zones, and it is not easy to have a common time for them to get online and learn the target language together.   Sometimes learners feel frustrated when they misunderstand their partners and thus miss the appointment so they have to re-arrange the appointment.   Second, due to their insufficient language proficiency, learners may not understand the native speakers, or they may not know how to fully express themselves.   Third, learners may have anxiety from speaking to native speakers with insufficient language proficiency, especially at the beginning.   The forth challenge is technical problem.   Some learners waste a lot of time on solving technical problems such as Internet, installation or usage of school software.   So and Brush (2008) echo this issue by mentioning that media may have bad impact on learner interaction, especially when learners are not familir with the communication technology in distance education.   These elements may cause some emotional affect like frustration or impatience, which may further affect their learning motivation and the entire effectiveness of CSCL.

When encountering problems, however, some learners would find their own solutions, such as clarifying, verifying, asking for assistance, and self correction.   Through these negotiation, communication and correction, language learners in CSCL improve their semantic ability and expand their vocabulary (Blake, 2000; Pellettieri, 2000, cited in Lee, 2004).   Lee (2004) suggests researchers take learner language proficiency, computer skills and age into consideration when designing similar distance CSCL activities.   Vonderwell (2003) also recommends that icebreaking activities could ease learners' anxiety at the beginning, and a learning community could increase learner motivation and interaction.   These suggestions have been

taken into consideration in this study so to provide a more comfortable learning environment.

Methodology

1 Study purpose

The purpose of this study aims to understand the learner's perception of CSCL teaching mode on Chinese language learning. Although CSCL has been widely employed in education, including language learning, discussion of learner perceptions toward CSCL in Chinese language learning is still scarce. Through a cross-national collaboration via media communication, this study explores learner opinions and thoughts toward CSCL in Chinese language learning, and the challenges encountered, and we expect to provide more insights into distance Chinese language teaching and learning.

In this study we will try to understand learner perceptions toward CSCL in Chinese language learning and challenges encountered, if any, and if learner perceptions are correlated with the effectiveness of this CSCL program. In order to reach the goal, we try to answer the following research questions:
1. What are learner perceptions and opinions toward this CSCL program?
2. To what degree do learner perceptions and opinions have impact on their learning achievement?
   Hypothesis 1: Learners with better confidence in learning Chinese language have higher learning achievement.
   Hypothesis 2: Learners who believe this CSCL mode helps with their Chinese language learning have higher learning achievement.
   Hypothesis 3: Learners who encounter the most challenges in this study have lower learning achievement.
   Hypothesis 4: Learners who believe they have not worked hard enough in Chinese language have lower learning achievement.
3. What impacts does this study have on learners' behaviors in Chinese language learning?

2 Participants

Participants in this study include 48 high school students in the U.S., 21 males and 27females, aged from 14 to 19, who took Chinese Language I or II as their selective course. Before the practice of this study, the textbooks used in these two Chinese language courses were equipped with software that students could use school or home computers to complete assignments. In this study, each high school student was assigned a Chinese native speaker as a tutor so to complete four collaborative assignments. These 27 tutors are students from one college in northern Taiwan, including four males and 23 females, aged from 18 to 26.

There were two researchers in this study; one was the instructor for Chinese Language I and II, and the other was a professor of a Chinese language teaching program, also a professor of those 27 college students. Researchers, as well as instructors, thus could conduct the research, observe the process, and properly adapt the intervention to fit student needs.

3 CSCL assignment and activity design

3.1 CSCL assignment designing

In order to enhance the effectiveness of this cross-cultural CSCL, four assignments and one cultural activity were designed. Each collaborative assignment contains four language learning skills: listening, speaking, reading and writing. The instructor of Chinese language course would explain each assignment goal and content to the American learners and remind them to preview the assignment before meeting their Taiwanese tutors. For example, they needed to ask the tutor questions like "What date is your birthday?" in Chinese, as well answering the same question in Chinese when the tutor asked back. After the conference meeting, students needed to write, in Chinese characters, the correct answers collected from their tutors and submit the assignment to the instructor.

According to Chu (2011), the CSCL assignments in this study are divided into two types. First, blending authentic situations into discussion allows learners and tutors to play roles and asking each other questions in selling and buying things and in comparing the diet cultures in their nations. Second, using pictures helps learners practice in certain authentic situations, such as using authentic Taipei road map for learners to ask their tutors for directions.

