STUDENTS' PERCEPTIONS OF THEIR ICT-BASED COLLEGE ENGLISH COURSE IN CHINA: A CASE STUDY

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Abstract

This study investigated foreign language students' perceptions about their Information and Communication Technology (ICT)-based College English Course (CEC) in China. The research used a five-point Likert-scale questionnaire based on Simsek (2008). A factor analysis confirmed the construct validity of the questionnaire and 6 factors were delineated. 200 non-English majors who responded mentioned that ICT was well integrated into the CEC. They reported that the ICT-based CEC gave them a good environment for independent learning and they were more motivated to learn English as they had more opportunities to communicate, interact and cooperate with other students in English using authentic language in a variety of contexts. They found learning was more effective compared to the traditional learning environment; it provided freer learning environment, less restricted communication, more time flexibility and more self-scheduled study plan ensuring learner-centeredness and learning autonomy.

Keywords: ICT-based English Course; College English Course; Computer-Assisted Language Learning

1. Information and Communication Technology in English language teaching in China

College English is a compulsory English course for non-English majors in Chinese universities. In China, English is taught as a foreign language (EFL) in a community where the medium of instruction and communication is not English (Hu & McGrath, 2012; Guo, 2014). The rapid development of Information and Communication Technology (ICT) has brought about significant changes in language learning and teaching in China (Chien & Liou, 2002). Realizing the potential brought about by ICT, the Ministry of Education in China

conducted an unprecedented teaching and learning reform based on ICT technology in the teaching of College English in 2003.

Initiatives taken by the Ministry of Education included, among others, the publication of five computer and network-assisted college English textbooks in 2003, the issuance of the Teaching Requirements for College English Curriculum (TRCEC) in 2004, a nation-wide selection of 180 universities as computer and network-assisted experimental schools in 2004, a further selection of 65 demonstration universities based on the results of the computer and network-assisted College English teaching reform practices in 2007 and the development of 42 national-level model courses in 2009. The TRCEC is a national policy aligned with contemporary educational thinking based on integrative Computer-Assisted Language Learning (CALL). It defines College English teaching and learning as a system; based upon foreign language teaching and learning theories, embodying English language knowledge acquirement, language-using skills practice, learning strategy cultivation and cross-cultural communication ability by multi-teaching modes and means. The TRCEC (Ministry of Education of China, 2004, p.3) states that "each university, in the light of the actual situation, works out its own goals and designs its own CEC system in accordance with the curriculum."

The university in this study took an active part in this reform and became famous for its state-level College English Teaching Reform Demonstration Centre in 2007. With the advent of TRCEC (2004), five computer/internet-based textbooks came into being under the supervision of the Ministry of Education. This university adopted the New Horizon College English (NHCE) textbook, published by the Foreign Language Teaching and Research Press. A new and student-centred teaching/learning environment was created to replace the traditional chalk-board and face-to-face teaching/learning mode. Figure 1 shows the NHCE on-line teaching and learning system which included teaching administration, interactive teaching and learning, teaching assessment online courses, learning tools and autonomous learning resources, testing centre, teaching assistant and user guide.
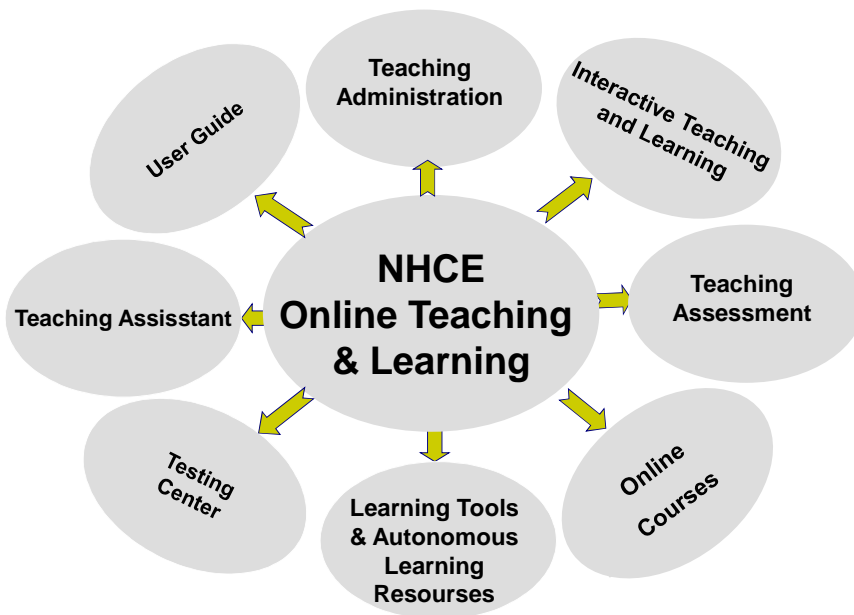
Figure 1: The New Horizon College English online teaching and learning system

It featured the use of two important technological developments – multimedia computers and the Internet. Multimedia computer technology allows text, graphics, sound, animation and video to be accessed on a single computer. It entails hypermedia that provides an authentic learning environment with easily integrated skills, allowing students to work at their own pace of learning and facilitating a primary focus on the content, without sacrificing focus on language forms or learning strategies (Warschauer, 1996). Although integration of skills (e.g. listening with reading) may be involved in using multimedia, it seldom involves integrating meaningful and authentic communication into all aspects of the language learning curriculum. Fortunately, the Internet allows language learners to communicate directly, inexpensively and conveniently with other learners of the target language 24 hours a day. This communication can be synchronous or asynchronous, composing messages at their time and pace through such tools as email or chatting tools (Warschauer, 1996). As Shen, Yuan and Ewing (2014) reported, almost all materials used in Chinese EFL classrooms have been provided with online support courses for classroom teaching and learning, and students' independent learning and self-assessment. Other than using the online resources provided by New Horizon College English, the students were also free to trawl the net, visit social media websites like Facebook and access other websites of their liking. Thus, the teaching and learning process embraces announcements, online questioning, online assignment, classroom forums, group learning, appointment for face-to-face teaching and e-mail to improve the teaching-learning environment of the CEC in this university. The teaching software system is different from

traditional teaching materials. It is multi-functional, encompassing systematic teaching and learning materials suitable for both multimedia and classroom-based approaches. It emphasizes the combination of student-centred learning in classroom and autonomous learning after class with their teachers' support. Web-based teaching management systems are also widely used to save teacher time and improve management efficiency (Hu & McGrath, 2012).

2. Constructivism and computer-assisted language learning

Social constructivism advocates a desirable learning environment in which dynamic interaction occurs between teachers, students and tasks, providing opportunities for learners to construct their understanding through interaction with others. Social constructivists stress that learning is active, contextual and social; therefore, the best method is collective-learning where the teacher is a facilitator and guide (Tinio, 2002). In contrast to traditional classrooms where teachers use a linear model and one-way communication, social-constructivist learning is more personalized, student-centered, nonlinear and learner-directed (Cagiltay, Yildirim & Aksu, 2006). In the literature on ICT in teaching, 'constructivist practices' refer to student-centred learning, necessitating teacher-student and student-student collaboration and co-construction of knowledge. This contrasts with teacher-centred practices, which involve explicit instruction, knowledge transmission, linear knowledge development and more directly observable learning outcomes (Levin & Wadmany, 2005; Chen, 2008; Killen, 2009).

