A Survey on Learners' Technology Acceptance Toward Virtual Self-organized Community

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Abstract: The Virtual Self-organized Community (VSC) has been paid enough attention in educational research, While few study investigate the contributing factors driving undergraduates' technology acceptance to VSC in the perspective of outsider learning environment. This research sampling 65 English majors explored their attitudes toward using WeChat or/and QQ in English study. The results showed that usefulness of WeChat and classmate's support are two significant variables accounting for this technology acceptance. Meanwhile, teacher's support is an acceptable but relative weak contributing factor. To our surprise, the ease of usage and self efficacy have no significant relationship with learners' technology acceptance towards virtual self-organized community. Furthermore, the academic and practical implications of this study are discussed.

Key Words: virtual communities, self-organized, technology acceptance

1. Introduction

Virtual self-organized communities (VSC) with their characters of anonymity, non-authority, decentralization, and diversification (such as tencent QQ and Wechat), are regarded as either extension of real society or independent social system. VSC, allowing each member to express their ideas spontaneously and freely in more convenient and low-cost way, play a significant role in education society, since knowledge sharing is a major goal of taking part in community activities of members (Shih et al, 2006). Virtual self-organized communities foster learners' capability of analyzing, solving the problem as well as ability of innovation thinking in whole learning process. Learners in the virtual community are progressing rapidly and cultivating the collaborative spirit to achieve common development through continuous learning. Therefore, some scholars appeal to colleges to extend the coverage of study in virtual self-organized communities.

Although many research about learners' technology acceptance in virtual communities were investigated in the perspective of usefulness and ease of use, rare studies considered the contributing factors from the perspective of learning environment, such as teachers and classmates' supports. Besides, learners' own perception about their self efficacy is seldom considered, when learners study in VSC. the current research aims to investigate the comprehensive contributing factor of technology acceptance in virtual self-organized communities, which might have a positive effect on extension of technology acceptance theory and reform of informal education.

2. Research background and hypotheses

The appearance and development of VSC came from mass application of internet, which has provided a new circumstance for researching about formation and effect of social rules in an empirical way. It could be not only regarded as a technical phenomenon constructed by network and software technology, but also a social phenomenon constituted by

communication and interaction between different people (Hesse, 1995). In view of organization behavior, virtual self-organized communities are social technical systems interactively constituted by organized system and information technology system (Qiu & Tian, 2006), which meet the demands of communication, interaction and cooperation with others who have similar interests, hobbies, experience and recognition in network space by support of information technology. On one hand, this method of communication is simple, fast and convenient; On the other hand, it is unstable and fragile (Li, 2006).

The system self-organized theory has provided solid theoretical basis for virtual social system. Knowledge exchange comes from social exchange, which should be attributed to social attraction. Since, psychological factor plays an important role in virtual community studying, and member's behavior in this process is effected by many psychological activities including conformation, recognition and internalization (Zhou & Lu, 2009). For given above, learners' behaviors is diversified in this context, for example, some commonly play roles as promulgators tend to be active, while others focus on expressing their own opinion independently tend to take part in discussion. Besides some members in common situation acting passively, just play roles as audience and absorbers.

In recent decades, researchers are dedicated in studying the relationship between learners' attitude and their technology usage behaviour. According to Davis's (1989) research, the Technology Acceptance Model (TAM) is comprised by two significant variables, perceived usefulness and perceived ease of use. These two variables are considered as the primary elements to determine use's acceptance. Perceived usefulness refers to user's subjective perception whether a technology application will improve one's performance and productivity when using it. Perceived ease of use is user's belief that use a technology will be easily operate (Timothy Teo, 2009). Many research have suggest that TAM has been adopted as the framework to study learner's acceptance towards virtual online learning, whose results show that the higher the usefulness is, the greater acceptance level is (Ngai, Poon, & Chan, 2007). We thus hypothesize the following.

H1: Usefulness positively effect technology acceptance in VSC.

H2: Ease of use positively effect technology acceptance in VSC.

Self-efficacy refers to an individual's belief in one's capability to carry out a specific task or behavior. The strength of learner's effectiveness beliefs play an important role in whether people will make great efforts to handle given situations. A number of researchers consider self-efficacy as an critical determinant to affect learner's learning cognition or behavior. Higher efficacy expectations can stimulate learner's more study motivation and creation in a particular task. Many research have frequently showed that learners with higher efficacy expectations have greater performance attainments (Bandura, 1991).

H3: Individuals' self-efficacy have positive influence on VSC technology acceptance.

As every knows, comparing to traditional face-to-face class, learning with VSC, such as QQ and Wechat, have no limitation of time and location. The core course is presented based on the virtual learning community, which transfers "class teaching" into "course teaching" and saves unnecessary expenses of teacher as well as increases teaching efficiency, which were favored and supported by instructors (Xiaohua Zhu 2014). Hence, amount of teachers are increasingly advocating expanding traditional class model to virtual learning community. We thus hypothesize the following.

