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Research on Online Engagement in the MOOC Context

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Abstract

Online engagement had become the key measure of leaning performance and satisfaction(Gaojie 2016,). Jiao Jianli (2013).indicated that how to enhance effective online engagement was the key to improve the quality of online learning. Scholars have done lots of researches on the online engagement form the perspectives of teaching resources, technology, interaction and emotion, etc. However, how do learners regulate themselves and implement self regulated strategies to adapt to the online setting, is seldom explored. Do those self regulative strategies enhance the online engagement effectively? Which strategies are indeed helpful? The research explores the underlying mechanism how self regulated strategies impact online engagement based on the questionnaire of 387 college students. Online engagement, a second-order construct , composes of behavioral engagement, cognitive engagement and emotional engagement. Thorough SEM and hypotheses testing, the research finds that time management and peer learning exert the strongest influence on online engagement; rehearsal, organization and metacognitive strategies do produce a direct influence on online engagement, but they cannot enhance the learners' self efficacy; elaboration, critical thinking and help strategies do not exert direct influence on online engagement. self efficacy fully mediates the relations among them. The research indicates that resource management strategies produce positive and direct influence on online engagement. Online learners shall pay great attention to time management and peer learning to enhance the online learning efficiency while focusing on the traditional cognitive strategies.

Keywords: online engagement, cognitive strategy, metacognitve strategy, resource management strategy, self efficacy

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1. Introduction

Open courses are increasingly popular around the globe, such as MOOC, etc. People are expecting great changes of higher education and teaching reform brought by them, but they come with quality problems, such as "high registration rate", "low completion rate" and "hard to deepen the study" . Jiao Jianli(2013) indicated that how to enhance the effective online engagement was the key to improve the quality of online education. Many scholars began to focus on the research of online engagement. Online engagement referred to the effort learners made to achieve the academic purpose(Kuh.2003). Fredrics(2004) divided the online engagement into three aspects: behavioral engagement, cognitive engagement and emotional engagement. Behavioral engagement refers to the effort and persistence in the online learning process; emotional engagement refers to the emotional experience in the online learning; cognitive engagement refers to the learning method and self regulation in the learning process. Although there are great difference on the definitions and connotations of online engagement, the three-dimension division is accepted by most scholars. Scholars have done plenty of researches from the perspectives of technical elements, teachers and learners, especially learners' personality traits, motivation and metacognition. Chen(2010) and Tabassum R et. al(2016) indicated that technology use can exert positive influence on online engagement; Sun & Rueda (2012) found that situational interest and self regulation were positively related with cognitive engagement, behavioral engagement and emotional engagement based on questionnaires of 203 American college students; Milligan et al(2013) found that learners' motivation and self confidence can greatly enhance online engagement though questionnaires; Nikolaos Pellas(2014) pointed that learners' computer self efficacy, matacognitve self regulation were great influential factors of online engagement by empirical research; Ma et al(2015) indicated that teachers' presence and students' video watching were positively related with online engagement by the data of online learning platform. Teachers' guidance and help can greatly improve the online engagement and learning performance. Besides, scholars have made a series of scales to measure online

engagement. The most influential among those scales are the NSSE(National Survey of Student Engagement) and SEDE(Student Engagement in Distant Education). Domestic scholars are actively engaging the hit topic by introducing and doing local research. Yin Rui(2016) introduced the latest development of research on online engagement in the west from three layers: descriptive topics, connective topics and value topics; Li Shuang(2015.2016) made the online engagement scale of Chinese students based on the previous scales and analyzed the online engagement measurement with the online learning system data; Gaojie(2015.2016) revealed the mechanism how proactive personality, external motivation and online learning emotion influenced online engagement. Though many scholars have analyzed the influencing factors of online engagement from different aspects, how learners regulate themselves and their online behavior to enhance the positive online learning experience still remains unclear. The purpose of the research is to explore how online learners regulate their online learning behavior by applying the self regulated strategies, enhancing the online engagement and improving the quality of online learning.