3.2 Cultural activity for Dragon Boat Festival

Jones and Issroff (2004) induces from researches and suggests create "shared histories" to increase meaningful learning and attachment during CSCL. Vonderwell (2003) also promotes "learning community" to improve learning motivation and interaction. White (2006) further suggests scholars to actively study the impact of CSCL in language learning on the development of cross-cultural competence. Peck (2012) also points out that any cultural activity should include festival celebration and hands-on activities so to allow learners physically experience the culture. Therefore, in order to enhance American student motivation and their interaction with Taiwanese tutors, as well as to better understand Chinese culture, the two researchers in this study had designed a cultural activity: Dragon Boat Festival Cosplay Competition. Before the competition, two researchers had discussed the legends of Dragon Boat Festival: Qu Yuan and Lady White Snake, and announced the in-coming Cosplay competition. American students and Taiwanese tutors needed to choose a role from the two stories and made their own costumes. On a certain date, students and tutors dressed up and, via conferencing meeting, appreciated each other's cat walk show. Afterwards, students and tutors used Facebook to vote their favorite character. Through this activity, distance students and tutors not only shared a common experience but also personally experienced the culture.

Research method

4.1 CSCL process

From 2011 through 2012, we recruited 48 high school students who learned Chinese language in the U.S. and 27 college students from Taiwan to join this distance CSCL project. During one academic trimester, American students had 5-hour Chinese language instruction in class per week, plus 1-2-hour conferencing meeting with Taiwanese tutors to complete assignments. Based on the Chinese language curriculum, there were four collaborative assignments, which required learners to work with their own tutor via computer medias like Skype, Emails, Facebook or MSN, and one cultural activity in this study.

American students and Taiwanese tutors were both required to have 4-hour pre-assignment training, so that they were familiar with the communication software like Skype, knew the time difference between the U.S. and Taiwan, and learned how to contact each other and make an appointment politely.

4.2 Data Collection (Assessment, survey, interview, and teacher observation)
In order to see the impact of this study on learner effectiveness, we use the final grades of previous trimester as pre-test scores and the final grades of the current trimester as post-test scores. Background questionnaires and related surveys will be administrated before this study. Moreover, the Chinese language instructor will keep an observation journal of student behavior during the study. After the study, the researchers will administrate another questionnaire to collect learners' perception and opinions toward the study and do further student interviews.

Results

4.1 Survey results
After completing the CSCL research, the researchers have asked 48 American students to do a questionnaire so to understand their opinions and thoughts about this study, and the results are shown in Table 1 and 2.

The numbers in Table 1 show that half (50.0%) of Chinese language learners in this study agreed that this study has made them more confident when learning and speaking Chinese language. Also, 66.7% participants have found out that they needed more time to learn Chinese language so to have more successful communication in Chinese. Results in Table 1 indicate that over 70% participants believed that this study helped them the most in listening and speaking; over 60%, pronunciation in Chinese; and almost half (47.9%), Chinese language grammar.

Several points are concluded from Table 2. First, challenges that participants encountered in this project include: 1. Time difference between Taiwan and the U.S. made it very difficult for students to set up an appointment with their tutors (56.3%); 2. it is not easy to understand the tutor's pronunciation and vocabulary (48.5%); and 3. the interaction with the tutor (22.9%). Second, participants felt that the most interesting parts of this project include chatting with tutor (45.8%), using Skype and Internet (41.7%) and the tutor himself/herself (35.4%).

Table 1. Learners' opinions toward CSCL study (Part I)

Questions		Frequency	Percentage
E-tutor program makes me confident with learning Chinese			
	Strongly disagree & Disagree	10	20.9%
	Neutral	14	29.2%
	Strongly agree & Agree	24	50.0%
E-tutor program makes me confident with speaking Chinese			
	Strongly disagree & Disagree	11	23.0%
	Neutral	13	27.1%
	Strongly agree & Agree	24	50.0%
E-tutor program makes me understand more of Chinese Culture			

	Strongly disagree & Disagree	15	31.3%
	Neutral	15	31.3%
	Strongly agree & Agree	18	37.5%
E-tutor program makes me realize I need more time to study Chinese			
	Strongly disagree & Disagree	6	12.5%
	Neutral	10	20.8%
	Strongly agree & Agree	32	66.7%

Table 2. Learners' opinions toward CSCL study (Part II) (Multiple-choice questions; only top three choices are shown)