H4: Teacher's support have positive influence on VSC technology acceptance.

The frenquency of user's interactions decide the level of QQ memebership in a QQ learning group. Since QQ group is established by learners who own a similar and particular expectation. Students in the same class would be the largest boby of a QQ group. They can upload or download digital files in VSC with learners of same interest. Therefore, learners can not only share information with members (Blanchard, 2004), but also conduce to knowledge building in virtual self-organized community (Humphreys & Grayson, 2008; Ritzer & Jurgenson, 2010). The support of classmates' social network contribute to learners acceptance toward virtual self-organized community. We thus hypothesize the following.

H5: Classmate's mutual aid have positive influence on VSC technology acceptance.

Given above, the proposed model shown in Fig. 1 focuses on five key antecedents of VSC (Usefulness, Ease of use, Self-efficacy, Teacher's Support and Classmate's mutual aid).

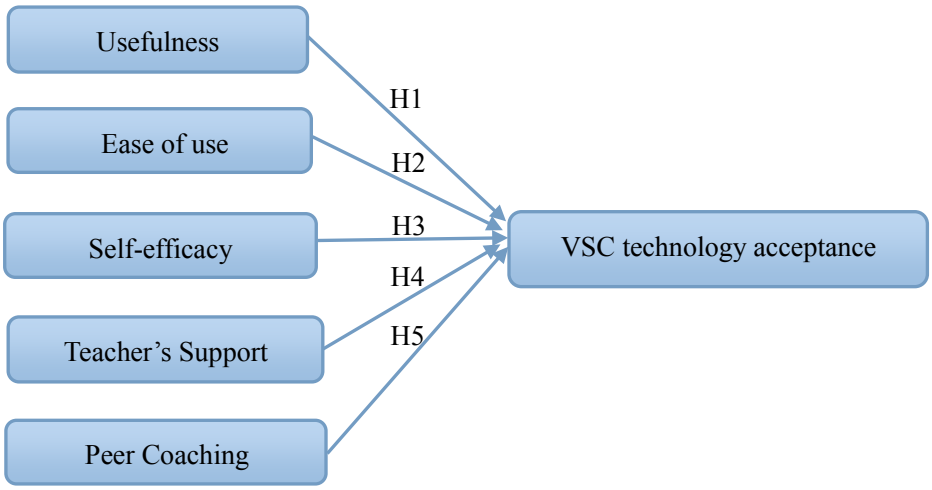

Figure 1. The hypothesized model of learner's ASC technology

3. Methodology

3.1 Participants

The sample for the study was taken from Anhui Jianzhu University and Hefei University to explore the technology acceptance on English study with virtual self-organized communities, like WeChat and QQ. Selected participants were required having experience on learning with VSC based on QQ group or Wechat VSC. As shown in Figure2 learner raise questions about English learning for discussion in QQ group or Wechat group. Afterwards, students in the group are free to voice their opinions on the question. After discussion among students, the problem would be solved if they all come to an common conclusion. Otherwise, they can ask teacher for help so that the problem can be settled precisely and quickly. A total of 70 questionnaires were distributed to students who participated in virtual self-organized communities. Although the number of participants was limited, the results of Table1 indicated that this sample is relatively representative.In order to maximize the response rate and validity, are survey questionnaires were collected on the spot, and some small gifts were provided to the sample students with the survey. Finally, all surveys were returned, 5 of which were excluded due to the uncompleted information in questionnaire and the percentage of valid surveys is 93%.