2.Model Construct and Hypotheses Test

Compared with traditional learners, online learners face greater challenges and need to make greater effort to acquire online success such as the choice of learning strategies, the setting of target, the monitoring of the task and the acquisition of resources, etc. Therefore, online learners need to adopt diversified cognitive and metacognitve strategies to regulate themselves to obtain effective learning. Shea(2012) indicated that study of online engagement shall be deepened from the perspectives of learning behavior, cognition,etc. How to motivate and regulate learners in the online settings to enhance the efficient online engagement, especially how do online learners implement all kinds of strategies to monitor and adapt themselves to the online environment, is a serious issue to be solved. Social cognitive theory considers that individual's personality and environment are mutually influenced. Learners' self efficacy is influenced by external and internal environment, and exerts direct influence on personal behavior. Previous researches have indicated that self confidence are positively related with online engagement. The research analyzes the influence on online engagement from the three dimensions of self regulated strategies: cognitive, metacognitve and resource management strategies. And the research finds the mediation role of self efficacy among their relations. The research reveals the inner relations among learning strategies, self efficacy and online engagement.

2.1 *Self regulated strategies and online engagement*

Self regulated learning was first raised by Zimmerson in 1986. It refers to the learners' active learning process from the perspective of metacognition, motivation and behavior. It combines three components: self regulated strategies, self efficacy and target. Self regulated strategies referred to the learning process and learning behavior while learners acquire information and skill through the right method(Zimmerson 1989). Pintrich et.al (1991) divided the learning strategies of college students into three elements: cognitive, metacognitive and resource management strategies, and designed Motivated Strategies for Learning Questionnaire.

2.1.1 *Cognitive Strategy*

Cognitive strategy refers to the strategy learners adopt in the learning process, including rehearsal, elaboration, organization and critical thinking. Rehearsal refers to the strategy learners build short memory by repetition, memorization.(Pintrich 1991). For example, learners can enhance short-term memory, deal with simple learning task and strengthen attention by rereading or rewatching, which helps solve problems and improve learning efficiency. Reading and memorizing are important learning tasks, rehearsal strategy plays an important role in fulfilling these tasks, which helps the cognitive and emotional engagement of online learners. Elaboration refers to the strategy learners build long-term memory, including explanation, summary, analogy and note-taking. The strategy helps learners connect the new information and old information. Online learners combine the new knowledge with old one by mapping, etc. Elaboration is helpful for better understanding of learning content, the improvement of learning experience and self efficacy, which eventually promotes online engagement.

Organization refers to the learning strategy learners choose important information and build internal connection among them. Organization helps learners to find out and highlight key information, for example, learners can get the key information by outline, table, etc. Learners could engage in the learning task more actively by adopting organization strategy.(Pintrich 1991) online learners adopt cognitive strategies to deal with plenty of online information , reduce cognitive load and improve learning performance. Critical thinking refers to the strategy learners think about the learning content critically, such as whether the conclusion is right, or whether it is exclusive. Online learners shall deal with information critically to improve learning performance and self efficacy. The effective use of cognitive strategies can boost learners' emotional and cognitive engagement. Based

on the above analysis, the following hypotheses are raised:

H1: Cognitive strategies positively promote learners' online engagement.

H1a: Rehearsal positively promote learners' online engagement.

H1b: Elaboration positively promote learners' online engagement.

H1c: Organization positively promote learners' online engagement

H1d: Critical thinking positively promote learners' online engagement

2.1.2 *Metacognitive strategy*

Metacognitve strategy refers to the self regulation and monitoring during the learning process, which includes planning and target setting, self monitoring and self regulation. Pintrich(1991) indicated that metacognition is composed of five procedures: target setting, planning, self monitoring, self regulation and self retrieving. Though many scholars have done researches on the relation between metacognitive strategy and learning engagement, their conclusion are not always the same. Sun &Rueda(2012) found metacognitive strategy was positively related with cognitive, emotional and behavioral engagement; Nikolaos Pellas(2014) pointed that metacognitve strategy had a positive influence on cognitive engagement and emotional engagement, and a negative impace on the behavioral engagement. There is a close relation between learners' self regulation and online engagement. Different from traditional class, online class relies more on learners' self regulation. Metacognitive strategy is helpful to enhance personal control, adapt to the online environment and fulfill learning task. The effective use of metacognitive strategy reduces cognitive load and raise learning interest. The hypothesis is raised according to the above analysis:

H2: Metacognitive strategy positively promotes learners' online engagement.