Computer-Assisted Language Learning (CALL) can be defined as any specifically-designed or generic software and any form of ICT-supported medium used to promote language learning (Towndrow & Vallance, 2002). It is based upon the theory of constructivism by Bruner (1966) and Piaget (1970) who believe the roles of teacher and student should change accordingly. A teacher is no longer the traditional knowledge provider, but an organizer and facilitator. A student is never a passive knowledge receiver, but an active learner and a meaning constructor. Four important elements which help to complete this transition are learning environment, cooperation, conversation and meaning construction.

Warschauer (1996) investigated students' participation in electronic discussion in a composition class during ESL instruction in comparison with face-to-face instruction. Learners found the electronic conversation environment to be more comfortable than face-to-face communication and their positive attitude towards the electronic environment contributed to increased participation in conversations. Altun (2005) studied EFL Turkish students' attitudes towards the integration of multimedia and Internet technologies in language

teaching. Message boards were useful for communication and the students viewed communication with the teacher via computer to be less effective than communication in the ICT integrated classroom. Simsek's (2008) study evaluating students' attitudes towards ICT use in a reading skills course in Turkey found that despite the difficulties the students faced, they were satisfied with the application of ICT in their reading course and they developed a positive attitude towards online courses. Zhong (2005) conducted a comparative study of ICT instruction and traditional instruction at the National University of Defence Technology (NUDT). Second-year non-English majors found ICT use had a positive effect on English learning and countered problems such as low interest, lack of opportunities for communication and insufficient reading materials in the traditional teacher-centred instruction. Dong's (2005) research showed students had a very positive evaluation of CALL and took a relatively higher interest in the Internet and CALL classes. They had higher mean values than the non-CALL-class in terms of autonomous learning, the efficiency of learning, effects of learning and flexibility in learning. The new teaching and learning mode improved the students' listening, speaking, communicating and cooperation skills.

Although ICT-based teaching has many advantages over the traditional teaching approach, there are still some problems related to the application of ICT in English teaching and learning contexts (Liou, 2000; Yang, 2001). For instance, the unavailability of technical support in the use of ICT can cause students to experience difficulties in language learning; resulting in learning anxiety and cognitive disorientation. These conditions can induce negative attitudes towards the use of ICT in educational contexts. Also, Chien and Liou (2002) found that in a web-based English learning environment some EFL learners had difficulties with electronic communication because of their slow typing speed and limited English proficiency. Additionally, there is a lack of systematic empirical evaluation assessing the effectiveness of ICT application to support language learning (Zhao, 2003). Also Tri and Nguyen (2017) highlighted that Caruso, Kravik and Morgan's (2004) study found that only 12.7% of the students stated that ICTs improved their learning process. Moreover, Rabah's (2015) study showed that participants highlighted the following challenges in the integration of ICT in Quebec schools: lack of supporting school leadership, inconsistent investments in ICT equipment, infrastructure and resources as well as the need for additional professional development and support. Iyengar and Byker (2014) also stressed that many innovative ICT programs and ICT-based teacher education program need further research to test the impact of these programs. In addition Lim, Yan and Xiong (2015) stated that the contents, learning models, strategies and assessments of the courses in China are usually decided by the

individual university and that the course quality is often questioned by educational experts as with low emphasis on technology integration. Furthermore, Hu and McGrath (2011) found that limited ICT skills and pedagogic expertise were obstacles to the use of ICT in English language teaching. The majority of teachers who held positive attitudes towards ICT use in English teaching and the national reform reported their enthusiasm was waning in the light of inadequate support and training.

3. The study

3.1. The outline of the present research

The present study aimed to fill the gap by conducting a case study to address the following research question:

- What are the EFL students' perceptions about the extent of ICT integration into the CEC at this university in Northeast China and the feasibility of its application for English language learning?

Samples of this study were selected using stratified random sampling. The population of the CEC at this university for 2011 was 2057. The participants were 200 freshmen and sophomores. All were non-English majors from natural science, liberal arts, economics, principles of management and electrical engineering disciplines. They accounted for 10% of the total population (Gay & Diehl, 1992). Table 1 shows there were 37 natural science, 17 liberal arts, 51 economics, 39 principles of management and 56 electrical engineering students.

Table 1. Students' discipline of study

Major	Freshmen		Sophomore		Total
	Male	Female	Male	Female	
Natural science	3	0	10	24	37
Liberal arts	11	0	5	1	17
Economics	16	23	11	1	51
Principles of Management	13	18	4	4	39
Electrical engineering	7	9	20	20	56
Total	50	50	50	50	200

3.2. Procedure

A five-point Likert-scale questionnaire adapted from Simsek (2008) was administered to all the participants by their teachers at the end of their CEC in December. The questionnaire had been piloted on 100 students (who were excluded from the main study). After piloting, the questionnaire was duly amended and analysed for reliability and validity. Table 2 shows Spearman's rank correlation coefficients between the total score of each subscale (degree of confidence is 1%), indicating that the items of each subscale can explain the content of the factors.

Table 2. Spearman's rank correlation coefficient of the subscales

		Attitude towards ICT
PQ17	Pearson Correlation	.855(**)
PQ18	Pearson Correlation	.882(**)
PQ19	Pearson Correlation	.869(**)
PQ20	Pearson Correlation	.714(**)
		Attitudes towards teaching materials
PQ21	Pearson Correlation	.872(**)
PQ22	Pearson Correlation	.814(**)
PQ23	Pearson Correlation	.843(**)
PQ24	Pearson Correlation	.831(**)
PQ25	Pearson Correlation	.740(**)
PQ26	Pearson Correlation	.805(**)
PQ27	Pearson Correlation	.818(**)
PQ28	Pearson Correlation	.808(**)
PQ29	Pearson Correlation	.866(**)
PQ30	Pearson Correlation	.864(**)
		Self-learning capability
PQ31	Pearson Correlation	.797(**)
PQ32	Pearson Correlation	.868(**)
PQ33	Pearson Correlation	.883(**)
PQ34	Pearson Correlation	.819(**)
		Motivation to learn
PQ35	Pearson Correlation	.846(**)
PQ36	Pearson Correlation	.853(**)
PQ37	Pearson Correlation	.875(**)
PQ38	Pearson Correlation	.867(**)
		Interaction with other students

PQ39	Pearson Correlation	.878(**)
PQ40	Pearson Correlation	.862(**)
PQ41	Pearson Correlation	.888(**)
PQ42	Pearson Correlation	.753(**)
	Cooperation with other students	
PQ43	Pearson Correlation	.903(**)
PQ44	Pearson Correlation	.900(**)
PQ45	Pearson Correlation	.803(**)
PQ46	Pearson Correlation	.799(**)

** Correlation is significant at the 0.01 level (2-tailed)

Cronbach's alpha of the 30 statements in this scale was 0.951, which indicated that the internal consistency of this scale was excellent.[1] Cronbach's alphas of the six subscales are shown in Table 3. Every subscale's Cronbach's alpha was greater than 0.85, showing that the internal consistency of the scale was good, and all six subscales and 30 statements were retained.