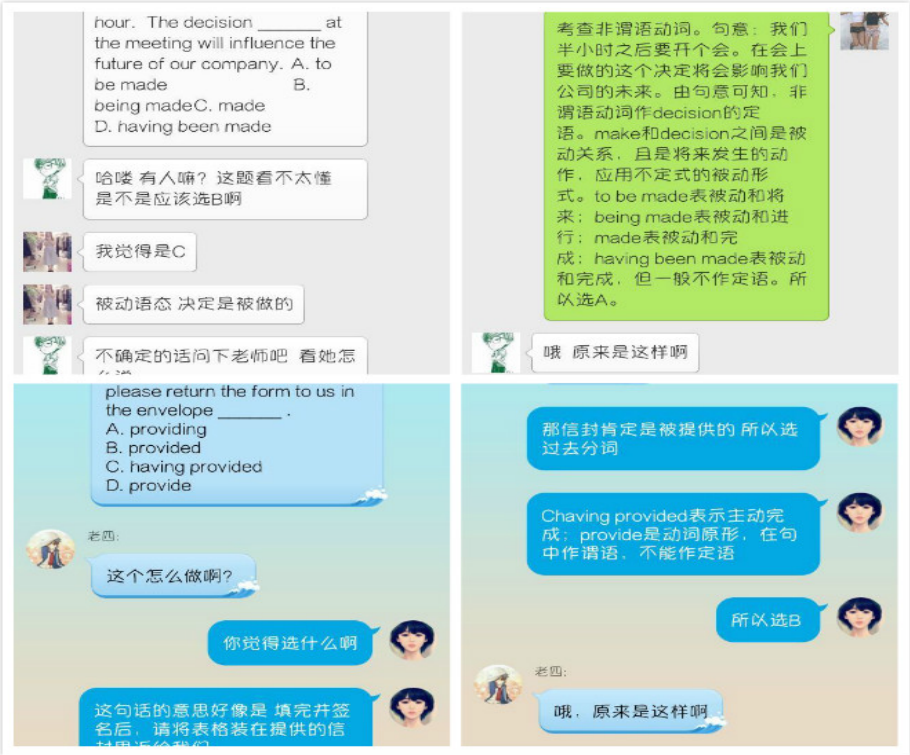

Figure 2. learning procedure with QQ group and Wechat

Table1. Demographic profile

Variables	Classification	Total (%)
Gender	Male	29 (0.45)
	Female	36 (0.55)
Grade	Freshman	17(0.26)
	Sophomore	19(0.29)
	Junior	14(0.22)
	Senior	15(0.23)
Spending Time Online (1 day)	<3h	13(0.20)
	3-6h	18(0.27)
	6-9h	15(0.23)
	>9h	19(0.29)

3.3 Instrument

A self-report questionnaire was adapted and adopted for the survey, which measured 5 constructs and a total of 17 items concerning usefulness, ease of use, self-efficacy, teacher's support and classmate's mutual aid. Respondents were asked to indicate the items on a 5-point Likert scale ranging from strongly disagree (1), slightly disagree (2), neither agree nor disagree (3), slightly agree (4), and strongly agree (5). These items were adapted from various published sources and were found to be reliable and valid, which were shown in Table 2. Furthermore, psychometric quality of the instrument of this study has been conducted to confirm its reliability and validity. A five-point Likert scale was employed and all items were presented in Chinese. Considering the translation errs may happen to effect students' comprehension, we asked two English teacher to check all the items, and five students were

selected to pretest the validity and reliability of the scale. Finally the 18 items in this study are listed in the Table 2, which shows the detailed items and the sources from where they were adapted and adopted for this study

Table 2. List of constructs and corresponding items.

Construct	Item	
Usefulness (adapted from Teo, 2009)	U1	Using Virtual Self-organized Community will improve my work.
	U2	Using VSC will enhance my effectiveness.
	U3	Using VSC will increase my productivity.
Ease of Use (adapted from Teo, 2009)	EU1	My interaction with VSC is clear and understandable.
	EU2	I find it easy to get VSC to do what I want it to do.
	EU3	I find VSC easy to use.
Teacher's Support (adapted from Hooker, T. 2014)	TS1	I often get teachers' support when using VSC.
	TS2	I often benefit much from teachers' support when using VSC.
	TS3	Overall, teachers' support bring me encouragement to use VSC.
Peer Coaching (adapted from Stichter, J. P. et al., 2006)	PC1	My classmates often offer me much support when using VSC.
	PC2	My classmates' aid is significant to my learning in VSC.
	PC3	I like discuss learning problem with my classmates in VSC.
Self Efficacy (adapted from Liang, J.-C.et al., 2011)	SE1	I feel confident using VSC such as "QQ" or "Wechat".
	SE2	I feel confident reading others' messages in a VSC.
	SE3	I feel confident providing information or answering others' questions in VSC.
Acceptance to VSC (adapted from Compeau & Higgins, 1995)	AV1	VSC make my learning more interesting.
	AV2	Working with computers is fun
	AV3	I like using VSC to support my learning.

4. Results

As shown in table 3, each α value is bigger than 0.5 suggesting acceptable reliability. Besides, all the factor loadings are greater than 0.50, indicating strong relationship with their associated constructs.

Table 3. Loadings, Cronbach's Alpha (α) of questionnaire

Variable	Loading	Cronbach's α
Usefulness	0.66-0.81	0.77
Ease of Use	0.70-0.82	0.75
Teacher's Support	0.77-0.78	0.75
Peer Coaching	0.55-0.60	0.61
Self-Efficacy	0.59-0.86	0.60
Technology Acceptance	0.51-0.80	0.75

Table4 shows the inter-correlation among the variables. The correlation between learner's acceptance to VSC and usefulness, ease of use, teacher's support and , peer coaching, self-efficacy are 0.576, 0.245, 0.422, 0.579 and 0.390, respectively. Due to their close

relationship to technology acceptance, peer coaching was the most significant factor, followed by scores on the usefulness, teacher's support and self-efficacy . Thus, we can safely draw a conclusion that teacher's support and usefulness, ease of use, peer coaching and self-efficacy have close relationship with sample students' technology acceptance toward virtual self-organized community.