2.1.3 *Resource management strategy*

Resource management strategy refers to the skills and methods learners acquire resources , including time management, effort regulation, peer learning and help. Time management refers to how learners plan and manage their time and tasks. It not only refers to how learners plan their time, but how they make full use of time to fulfill the task; effort regulation refers to learners persist in the task while encountering learning difficulties, for example, the dull learning material. Effort regulation make learners remain their learning passion and persist in the study; peer learning refers to the collaboration among peers. Discussion with peers is helpful to deepen the understanding of learning content and simplify the learning task; Help strategy refers to learners turning to their teachers and classmates while meeting difficulties. Kosimin(2007) considered that resource management strategy and metacognitve strategy had the strongest prediction towards learning performance; Sardareh(2012) found that resource management predicted the learning performance strongly. Online learning indeed is a process of acquiring information . the massive and open nature of online courses brings large amount of information for online learners to choose. Meanwhile, it increases the cognitive load of learners. Therefore, resource management is the key to improve online learning proficiency . How to obtain the online information effectively is also the key to online success. Resource management strategies help online learners boost their emotional and behavioral engagement.

H3: Resource management strategy positively promote online engagement.

H3a: Time management positively promote online engagement.

H3b: Effort regulation positively promote online engagement.

H3c: peer learning positively promote online engagement.

H3d: help strategy positively promote online engagement.

2.2 *Self efficacy-the mediation role between self regulated strategies and online engagement*

The concept of self efficacy was first raised by Bandura in 1986, which refers to the judgement of learners' personal ability and self confidence. Self efficacy plays a key role in most motivated factors. It could predict a significant influence on academic achievement. Bates(2007) found that learners with higher computer self efficacy spent more time learning online technology, thus engaging more online learning. Most empirical researches have proved the important function of self efficacy in the learning process. Online learners face complicated learning environment and they need to adapt to the surroundings. Deci & Ryan(1986) pointed that internal motivation exerted the biggest influence on learning behavior. Self regulated strategies could boost

learners' self efficacy, promoting learners fully engage in online study.

H4: Learners' self efficacy mediates the relation between self regulated strategies and online engagement.

It's a necessity for online learners to facilitate many strategies to monitor and regulate their behaviors. Cognitive strategies emphasize the cognitive learning, metacognitive strategy stresses the planning and management of personal behavior and resource management strategy pay attention to the capability learners acquire resources. Researches have proved the significant influence self regulated strategies exert on academic achievement, but whether they predict online engagement is still in doubt. The purpose of the research is to explore the underlying mechanism how self regulated strategies influence online engagement and which specific strategies have the strongest influence. Therefore, the structural modeling is built to test the relations among self regulated strategy, self efficacy and online engagement.