Table 3. Reliability results for the six subscales

	Cronbach's Alpha	N of Items
Attitude towards ICT	.851	4
Attitudes towards teaching materials	.948	10
Self-learning capability	.861	4
Motivation to learn	.883	4
Interaction with other students	.867	4
Cooperation with other students	.873	4

A factor analysis was conducted to determine the construct validity of the questionnaire. The result of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test was 0.881 and Bartlett's test of sphericity χ^2 test was 2418.271 (degree of freedom is 435), and the level of significance was (p=0.000<0.001). It is generally acknowledged that KMO>0.8 is suitable for

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[1]Internal consistency is unacceptable: Cronbach's Alpha<0.5；Internal consistency is poor: 0.5≤ Cronbach's Alpha<0.6；Internal consistency is questionable : 0.6≤Cronbach's Alpha<0.7; Internal consistency is Acceptable : :0.7≤Cronbach's Alpha<0.8; Internal consistency is good: :0.8≤Cronbach's Alpha<0.9; Internal consistency is excellent :Cronbach's Alpha≥0.9. (J.P.Gilford, Psychometric Methods,2[nd]ed. NY:McGraw-Hill,1954).

factor analysis[2], so it passed Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity test. Six factors were extracted to maximize the variance rotation of the initial data. Table 4 shows that the factor load capacity of the 30 statements attributing to their own factor as greater than 0.6 and the factor load capacity of 30 statements attributing to the other factors as smaller than 0.6. The results show the questionnaire has achieved the criteria of convergent validity and discriminant validity and that every item in the questionnaire has correlation with the six factors and passed the project correlation analysis test, reliability and validity test.

Table 4. Factors concerning students' perceptions of the ICT-based CEC

Factor	Statement	Communality	Factor load	Name of factor	% of Variance	Cumulative %
F_1	21 22 23 24 25 26 27 28 29 30	0.557-0.824	0.558-0.816	Attitudes towards teaching materials and knowledge acquisition	22.268	22.268
F_2	31 32 33 34	0.647-0.822	0.672-0.832	Students' self-learning capability	11.315	33.583
F_3	43 44 45 46	0.638-0.835	0.684-0.885	Cooperation with other students	10.728	44.312
F_4	35 36 37 38	0.711-0.802	0.595-0.816	Students' Motivation to learn	10.411	54.723
F_5	39 40 41 42	0.672-0.799	0.745-0.801	Interaction with other students	10.306	65.029
F_6	21 22 23 24	0.681-0.780	0.676-0.742	Students' attitude towards ICT	9.175	74.204

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[2] Kaiser's standards of the results: KMO>0.9 is very suitable for factor analysis；KMO>0.8 is suitable for factor analysis；KMO>0.7 is quite suitable for factor analysis；KMO<0.6 is little suitable for factor analysis；KMO<0.5 is not suitable for factor analysis.

Table 4 shows the 'attitudes towards teaching materials and knowledge acquisition' factor had ten items compared to five items in each of the other five factors; so five items with low factor load capacities were deleted. Item 23 (factor load capacity was 0.698), item 24 (factor load capacity was 0.662), item 25 (factor load capacity was 0.558), item 26 (factor load capacity was 0.658), item 28 (factor load capacity was 0.648) were deleted to make the sections of the questionnaire more balanced. The final version had 25 items left, the original item number was retained for easy comparison. Items 21, 22, 27, 29 and 30 were grouped to constitute a new factor named 'teaching materials and knowledge acquisition'.

Table 5. Spearman's rank correlation coefficient

		Attitudes towards teaching materials and knowledge acquisition
Item21	Pearson Correlation	.809(**)
Item22	Pearson Correlation	.847(**)
Item27	Pearson Correlation	.794(**)
Item29	Pearson Correlation	.799(**)
Item30	Pearson Correlation	.855(**)

** Correlation is significant at the 0.01 level (2-tailed)

The reliability and validity of the corrected scale were retested. Table 5 shows Spearman's rank correlation coefficient between the factor of 'attitudes towards teaching materials and knowledge acquisition' (confidence coefficient is 1%) as acceptable and the items reflecting the factor of 'teaching materials and knowledge acquisition' sufficiently. The retest reliability of the corrected scale shows Cronbach's alpha at 0.935, indicating high reliability.[3] Cronbach's alpha for 'attitudes towards teaching materials and knowledge acquisition' and its items was 0.820, which meant that the factor should be maintained.

The data were also analysed using the Kaiser-Meyer-Olkin test and the Bartlett's test. The KMO measure of sampling adequacy test was 0.859 and the Bartlett's test of sphericity χ^2 test was 1819.838 (degree of freedom is 300), with good level of significance (p=0.000<0.001). It is generally acknowledged that KMO>0.8 is suitable for factor analysis, so the data of the corrected scale passed the Kaiser-Meyer-Olkin measure of sampling adequacy and the Bartlett's test of sphericity. A factor analysis was conducted and six factors

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[3] Cronbach's Alpha internal consistency: $\alpha \geq 0.9$ presents excellent, $0.9 > \alpha \geq 0.8$ presents good, $0.8 > \alpha \geq 0.7$ presents acceptable, $0.7 > \alpha \geq 0.6$ presents questionable, $0.6 > \alpha \geq 0.5$ presents poor, $0.5 > \alpha$ presents unacceptable.

were extracted to maximize the variance rotation of the initial data as shown in Table 6. The results show the factor load capacity of the 25 items attributing to their own factor was greater than 0.6 and the factor load capacity of the 25 items attributing to the other factors was smaller than 0.6. This indicates that the corrected questionnaire met the criteria of convergent validity and discriminant validity. The results show that every item in the questionnaire has correlation with the six factors, namely, the student's attitude towards ICT; the student's attitude towards teaching materials and knowledge acquisition; the student's self-learning capability; the student's motivation to learn, the student's interaction with others and the cooperation among the students in the questionnaire have all passed the project correlation analysis test, reliability and validity test. The final version of the questionnaire was used to examine the students' perception of the ICT-based CEC of this university.

Table 6. Factors concerning the students' perception of the ICT-based CEC

Factor	Statement	Communality	Factor load	Name of factor	% of Variance	Cumulative %
F_1	21 22 27 29 30	0.739-0.811	0.650-0.805	teaching materials and knowledge acquisition	15.587	15.587
F_2	31 32 33 34	0.648-0.808	0.710-0.830	students' self-learning capability	13.635	29.223
F_3	43 44 45 46	0.652-0.840	0.689-0.891	cooperation with other students	12.564	41.787
F_4	35 36 37 38	0.722-0.811	0.623-0.836	students' motivation to learn	11.980	53.767
F_5	39 40 41 42	0.679-0.800	0.751-0.805	interaction with other students	11.776	65.544
F_6	17 18 19 20	0.714-0.812	0.694-0.769	students' attitude towards ICT	10.343	75.887

3.3. Results and findings

The data highlighted two issues; (a) the ICT facilities provided for the students (Items 5-7) and (b) the application of ICT by teachers in the CEC (Items 8-16). Figure 2 shows 98.5% of the students reported the university had language labs (Item 5), 75% of the students stated the

computers in every language lab were connected to the Internet (Item 6) and 78.5% of the students agreed that they could gain access to computers easily in the university (Item 7). The students perceived that the university provided them with adequate ICT facilities for their CEC.
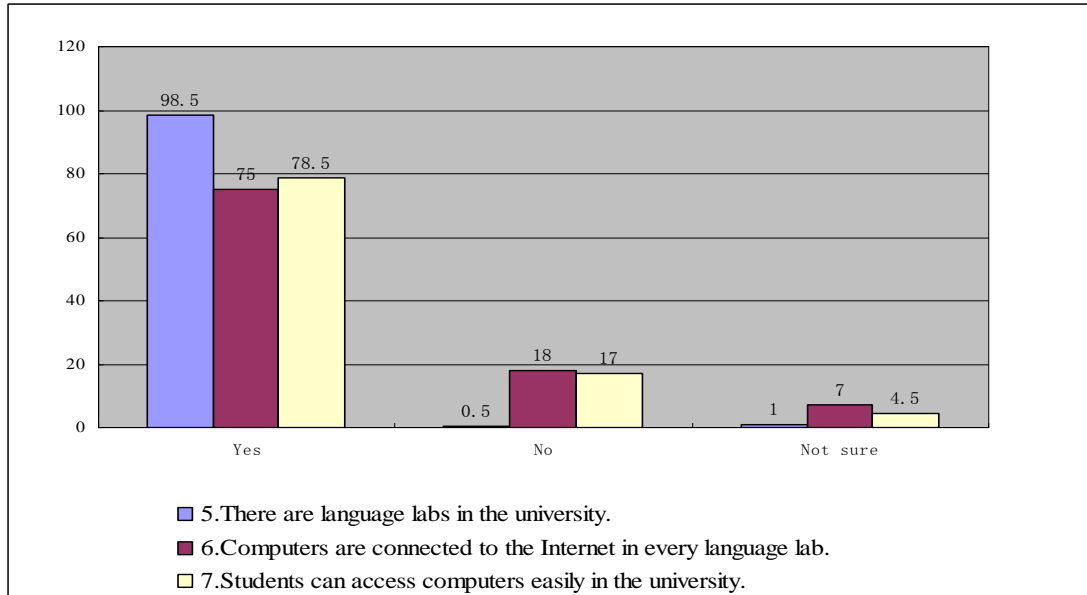