Table4. Descriptive analysis and correlation

	1	2	3	4	5	6
Usefulness of WeChat						
Ease of Use	0.221					
Teachers' Support	0.408**	0.459**				
peer coaching	0.536**	0.299*	0.347**			
Self-Efficacy	0.238	0.362**	0.121	0.477**		
Technology Acceptance	0.576**	0.245*	0.422**	0.579**	0.390**	

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

*. Correlation is significant at the 0.05 level (2-tailed).

Regression analysis was used to explain the causality between students' acceptance and each independent variable. According to table 5, usefulness of virtual self-organized community (t=2.644) and peer coaching (t=2.033) were positively related to students' acceptance toward virtual self-organized community. Teacher's Support (t=1.825) posed a slight significant effect on students' acceptance toward virtual self-organized community. Surprisingly, ease of use (t=0.642) and self-efficacy (t=1.328) isn't statistically related to learners' acceptance of virtual self-organized community.

Table 5. Regression analysis

Variable	Under standardized coefficients		Coefficients	t	p
	β	Standard Error			
(Constant)	-0.588	0.565		-1.042	0.302
Usefulness	0.347	0.131	0.309	2.644	0.010
Ease of Use	0.086	0.138	0.066	0.642	0.535
Teacher's Support	0.195	0.107	0.196	1.825	0.073
peer coaching	0.293	0.144	0.256	2.033	0.047
Self-Efficacy	0.172	0.129	0.147	1.328	0.189

5. Discussion

Technology acceptance toward virtual self-organized community is an important character to reflect learning performance (Davis, 1993). An important factor influencing learners' acceptance of virtual community is whether this way is enough efficient or not. If WeChat is proved effective in English studying in more situation, the acceptance of this way will become stronger, as a result of that usefulness of WeChat is significantly influence technology acceptance.

The characteristics of virtual self-organized community which including online interactive discussion and timely communication, assist learners in communicating effectively without the limitation of time and location（Bressler & Grantham , 2000). Users who have common identity would be spontaneously gathered together via WeChat and QQ. Learners in the same virtual self-organized community usually have similar and specific expectation. They join

diversified virtual communities according to themselves demand and interest to acquire information and build new personal network. A large part of relation in virtual communities comes from relation in real world (Brandon & Hollingshead, 1999). On the basis of the statement above, it could not be very hard to understand why peer coaching plays an important role in technology acceptance. Therefore, software developer should put emphasis on broadcasting applications among students and their social network to improve coverage as well as learner's technology acceptance.

Besides, the results showed that teacher's support have relative weak influence on technology acceptance. Teachers commonly play a role directing students' behavior, which corresponds to Chinese learners' traditional recognition. This fact might be explained by teachers' leading effect in study and use of WeChat and their mental direction to students' emotion in virtual community. However, relatively speaking, in this research, teacher's support have weak influence on technology acceptance on virtual self-organized community. The possible explanation is the teacher-student relationship are relative passive and unfamiliar in Chinese universities, which hinder the improvement of learner's technology acceptance in virtual self-organized community.

Self-efficacy is an individual's belief in one's capability to perform a particular task or behavior. The strength of their effectiveness beliefs play a critical role in whether people will make an effort to handle given situations. self-efficacy is expected to affect various aspects of learner, including task effort, persistence, and the level of goal difficulty selected for performance(Gist, 1987). Surprisingly, in this research, self-efficacy has no significant relation with technology acceptance in virtual self-organized community. The possible reasons may exist as follow: Firstly, the participants' purpose of using virtual community are mostly for solving problems at a medium difficult level, which diluting the perception and understanding about their self efficacy. Besides, nowadays almost every university student is required to take basic information and computer courses so that their skills in using virtual self-organized community can keep pace with the times. What's more, since Wechat and QQ are easy to be handled,there is no need to worry about operating them, which is also a evidence to support the results why ease of use have insignificant regression relation with learners' acceptance to VSC.

6. Limitations and Future Research

The findings of this study must be considered in light of its limitation. First, since our research sample only comes from English major in Anhui Jianzhu university and HeFei University, and this sample size was fairly small, consisting of only 65 English majors. Secondly, this research concerned merely on field of higher education but did not reflect on the perception of other study groups, such as employees or postgraduates. Finally, we limited the research variables to five factors, while additional factors concerning individual characters, such as individual activity, barely be considered in this survey but may influence students' acceptance towards virtual self-organized community.

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