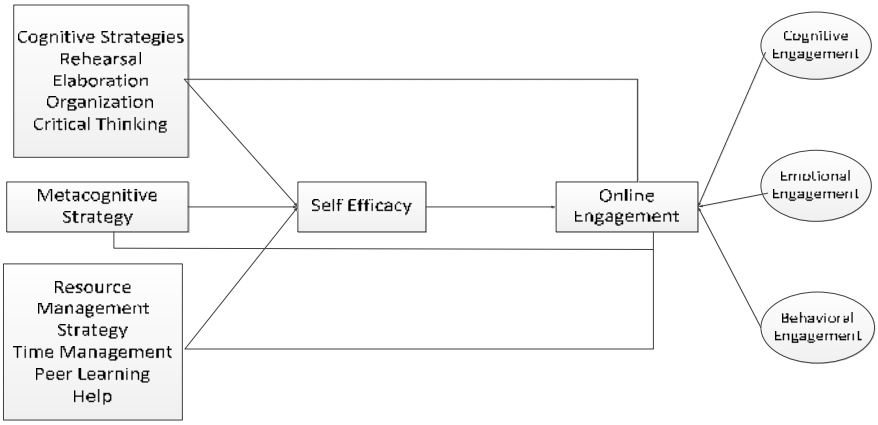

Figure 1 Online Engagement Model

3 Research Methodology

3.1 *Participants and Research Design*

The research adopts the convenience sampling to collect data. The participants are 400 college students from universities in the middle part of China who have engaged in the online courses and done the test offline. The content of the questionnaire is refined by qualitative interview and students feedback. The recovery of the questionnaire is 387 and the recovery rate is 96.75%. The questionnaire items are adopted by widely used scales. Self regulated learning scale is adapted by Motivated Strategies for Learning Questionnaire designed by Pintrich in 1991, which is the most widely used and popular questionnaire for measuring self regulated learning. Self efficacy scale is adapted by self regulated learning scale in informal learning environment designed by Milligan in 2015. Online engagement scale is measured by the three division principle and the questionnaire designed by Fredricks in 2004. Online engagement is regarded as a second-order construct, composed of three first-order constructs: behavioral engagement, emotional engagement and cognitive engagement. In order to ensure the reliability and validity of the questionnaire, all the questionnaire ,items adopt the back translation and revised based on the Chinese environment. The questionnaire adopts Likert 5 scale, 1 to 5 representing "totoally disagree", "disagree", "neutral", "agree" and "totally agree".

3.2 *Description analysis and Reliability and Validity test*

In order to make the sample sources reliable, all the participants are required to finish the online courses for at least 1 semester and get the credit. The online courses are given once every week and the learners need to finish the test offline. The credit is obtained by video watching, online practice and final test. The questionnaire is delivered after the offline test and 400 students participate the test. 387 copies are recovered by ticking out invalid questionnaire with missing data, mistaken data, etc. The demographic data of the participants is listed as follows:

Table 1 Demographic data of Sample

		Number	Percent
Gneder	male	282	72.8%
	female	105	27.2%
Age	Above 20	142	36.7%
	Below 20	245	63.3%
Online courses enrolled	1 course	179	46.2%
	2 courses	154	39.7%
	3 courses and more	54	14.1%
Time for Online learning	Less than 1 hour	26	6.7%
	2-3 hours	194	50.1%
	More than 3 hours	167	43.2%

Reliability and validity test are common ways of scale test. Reliability refers to the stability of the scale and the common method of measuring reliability of Likert scale is to test Cronbach coefficient. If the coefficient of the scale and the items is above 0.7, it shows the scale obtains very high reliability; if those coefficients are below 0.5, usually it means the the scale cannot be used. The research adopts SPSS22 as measuring instrument and the coefficients of 12 constructs are between 0.606 and 0.859 among all 13 constructs, showing the scale obtains high reliability. Only the reliable coefficient of effort regulation construct is 0.537, which is still acceptable. The figures are shown in table 2.

Table 2 The Reliability and Validity coefficients of variables

Items	Loading	Cronbach	C R	AVE
1. Rehearsal	0.734-0.795	0.760	0.847	0.581
2. Elaboration	0.665-0.754	0.774	0.847	0.527
3. Organization	0.670-0.822	0.767	0.850	0.587
4. Critical Thinking	0.758-0.799	0.684	0.823	0.608
5. Metacognition	0.691-0.749	0.695	0.814	0.523
6. Time Management	0.510-0.792	0.679	0.801	0.508
7. Effort Regulation	0.735-0.901	0.537	0.804	0.675
8. Peer Learning	0.707-0.852	0.673	0.820	0.605
9. Help	0.800-0.902	0.632	0.842	0.726
10. Self regulation	0.674-0.750	0.681	0.806	0.511
11.cognitive engagement	0.641-0.753	0.757	0.835	0.504
12.behavioral engagement	0.677-0.812	0.606	0.792	0.561
13.emotional engagement	0.495-0.859	0.859	0.895	0.562