Figure 2. Perceptions of the students regarding the provision of ICT facilities

Students' responses to Items 8 to 16 concerning the teachers' application of ICT in the CEC are summarized in Figure 3.
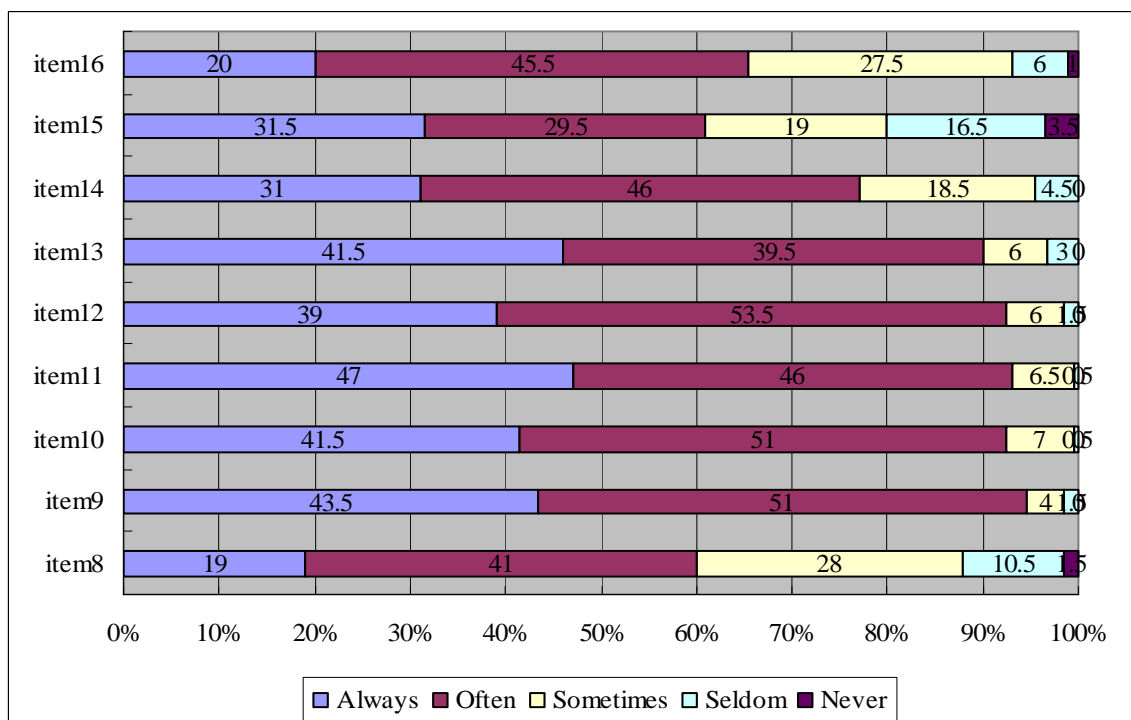
Figure 3. Teachers' application of ICT in the CEC

60% of students reported a response of *always* and *often* to Item 8: *I can find technical support when using a computer at the university*; 94.5% of students reported a response of *always* and *often* to Item 9: *My English teacher uses ICT resources during teaching*; 92.5% of students reported a response of always and often to Item 10: *My English teacher recommends us to use online resources in my study*; 93% of students reported a response of *always* and *often* to Item 11: *My English teacher uses ICT to explain texts in class*; 92.5% of students reported a response of *always* and *often* to Item 12: *My English teacher uses ICT to help students learn independently*; 82% of students reported a response of *always* and *often* to Item 13: *My English teacher uses ICT to organise classroom discussions*; 77% of students reported a response of *always* and *often* to Item 14: *My English teacher assigns tasks required to be completed using ICT*; 61% of students reported a response of *always* and *often* to Item 15: *My English teacher contacts us through e-mail*; 65.5% of students reported a response of *always* and *often* to Item 16: *My English teacher has online discussions with us*.

Figure 4 shows the total score of the students' perceptions about the ICT application in the CEC. The mean score was 98.31 and the standard deviation of the total score was 12.08. Most students were positive towards the ICT-based CEC.
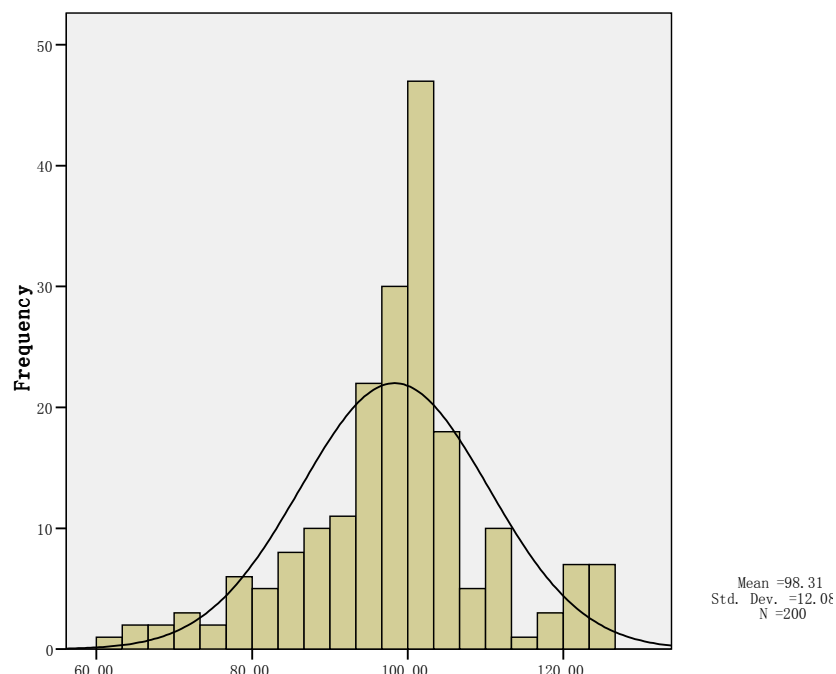

Figure 4. Total score of the EFL students' perceptions about the ICT application in the CEC

This section presents the students' perceptions of ICT use in the CEC according to the six factors.