In which way（s） do you think this E-tutor program help you the most with learning Mandarin?		Frequency	Percentage
1	Listening & speaking	37	77.1%
2	Pronunciation	30	62.5%
3	Grammar	23	47.9%
Which part（s） do you think is the most challenging in this E-tutor program?			
1	Setting up meeting time	27	56.3%
2	Understanding tutor's pronunciation/ vocabulary	22	45.8%
3	Interacting with tutor	11	22.9%
Which part（s） in this program do you like the most, or is the most interesting? And why?			
1	Chatting with tutor	22	45.8%
2	Using Skype	20	41.7%
3	My tutor	17	35.4%

In order to understand if students' perceptions are related to their academic learning achievement, the researchers ran t-test on their pre-test and post-test scores. Since exams are different between Level 1 and Level 2 Chinese courses, we ran separate t-tests. The results in Table 3 show that among students in Level 2 (N=27), there is statistical significance on learning achievement between students with increasing confidence in Chinese learning and students without increasing confidence (t=-2.925, p<0.05). That is, students increasing their confidence of learning Chinese language due to this project also have significant improvement in their learning achievement. Similarly, among students in Level 2, there is statistical significance on learning achievement between students increasing confidence of speaking Chinese and students not increasing confidence (t=-2.829, p<0.05), as well as between students who believed that this project helped them a lot and students who did not believe so (t=-2.628, p<0.05). In conclusion, among Level 2 students, those who believed this project had helped them and enhanced their confidence of learning and speaking Chinese language had significant improvement in learning achievement. However, although the belief that this project had increased their confidence of learning Chinese language are correlated to their post-test scores, there is no any statistical significance between those beliefs and their learning achievement among Level 1 students (N=21).

Table 3. T-test results for Level 2 student learning achievement

		N	Mean	SD	t
Increasing confidence of learning Chinese	NO	14	85.1057	11.21848	-2.925**
	YES	13	98.4931	12.56404	
Increasing confidence of speaking Chinese	NO	14	85.2657	11.19871	-2.829**
	YES	13	98.3208	12.77776	
This program is helpful for learning Chinese	NO	12	84.6608	11.65277	-2.628*
	YES	15	97.0640	12.59026	

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

Additionally, there is no statistical significance between challenges encountered and their learning achievement.   After further examining the distribution of student scores, we find that students with lowest post-test scores in Level 1 marked "understanding tutor's pronunciation" as very challenging, and that students with lowest post-test scores in Level 2 marked "understanding tutor's pronunciation" and "making an appointment" as very challenging.   We also note that challenges from students with low post-test scores in Level 1 are equally distributed, while challenges from students with low post-test scores in Level 2 are skewed in technical problems like "making an appointment" and "using Skype and Internet".

4.2 Interview and observation results
After the project, the researchers interviewed 8 participants on Facebook in order to better understand their thoughts about this project, and the results, along with the instructor's observations, are further analyzed as followed:

4.2.1CSCL enhances participant social network
This study not only helps learners build new social network but also tights the bounds among instructor and students and among students.   Thanks to the connection between American high school students and Taiwanese tutors, the interaction between the instructor and American students increases.   Before the project, the communication tubes between American students and the instructor was limited to class lecture and emails; but after the project, the communication tubes have been expanded to other computer medias like Skype and Facebook.   Besides, the relationship between American students and their tutors has been developed as well. Although American high school students showed their hesitations when first contacting with tutors, they are impressed later by tutors' enthusiasm to help them learn Chinese language and wish they could have more similar learning opportunities in the future.

Furthermore, to the researchers' surprise, American participants were found to form their own study group automatically and discuss the assignments before meeting tutors.   Study groups not only reduced student embarrassment when they faced tutors but also enhanced peer relationship.

4.2.2 Facing native speakers derives communication strategies

Learners have encountered some challenges, such as language anxiety from facing native speakers, or frustration from not being able to understand native speakers. Some learners have developed some communication strategies, such as using body languages or pictures, asking native speakers to repeat or slow down, or previewing the assignments so to smooth the communication. All of these are the communication strategies derived from the contact between second language learners and native speakers in this CSCL project.

4.2.3 Increasing icebreaking activities and time helps CSCL

Although the two researchers had designed the first CSCL assignment as an icebreaker and also planned a cultural activity so to enhance the connection between learners and tutors, learners still think that they should have had more time knowing a stranger from a different culture. Also, some learners suggest the instructor assign one tutor for a group of learners; dividing learners into groups of three and assigning each group one tutor allows learners to be able to discuss assignments together and then to complete the assignments with the tutor as a group.