Validity test is done by convergent and discriminant validity test. The measurement of convergent validity requires composite reliability(CR) coefficients must be over 0.7 and average variance extraction(AVE) coefficients must be above 0.5. The measurement of discriminant validity is to calculate the square root of the AVE, which must be above the correlation coefficients of the constructs. The CR of the constructs is between 0.792 and 0.895 and AVE of all constructs is between 0.504 and 0.726. The above-mentioned statistics show the scale obtains good convergent validity and discriminant validity. The data is showed as follows:

Table3 Correlation and discriminant validity of variables

Variables	1	2	3	4	5	6	7	8	9	10
1.Rehearsal	.762									
2.Elaboration	.606**	.725								
3.Organization	.513**	.495**	.766							
4.Critical Thinking	.281**	.421**	.276**	.779						
5.Metacognition	.463**	.479**	.502**	.361**	.714					
6.Time Management	.405**	.405**	.374**	.316**	.483**	.723				
7.Effort Regulation	.269**	.216**	.191**	.161**	.320**	.377**	.821			
8.Peer Learning	.289**	.286**	.306**	.300**	.316**	.308**	.176**	.777		
9.Help	.191**	.187**	.253**	.181**	.393**	.322**	.184**	.407**	.852	
10.Self Efficacy	.388**	.446**	.363**	.366**	.440**	.499**	.341**	.380**	.318**	.714
11.Online Engagement	.501**	.502**	.481**	.401**	.567**	.550**	.408**	.484**	.379**	.635**

3.3 Common Method Bias Test

Common method bias is system error due to the same data source and the same measuring environment. If the questionnaire is finished by the same participants in the same time, the common method bias test is required, especially when the questionnaire contain many items. The questionnaire contain 50 questions, 13 constructs, so the common method bias test is needed. The popular ways is to adopt Harman single factor analysis. If The variance of the first common factor accounts for no more than 40% after the .factor analysis of all variables, it is believed the common method bias doesn't exist. The variance first common factor accounts for 22.2%, which shows the bias doesn't exist.

4. Results

Structural Equation Model (SEM) is widely used in estimating and testing multiple sets of relationships because it can deal with multiple dependent variables and estimate the structure and relationship of factors simultaneously. The research regarded online engagement as a second-order construct, cognitive engagement, behavioral engagement and emotional engagement as first-order construct, SEM can accurately examine their relationship. The research adopts SMARTPLS 2 to analyse the data. Compared with the maximum likelihood estimation method, SMARTPLS is more suitable for this study because it uses the partial least squares method and can deal with multi-level complex structure model, The T value of the main observation path coefficients in SMART PLS test reaches the significance level ($P < 0.05$) as long as it is greater than 1.96. It also proves that the hypothesis test is supported by the data. According to the model analysis, the loading of the three first-order factors (behavioral engagement, cognitive engagement and emotional engagement) of online engagement reached 0.357, 0.584 and 0.319 respectively, and the T values were 5.519, 10.006 and 6.149, respectively, which were greater than 1.96 and reached the ideal value. Through PLS calculation, the R square of online engagement reaches 0.612, and the model has a good degree of interpretation. (model results and path coefficients are shown in figures 2 and 4).