a) Figure 5 summarizes the results obtained via items 17 to 20 regarding the students' attitude towards the use of ICT in the CEC.
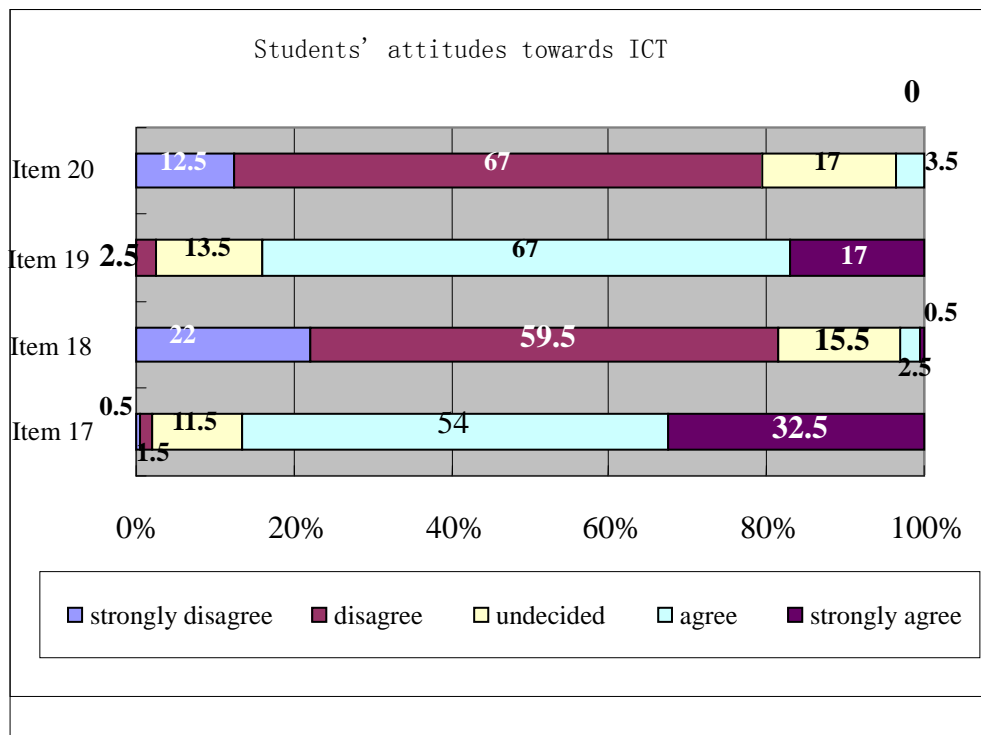

Figure 5. Students' attitude towards the use of ICT in CEC

86.5% of students strongly agree and agree with Item 17: *I have a positive attitude towards the use of ICT technology for learning*. 81.5% of students strongly disagree and disagree with Item 18: *I don't want teachers to increase the use of ICT in the CEC*. 84% of students strongly agree and agree with Item 19: *The ICT-based CEC is worth my time and energy*. 79.5% of students responded *strongly disagree* and *disagree* to Item 20: *I prefer to study in traditional face-to-face teaching environment*. Most students preferred the ICT-based CEC environment to the traditional learning environment (the mean score for item 18 was 4.00 and the mean score for item 20 was 3.89).

b) Figure 6 summarizes the results obtained via Items 21, 22, 27, 29 and 30 concerning the students' attitudes towards the CEC teaching materials and knowledge acquisition.
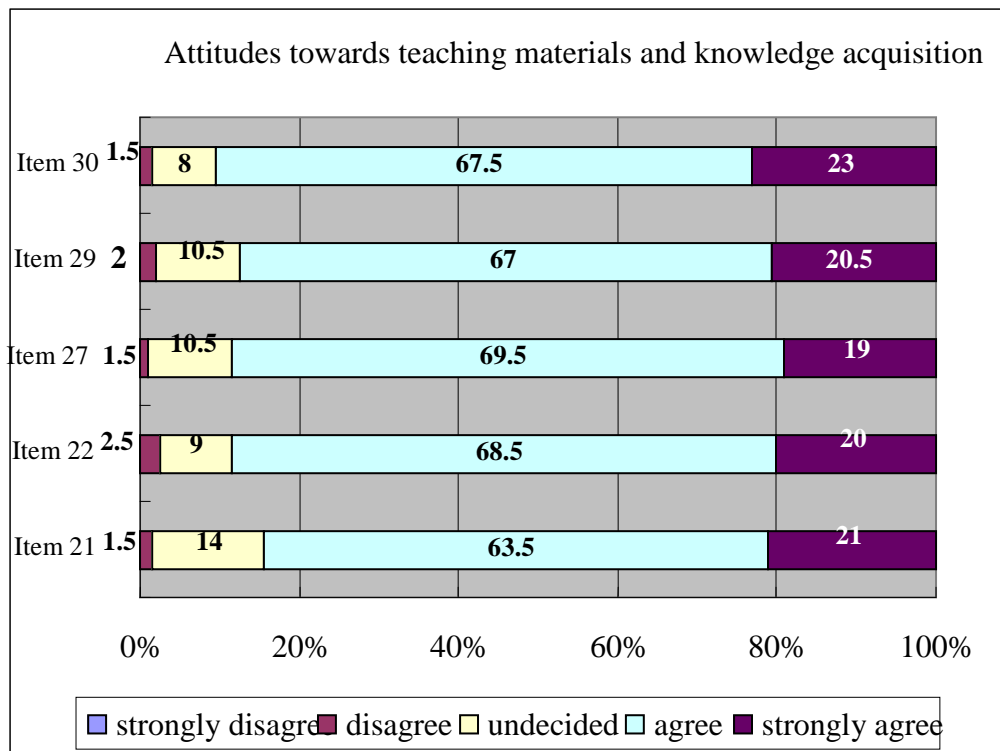
Figure 6. Students' attitude towards the CEC teaching materials and knowledge acquisition

84.5% of the students chose *strongly agree* and *agree* in Item 21: *The use of ICT in the CEC increased my knowledge about English language*. 88.5% of students responded *strongly agree* and *agree* to Item 22: *The use of ICT in the CEC enabled me to learn more about foreign cultures*. 88.5% of the students indicated *strongly agree* and *agree* to Item 27: *The amount of information input in ICT environment is bigger than that in traditional context*. 87.5% of the students responded *strongly agree* and *agree* to Item 29: *The use of ICT in the CEC provides me with more access to learning English*. 90.5% of the students chose *strongly agree* and *agree* to Item 30: *The use of ICT in the CEC offers me a lot of rich and authentic English materials*.

c) Figure 7 summarizes the results obtained via Items 31 to 34 regarding the student's self-learning capability in the ICT-based CEC.
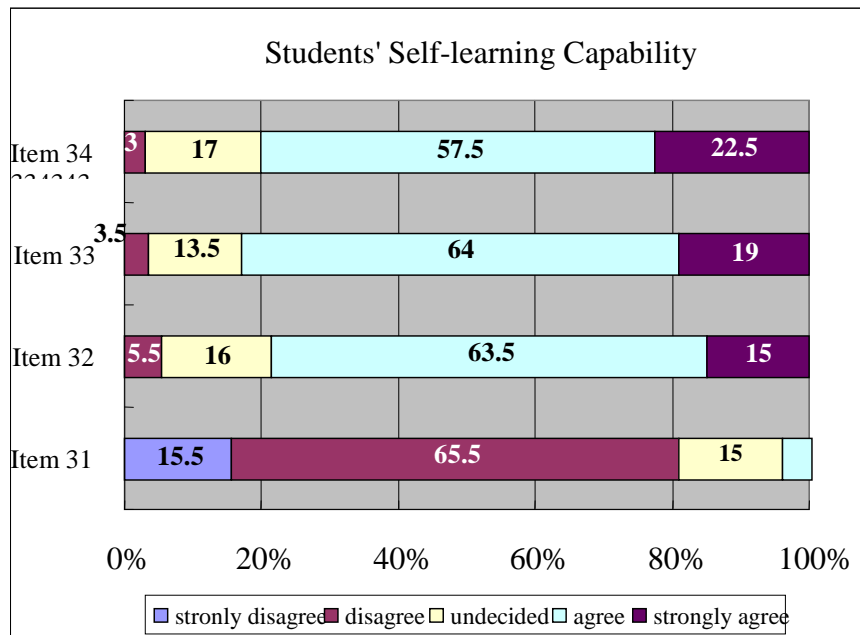
Figure 7. Student's self-learning capability