Discussion

We try to answer the research questions in the following discussion.
(1) What are learner perceptions and opinions toward this CSCL program?
The majority of American participants in this study express positive opinions toward this CSCL project, including increasing their confidence of learning Chinese language, confidence of speaking Chinese language, and motivation of learning Chinese language. More than 60% participants believe that this CSCL project helped with their listening and speaking abilities, especially pronunciation. Over half participants think the biggest challenge they encountered in this project is the time difference; it was not easy to set up an appointment with the tutor from the other side of the earth, which caused some misunderstanding and frustration. Although only one third of participants believe that this project helped them better understand Chinese culture, more than half of the participants in the interview pleasantly talked about the Dragon Boat Festival Cosplay competition, and they were very impressed by tutor's enthusiasm of helping American students to learn Chinese language and hoped that they would have future opportunities to contact Chinese tutors in the future.
(2) To what degree do learner perceptions and opinions have impact on their learning achievement?
Our first hypothesis is: Learners with better confidence in learning Chinese language have higher learning effectiveness. T-test results show that among Level 2 learners, compared to learners who do not increase their confidence of learning Chinese language, those who increase confidence of learning Chinese language have statistically significant higher learning effectiveness. Similarly, learners who increase their confidence of speaking Chinese language in this study have statistically significant higher learning effectiveness. Our second hypothesis—Learners who believe this CSCL mode helps with their Chinese language learning have higher learning effectiveness—is also established in this study, but limited to Level 2 learners only. Hypothesis 3—Learners who encounter the most challenges in this study have lower learning effectiveness—is not established because T-test has no statistical significance. However, learners with the lowest scores in two levels all

choose "understanding tutor pronunciation" as the biggest challenge, while learners with low scores in Level 2 choose technical problems as the biggest challenge, instead of language problem.   Hypothesis 4—Learners who believe they have not worked hard enough in Chinese language have lower learning effectiveness—also is not established due to no statistical significance in T-test.   In summary, the study results indicate that among Level 2 learners, those who believe this study have helped and enhanced their confidence of learning and speaking Chinese language have higher learning effectiveness in Chinese learning.

(3) What impacts does this study have on learners' behaviors in Chinese
    language learning?

There are three points worthy of discussion.   First, the collaborative relationship is the key element for CSCL effectiveness.   This study not only establishes the interaction between American high school students and Taiwanese tutors, but also enhances the connection between the instructor and American high school students as well as the connection among students.   However, it needs further discussion that if students contacts the instructor to ask for assistance with CSCL assignments or to reduce the language anxiety from facing the native speakers.   Second, this cross-national collaborative project has improved student learning motivation. Many researchers agree that second culture acquisition is the key factor to second language acquisition (Altstaedter & Jones, 2009; Brown, 2000; McKay, 2002; Robinson, 1991; Storm, 2010; Chu, 2011).   Through this cross-national collaborative experience, learners have the opportunities not only to contact Chinese native speakers' culture but also to do culturally comparative thinking. Consequently, cultural interaction could provoke learner motivation and reach a better learning effectiveness on second language acquisition, which is also the best result in this study for the researchers.   The third point surprises the researchers the most: This study has stimulated self-regulated learning.   Although this behavior only happened among few students, they automatically formed a study group, previewing and discussing the assignments, and then video-conferenced with the tutor.   This study group helps learners not only reduce the embarrassment from facing the tutor but also reinforce peer connection, as well as promoting Chinese language learning atmosphere in class.   This situation did not exist before the CSCL project; before CSCL project was practiced, most learners had completed their assignments alone on computer.   As a result, this CSCL project has unexpectedly allowed learners to develop their own learning methods, which deserves attention in the future CCSL projects.

Conclusion

This is a Net Generation, and distance CSCL model will be applied more commonly in various courses, because this model could extend learning and reach more learners in the world (Hoopingarner, 2007).   Beside exploring the learning effectiveness of this learning model, researchers also need to understand learner perspectives for their opinions involve their learning motivation, interaction with instructors, social interaction among peers, satisfaction toward the course and related activities, and the challenges encountered during the process, which all have impact on learning effectiveness, as shown in this study.   Through our study, we hope to shed light on learner perceptions and opinions about distance CSCL so to assist future CSCL projects in Chinese language teaching and learning.

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