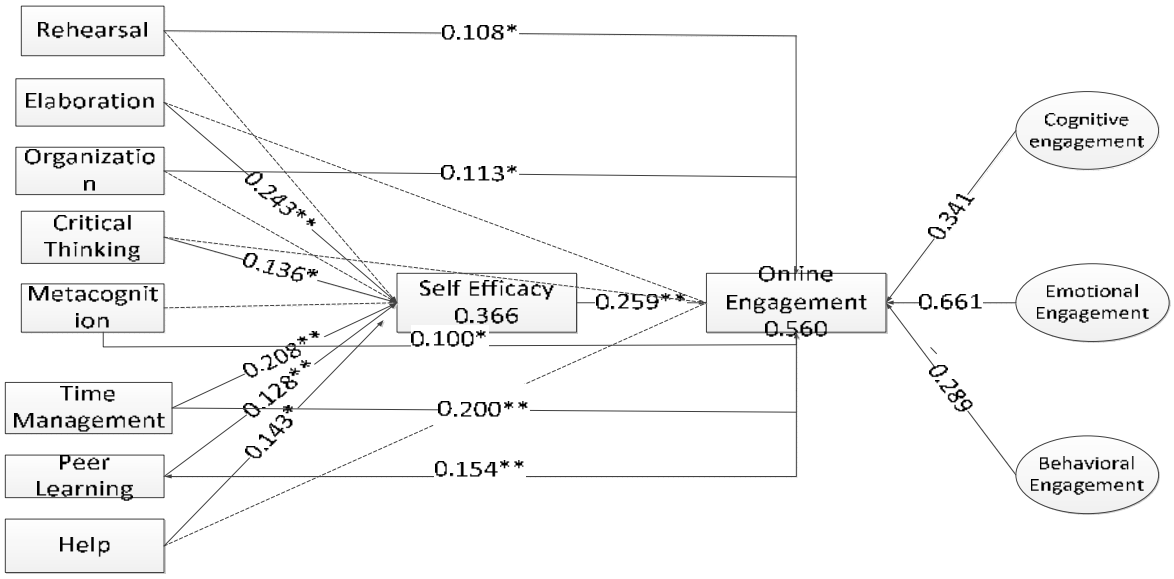

Figure 2 Online engagement model result

Table 4 Path Coefficients and T value

Path	PLS	mean	S D	T value	Result
Eehearsal → Self efficacy	0. 031	0. 031	0. 063	0. 483	supported
Rehearsal → Online engagement	0. 096	0. 096	0. 049	1. 954	supported （weak）
Elaboration → Online engagement	0. 051	0. 052	0. 046	1. 090	unsupported
Organization → Self efficacy	0. 033	0. 035	0. 054	0. 608	unsupported
Organization → Online engagement	0. 087	0. 087	0. 042	2. 039	supported
Critical thinking → Self efficacy	0. 108	0. 116	0. 055	1. 969	supported （weak）
Critical thinking→ Online engagement	0. 058	0. 058	0. 037	1. 574	unsupported
Metacognition → Self efficacy	0. 072	0. 069	0. 057	1. 252	unsupported
Metacognition → Online engagement	0. 143	0. 144	0. 051	2. 825	supported
Time management → Self efficacy	0. 227	0. 227	0. 053	4. 279	supported
Time management→ Online engagement	0. 119	0. 121	0. 048	2. 486	supported
Effort regulation→ Self effficacy	0. 128	0. 127	0. 049	2. 600	supported
Effort regulation → Online negagement	0. 122	0. 120	0. 041	2. 995	supported
Peer learning → Self efficacy	0. 139	0. 137	0. 055	2. 513	supported
Peer learning →Online engagement	0. 170	0. 159	0. 043	3. 883	supported
Help → Self efficacy	0. 072	0. 071	0. 052	1. 385	unsupported
Help → Self efficacy	0. 043	0. 044	0. 040	1. 062	unsupported
Self efficacy → Online engagement	0. 280	0. 277	0. 047	5. 929	supported

4.1 *Rehearsal and organization strategies can directly promote learners' online engagement, but elaboration and critical thinking strategies have no significant impact on online engagement while self-efficacy mediating completely among them.*

Rehearsal and organization strategies are the most commonly used cognitive strategies for learners, and the path coefficient between them and online engagement is 0.096(T=1.954)., approaching the critical value of 1.96, thus they can be considered to have a significant relationship with online engagement, but it also shows that the impact of rehearsal strategies is weak and the correlation is not close. The coefficient between organization strategy and online engagement is 0.087 and the T value is 2.039, which shows that organization strategy has the greatest impact on online engagement among cognitive strategies. Although they can directly promote learners' online engagement, they have no significant effect on enhancing learners' self-efficacy (T values are 0.483 and 0.608, respectively).