81% of students responded *strongly disagree* and *disagree* to Item 31: *the ICT-based CEC is not helpful in enhancing my self-learning capability*. 79.5% of students reported *strongly agree* and *agree* to Item 32: *the ICT-based CEC allows me to learn at my own pace*. 83% of students chose *strongly agree* and *agree* when answering Item 33: *Computers and the Internet help me learn English more independently*. 80% of students strongly agree and agree with Item 34: *When I meet problems in learning English, I would like to find solutions on the Internet or in other reference books by myself*.

d) Figure 8 summarizes the results obtained from Items 35 to 38 regarding the student's motivation to learn in the ICT-based CEC.
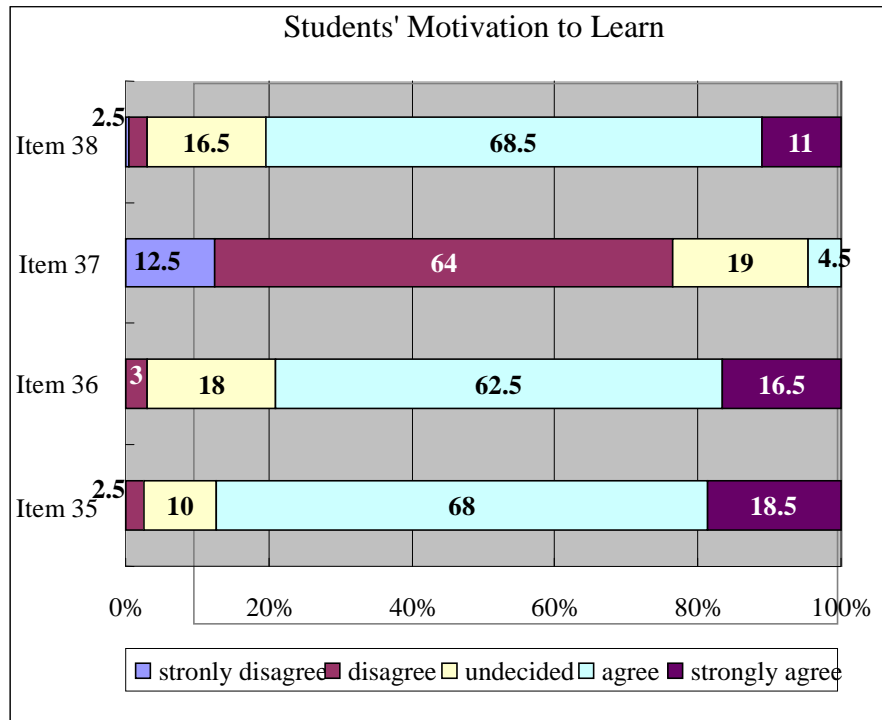
Figure 8. Student's motivation to learn

86.5% of students strongly agree and agree with Item 35: *The use of ICT makes classroom activities more interesting*. 79% of students chose *strongly agree* and *agree* when answering Item 36: *I feel more motivated when learning English in the ICT-based CEC environment*. 76.5% of students selected *strongly disagree* and *disagree* when answering Item 37: *I can't concentrate on my study when learning English in the ICT-based CEC environment*. 79.5% of students reported *strongly agree* and *agree* for Item 38: *The use of ICT in the CEC improves my participation in classroom activities*.

e) Figure 9 summarizes the results obtained from Items 39 to 42 regarding the student's interaction with other students in the ICT-based CEC.
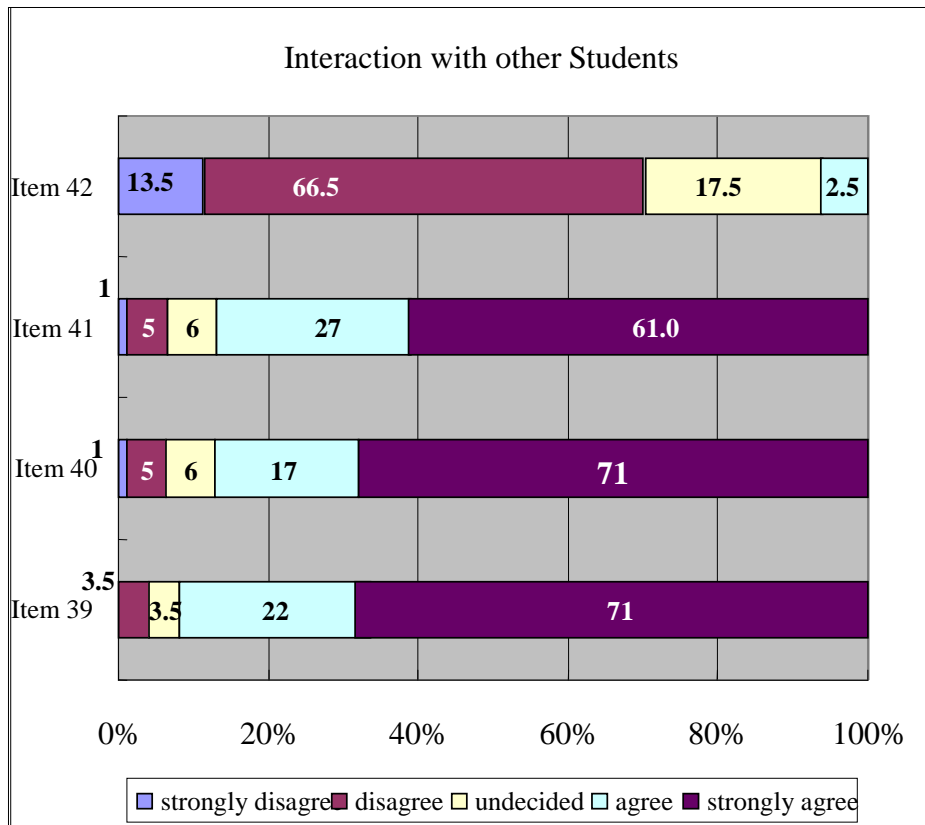
Figure 9. Student's interaction with other students

93% of students chose *strongly agree* and *agree* when answering Item 39: *I felt comfortable in asking questions in the ICT-based CEC environment*. 88% of students reported *strongly agree* and *agree* in Item 40: *I often share information and ideas with other students in ICT-based CEC*. 88.0% of the students responded *strongly agree* and *agree* to Item 41: *I communicate well with other students in the ICT-based CEC*. 80% of students selected *strongly disagree* and *disagree* in Item 42: *I have problems getting help in the ICT-based CEC environment*.