The coefficients between elaboration, critical thinking and online engagement are 0.051 and 0.058, and T values were 1.090 and 1.574, respectively. Through model validation, H1a and H1c have been supported, H1b and H1d are not supported. Although elaboration and critical thinking strategies had no significant effect on online engagement, the path coefficients and T values between both strategies and self-efficacy reached 2.546 and 1.969 respectively, which shows that self-efficacy plays a complete mediating role among their relations. H4 is partially supported. Although critical thinking has significant impact on self-efficacy, similar to rehearsal strategy, the path coefficient is at a critical value, and the impact is extremely weak. Through the model analysis, organization and elaboration strategies play a relatively important role in the relationship between cognitive strategies and online engagement.

4.2 *Metacognition can significantly promote learners' online engagement, but can not enhance learners' self-efficacy effectively.*

Metacognition refers to self regulation, goal planning and process management, which is particularly important in the online context. In the model, the coefficient between metacognition and online engagement is 0.143(T=2.825), which reached the significant value ($P < 0.01$). However, the coefficient with self-efficacy is 0.072, and the T value is only 1.252, which does not reach the significance ($P<0.05$). The data results support the hypothesis2 effectively. Metacognition is widely used in learning process, and their influence on academic achievement has also been concerned. Carson (2011) and Chang (2007) found that there was a significant correlation between the use of metacognition strategy and academic achievement; while Klingsieck et. al (2012) and Cho & Shen (2013) pointed out that there was no significant correlation between the use of metacognition strategy and academic achievement; some studies also indicated that although metacognition had a significant impact on academic achievement, the impact was very weak. In this model, metacognition promotes online engagement effectively, showing that self-monitoring and management in online context are essential to learning engagement.

4.3 *Resource management strategies have a significant and direct impact on learners' online engagement. Peer learning and time management strategies exert the greatest influence.*

Resource management strategies refer to strategies for learners to acquire and manage learning resources. Unlike traditional learning, in order to achieve the success of online learning online learners must actively obtain the required resources and try to make full use of them. Through the model analysis, the coefficients between time management, peer learning, effort regulation strategies and online engagement are 0.119, 0.170 and 0.122, and their T values are 2.486, 3.883 and 2.995 respectively, which reach the significance value ($P < 0.05$) and could directly promote online engagement. The coefficient between self-efficacy and the three strategies also reach a significant value, indicating self-efficacy mediate partially among their relations with online engagement. H3a, H3b and H3c have been supported, and H4 has also been partially supported. As shown in Table 3, help strategy has no significant impact on self-efficacy and online engagement, and the H3d is not supported. By analyzing the total effect of each strategy on online input, it is found that peer learning and time management strategies have the greatest impact on online engagement, metacognition and effort regulation strategies also play an important role (as shown in Table 4).

Table 5 Total effect coefficient and T value

Path Coefficient	PLS	Mean	S D	T-value
Rehearsal → Online engagement	0. 104	0. 104	0. 049	2. 106
Elaboration → Online engagement	0. 095	0. 095	0. 048	1. 992
Organization → Online engagement	0. 096	0. 096	0. 043	2. 204
Critical thinking → Online engagement	0. 088	0. 090	0. 037	2. 38
Metacognition → Online engagement	0. 163	0. 163	0. 049	3. 268
Time management → Online engagement	0. 183	0. 184	0. 048	3. 766
Effort regulation → Online engagement	0. 158	0. 155	0. 041	3. 798
Peer learning → Online engagement	0. 209	0. 207	0. 048	4. 333
Help → Online engagement	0. 063	0. 064	0. 041	1. 535

5. Discussion

5.1 *Resource management is essential to online learners; peer learning, online learning socialization, and online learning community are key to online success.*

learners acquire knowledge and information more and more online. Enhancing online engagement will inevitably promote the efficiency of online learning and improve the quality of online learning. Peer learning strategy, the most significant influential variable of online engagement, plays an important role in promoting online learning, while help strategy does not function as expected. Compared with traditional face-to-face learning, online learners often face "isolated" situation. It is difficult for learners to communicate with teachers or teaching assistants online or offline on specific issues in the MOOC context. Therefore, online learners shall adopt peer learning strategy to enhance social interaction, and more and more online learning comm unites shall be built, thus online learning and social interaction can be integrated and active online learning atmosphere could be boosted. Richardson et al (2012) argued that peer learning strategy is more important in online classes and more popular with learners than in traditional face-to-face classes. Online learning community is a social network of knowledge sharing and construction between learners and learners, learners and teachers. Online learners raise questions, share answers and discuss certain issues on the online platform, solving problems and socializing with others. Because of the large number of online learners and the diversity of sources, it is particularly important to build an online learning community. Online learners feel the pleasure of solving, analyzing problems in the learning community, so learners' self-confidence can be stimulated and online engagement will be greatly promoted.

5.2 *Task-oriented learning is advocated to enhance learners' goal-setting and time management, and to improve learners' metacognition*

Time management and metacognition strategies exert significant effects on learners' online engagement. Online learning often lacks clear goals and planning, as well as implementation. So the high dropout of MOOC is not surprising. Online learners are not prepared to finish the whole course at the beginning. Zheng Lanqin (2016) pointed out that guiding learners to establish correct learning goals and helping learners to specify appropriate learning plans can effectively improve learning efficiency through empirical research. Therefore, it is beneficial to put forward clear goals and tasks before starting online learning to promote task-oriented learning and enhance online engagement. Many online courses such as “Hao Daxue” MOOC have moved their online test offline. Task-oriented test, as one critical point of the course management, has ensured time involvement and management of online learners to some degree. Mao Chengzhan (2010) thought that time management is the key to self-regulated learning, and directly affects the learning behavior. Time management is an important way of self monitoring and management. Through reasonable time arrangement and appropriate goal setting, learners can easily cope with difficulties in online learning process, thus improve learning confidence and increase learning interest. To improve online engagement, online learners shall obey the basic rules of learning and do not choose the courses beyond their understanding. Process management, self-monitoring and retrospection is the key to promote online learning engagement.

5.3 *Changing the traditional way of learning and emphasizing the connection and organization of knowledge.*

Traditional cognitive strategies are not effective in the online context. The impact of rehearsal strategy on online

engagement is very weak and critical thinking almost exerts no influence while

organization strategy plays an increasingly important role. In the online context the way of knowledge acquisition has undergone major changes. The curriculum design of online courses,such as MOOC, is more concentrated and refined, which requires learners to analyze and solve problems, rather than simply reading and repeating. So online learners need to adopt flexible way of learning to grasp the essence of online courses to the greatest extent and to achieve the success of online learning. The elaboration strategy emphasizes the connection between old and new knowledge. Although it can not directly promote learning engagement, it can help learners to build up learning confidence, thus boosting them to change the traditional way of learning and adapt to the new connection and organization of knowledge in the online context.

5.4 *Attention shall be paid to learners' online learning experience and to enhance the confidence of online learners.*

Online courses are gradually improving in curriculum design, technology popularization or homework testing, but the learners' learning experience is just not given enough attention. When faced with difficulties, learners have to rely on individuals to overcome, learners' personal confidence is extremely vulnerable to damage. It is found that learners' self-efficacy plays a significant role in promoting learners' online engagement, and the mediating role of self-efficacy is also confirmed. Continuously improving learners' online experience, changing the way of knowledge acquisition is beneficial to enhance learners' learning confidence; learners' cognitive load can be reduced through appropriate goal planning and process management, ; learners' determination to overcome difficulties and complete learning tasks can be stimulated through the reorganization of knowledge., therefore online engagement can be enhanced.

The study draws some useful conclusions on how to choose appropriate learning strategies in online context, but there are some limitations in the study. The sample size is mainly selected from the same school, the number is small and the majors are relatively few. The learners' online engagement is rather limited because most courses they have chosen are optional. Future research should further expand the scope of research, actively explore the relationship between learning strategies and learning performance in online context, and the mediating role of learning engagement.

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