f) Figure 10 summarizes the results obtained from items 43 to 46 regarding the cooperation among the students in the CEC.
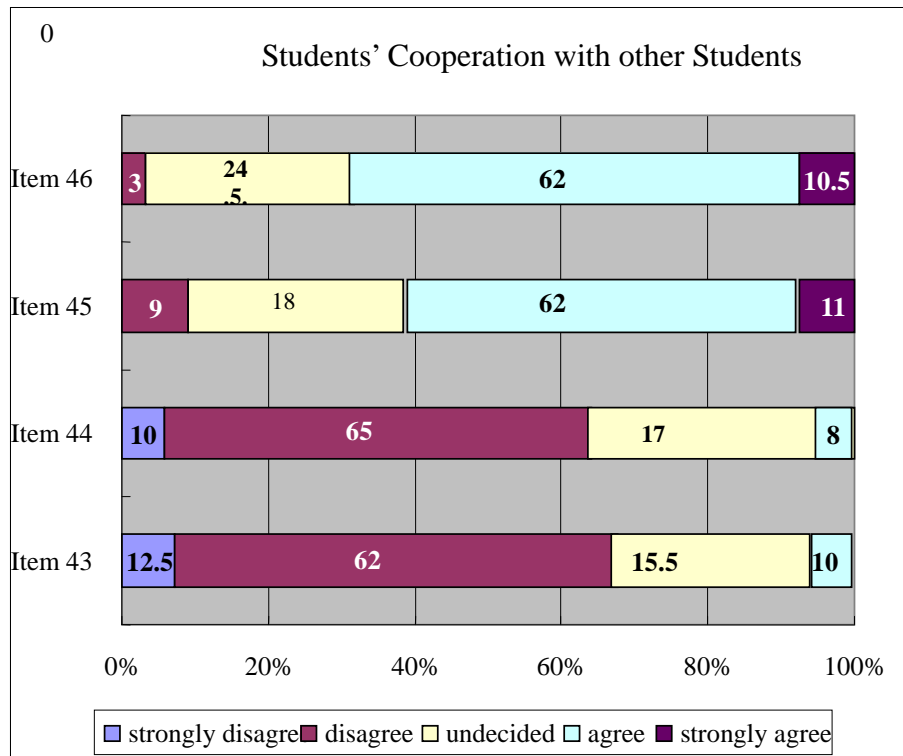
Figure 10. Cooperation among the students

74.5% of students reported *strongly disagree* and *disagree* for Item 43: *ICT-based instruction provides me with fewer opportunities to cooperate with other students*. 75% of students responded *strongly disagree* and *disagree* when answering Item 44: *The ICT-based CEC is not helpful in developing teamwork among students*. 73% of students indicated *strongly agree* and *agree* in response to Item 45: *Working on group projects is easier in the ICT-based CEC*. 72.5% of students chose the responses of *strongly agree* and *agree* to Item 46: *I feel more confident when learning with other students in ICT-based CEC*.

4. Discussion

In the students' opinion, ICT was well integrated into the CEC with easy access to computers, the Internet and technical support. The students' contact with the target language and culture increased in two aspects: a) ICT resources, such as English language knowledge, cultural information and communication devices supported by ICT and b) the application of ICT by teachers in the teaching process. The CEC teachers applied ICT frequently in their classes and outside class time to explain texts, assign learning tasks, organise classroom activities, communicate with students and participate in students' online discussion to facilitate learning. The ICT facilities and resources created a good environment for the CEC at this university

and made the students' learning more efficient using authentic language in a variety of contexts ensuring learner-centeredness and learning autonomy. Similarly to Warschauer's (1996) findings, the students were positive towards investing their time and energy in the ICT-based CEC.

The ICT-based CEC provided a lot of information to the students. They could choose suitable English learning materials for their own learning. Teachers also exposed students to the foreign cultures related to the English language using the Internet, broadcasting technologies and ICT resources. This is important because students need to learn a language in the context of the culture. The students gained access to a variety of information, methods, approaches and resources in the ICT-based CEC, which were suitable to the students' learning style and made them interested to learn English at their own pace. After classes, the students could learn English anywhere or any time with CDs or online materials; they were able to obtain learning materials they were interested in and find help when they encountered learning problems. ICT enabled the students to navigate and monitor their learning process to meet their learning needs.

The students developed the ability to take charge of their own language learning which researchers agree will ultimately lead to language learning proficiency success (Ablard & Lipschultz, 1998; Zhang & Li, 2003). Self-learning capability is related to successful learner characteristics and language learning is affected by attitude and motivation. The students' positive attitude and higher motivation made them more willing to participate in learning activities compared to the traditional English learning environment. The students were more comfortable while asking questions, sharing information and ideas with other students and getting help to communicate in the ICT-based CEC. The ICT-based CEC provided opportunities for the students' cooperative learning activities and helped develop teamwork. Both face-to-face cooperative learning and online team work could be conducted, providing the teachers with more freedom and options to design and arrange group projects. It was easier for the students to work with other students and they were more confident when learning with others. Students asked more questions of different kinds in cooperative learning than in a traditional teaching environment (Deen, 1987). Cooperative learning is preferred in foreign language teaching and learning for it can ensure optimum opportunities for interaction and at the same time cultivate the students' team spirit. Studies in language acquisition show that the learning opportunities provided by learner-learner interaction play a positive role in language learning (e.g. Ohta & Amy, 1996, Soler, 2002). Social interaction is a means for language learning as language is transmitted and created in learner-learner interaction

(Seliger, 1977). When students take the initiative to ask questions and search for help, authentic communicative opportunities are created for meaningful learning. Research has indicated that students are overwhelmed by the great amount of information provided by ICT (Chien & Liou, 2002, Simsek, 2008, Srijittra, 2010). However, the CEC students did not admit any concentration loss while learning English in their ICT-based CEC. Most students reported they could choose the right English materials which were suitable for them to learn the English language and they were not influenced by the variety of information offered by ICT. The ICT-based CEC promoted communicative competence, which helped the students develop a positive perception and habits in using ICT resources to help them learn the English language.

5. Final conclusions and recommendations for further research

In conclusion, the study showed the EFL students at this university in China stated that ICT was well-integrated into the CEC. The teachers used computers, the Internet and other ICT technologies to provide a well-conducted ICT-based CEC. The students were positive towards the application of the ICT-based CEC. It provided ample atmosphere with a learner-centred classroom and was preferable to a traditional teaching environment as it enabled the students to learn independently. The ICT-based CEC provided them with much learning materials for knowledge acquisition and tools for carrying out other authentic tasks related to English language learning. This learning environment helped to break the spatial and temporal boundaries of the traditional face-to-face English language class and allowed the students to learn whatever they wanted anytime or anywhere using the ICT resources. The ICT-based CEC provided freer learning environment, freer communication, more time flexibility and more self-scheduled study plan. ICT can be likened to a treasure of College English teaching resources to the students.

To be able to conduct ICT-based courses successfully, the students' enthusiasm for ICT should be encouraged so that they can accept and appreciate the integration of ICT in the teaching of the course. This is because experience strongly influences perception (Glover, Ronning & Bruning, 1990). Hence, sufficient ICT facilities and technical support must be properly implemented to facilitate constructive learning that is student-centred (Warschauer, 1996). In addition, English language teachers conducting ICT-based courses need to be competent facilitators because they are vital in facilitating their students' learning. This is in agreement with Vijayalakshmi's (2017) study, which stressed that teachers need to be trained not only in teaching but also in using various technologies in language instruction. Teachers

need to realize that face-to-face interactions between the teachers and students and between peers, as well as online interactions between the teacher and students play a significant role in determining the success of their learning. As such, teachers need to be fully committed in their classes as well as actively participate in the students' online ICT activities, such as forums, emails and chat rooms. They should facilitate the learning of the English language via proper planning and implementation of language learning activities that specifically create an authentic learning environment allowing for self-paced learning for the students. We concur with Guo's (2014) conclusion that teachers have to learn the computer and network techniques well, otherwise they will encounter some difficulties and problems in using ICT to teach English.

As regards limitations of the current study, its participants were 200 non-English-major students of the same university; therefore, the research findings may not be generalisable to other university students in other regions of China.

Future studies can employ other instruments, in-depth interviews and verbal reports to gain a better understanding of the language learners' perceptions of application of ICT in the language classroom. The studies can expand on the range of the sample by including students from other universities in China. Future research can also focus on the teachers of the College English Course to investigate the teachers' perceptions about the ICT-based College English Course. A replicated study could also be conducted among learners with different cultural and learning environments to investigate the differences that might exist based on different cultural backgrounds.

References

Ablard, K.E., & Lipschultz, R.E. (1998). Self-regulated learning in high-achieving students: Relations to advanced reasoning, achievement goals, and gender. *Journal of Educational Psychology. 90(1)*, 94-101.

Altun, A. (2005). Towards an effective integration of technology: Message boards for strengthening communication. *Turkish Online Journal of Educational Technology -TOJET. 4(1)*, 68-74.

Bruner, J. S. (1966). *Toward a Theory of Instruction*. Cambridge, Mass.: Harvard University Press.

Cagiltay, N.E., Yildirim, S., & Aksu, M. (2006). Students' preferences on Web-based instruction: Linear or non-linear. *Educational Technology & Society. 9(3)*, 122-136.

Chen, C. (2008). Why do teachers not practice what they believe regarding technology integration? *The Journal of Educational Research*. 102, 65-75.

Chien, I. C., & Liou, H. C. (2002). *A study of* an on-line multi-user English learning environment for senior high school students. *Proceedings of Taiwan Area Network Conference*. pp. 359-362.

Deen, J. Y. (1987). *An Analysis of Classroom Interaction in a Cooperative Learning and Teacher-centered Setting*. Unpublished master's thesis. Los Angeles: University of California.

Dong, Y. (2005). *A Study of Teacher and Learner Attitude to CALL*. Wuhan: Huazhong University of Science & Technology.

Gay, L. R., & Diehl, P. L. (1992). *Research Methods for Business and Management.* New York: Macmillan.

Glover, J., Ronning, R., & Bruning, R. (1990). *Cognitive Psychology for Teachers.* New York: Macmillan.

Guo, A. (2014). A student profile model based online English learning. *Computer Modelling and New Technologies.* 18(11), 921-926.

Hu, Z., & McGrath, I. (2011). Innovation in higher education in China: Are teachers ready to integrate ICT in English language teaching? *Technology, Pedagogy and Education,* 20(1), 41–59. Retrieved June 2017, from http://www.tandfonline.com/doi/abs/10.1080/1475939X.2011.554014.

Hu, Z., & McGrath, I. (2012). Integrating ICT into College English: An implementation study of a national reform. *Education and Information Technologies,* 17, 147–165, Retrieved June 2017, https://www.researchgate.net./doi:10.1007/s10639-011-9153-0.

Iyengar, R., & Byker, E. (2014). Comparative perspectives on teacher education in South Asia. *Annual Review of Comparative and International Education,* 25, 99-106. Retrieved June 2017 https://www.researchgate.net./doi:10.1108/S1479-3679_2014_0000025010.

Killen, R. (2009). *Effective Teaching Strategies. Lessons from Research and Practice* (5th ed.). Melbourne: Cengage Learning Australia.

Levin, T., & Wadmany, R. (2005). Changes in educational beliefs and classroom practices of teachers and students in rich technology-based classrooms. *Technology, Pedagogy and Education.* 14(3), 281-307. Retrieved June 2017, from http://www.tandfonline.com/doi/abs/10.1080/14759390500200208.

Lim, C. P., Yan, H., & Xiong, X (2015). Development of preservice teachers' information and communication technology (ICT) in education competencies in a mainland Chinese university. *Educational Media International*, 52(1), 15-32, Retrieved June 2017, from http://www.tandfonline.com/doi/full/10.1080/09523987.2015.1005425.

Liou, H. C. (2000). Conceptualization and implementation of an English learning Web site which bridges TEFL theories and practices. In *Proceedings of the 4th International Conference on Multimedia Language Education*.

Ohta, A. S. (1996). The development of pragmatic competence in learner-learner interaction. *The Annual Meeting of the International Conference on Pragmatics and Language Learning*. Retrieved June 2017, from https://eric.ed.gov/id=ED394326.

Piaget, J. (1970). *Science of Education and the Psychology of the Child.* London: Longmans.

Rabah, J. (2015). Benefits and challenges of Information and Communication Technologies (ICT) integration in Québec English shools. *The Turkish Online Journal of Educational Technology,* 14(2), 24-31.

Seliger, H. W. (1977). A study of interaction patterns and L2 competence. *Language Learning,* 27(2), 263-278.

Shen, H., Yuan, R., & Ewing, R. (2014). English learning websites and digital resources from the perspective of Chinese university EFL practitioners. *ReCALL,* 27(2), 156-176. Retrieved June 2017, https://doi.org/10.1017/S0958344014000263.

Simsek, S. (2008). Students' attitudes towards integration of ICTs in a reading course: A case in Turkey. *Computers & Education.* 51(1), 200-211.

Soler, E. A. (2002). Relationship between teacher-led versus learners' interaction and the development of pragmatics in the EFL classroom. *International Journal of Educational Research.* 37(3), 359-377.

Srijittra, N. (2010). *Computer Assisted Language Learning to Improve English for Hotel at a University in the North-Eastern Region of Thailand.* Unpublished Ph.D. dissertation. Bangkok: Srinakhairinwirot University.

The Ministry of Education of China (2004). *Teaching Requirements for College English curriculum* (TRCEC), Shanghai: Shanghai Foreign Language Education Press.s

Tinio, V. L. (2002). *ICT in education: UN development programme*. Retrieved March 2017, from http:www.eprmers.org.

Towndrow, P. A., & Vallance, M. (2002). *Using Information Technology in the Language Classroom* (1st edition). Singapore: Pearson.

Tri, D. H., & Nguyen, N. H. T. (2017). An exploratory study of ICT use in English language learning among EFL university students. *Teaching English with Technology,* 14(4), 32-46. Retrieved June 2017, from http://www.tewtjournal.org.

Vijayalakshmi, K. (2017). ICT in teaching English Language in rural government schools. *International Journal of Advance Research, Ideas and Innovations in Technology,* 3(1), 57-63. Retrieved June 2017, from https://www.ijariit.com/manuscripts/v3i1/V3I1-1165.pdf.

Warschauer, M. (1996). Computer Assisted Language Learning: An introduction. *CALICO Journal,* 13(2), 3-20.

Warschauer, M. (2000). The changing global economy and the future of English teaching. *TESOL Quarterly.* 34(3), 511-535.

Williams, J. (2003). Computers and project-based learning. *Media and Methods,* 40(2), 18-20.

Yang, S.C. (2001). Integrating computer-mediated tools into the language curriculum. *Journal of Computer Assisted Learning,* 17(1), 85-93.

Young, S. S. C. (2003). Integrating ICT into second language education in a vocational high school. National Tsing Hua University, Taiwan. *Journal of Computer Assisted Learning*, 19(4), 447-461.

Zhao, Y. (2003). Recent developments in technology and language learning: A literature review and meta-analysis. *CALICO Journal.* 21(1), 7-27.

Zhang, P., & Li, N. (2003). An assessment of research in MIS oriented HCI studie*s.* American Psychological Association, Symposium of Divisions 21 and 14: The Many Faces of HCI Researchers in IS, Toronto, Canada, August.

Zhong, K. W. (2005). *Integration of CALL into College English Reading Instruction: A New Model and an Empirical Study.* Changsa, China: National University of Defence Technology.