A Study on the Influencing Factors of Online Learners' Learning Motivation

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Abstract

This article analyzes the students who are receiving online education in College of Network and Continuing Education in Southwest University, and makes use of exploratory factors to analyze the factors affecting these online education students. The results show that these students' learning motivations are mainly affected by individual factors and external environment, including eleven factors such as hobby, achievement motivation, self-efficacy, self-control and concentration, work, time, teacher, peer, learning platform, learning activity, and learning resource, etc.

Key words: Learning motivation; Influencing factor; Exploratory factor analysis

INTRODUCTION

Learning motivation is an important intrinsic factor to stimulate students' learning behaviors, and is a demand to encourage and guide students' learning. The development of technology affects the reform of teaching and learning, under which circumstance teaching is moved from the traditional classroom to network, and the motivations of the students who study online are also different from the students who study in traditional classroom. The unique teaching characteristics of online education, such as no necessary to leave one's job and is able to study part-time, determine that the students should have a strong internal drive and self-monitoring capability. When changes the traditional training and practice-oriented way of learning, online education in the new media technology environment faces some plights such as how to effectively stimulate and maintain students' learning motivation, and that a strong learning motivation directly affects the effectiveness of online education (Zhang, 2013). Therefore, clarifying what factors will affect the learning motivation of online education students has a remarkable significance for enhancing the effectiveness of online education.

There are many studies on the influencing factors of online education learning motivation at home and abroad, but these studies are more one-sided and not comprehensive. Niu (2004) summarizes that influencing factors of online education learning motivation should include the learners' age, marriage, job and education, etc.. Doo (2004) believes that self-efficacy and interest, etc. affect learning motivation significantly. Dabbagh and Kitsantas (2004) believe that a higher self-control under network education environment is a strong guarantee for the completion of learning objectives. Zou and Hua (2011) find that the learning motivations of online education students are partially due to external inductions, including social pressure, work requirement, etc.. Vonderwells and Song (2003) hold that learning platform, tutor's participation, guidance and feedback, peer's communication, collaboration and competition are the important factors affecting learners' motivations. Chen et al. (1998) holds that control, cooperation and competition are also correlated with learning motivation level. College of Network and Continuing Education of Southwest University is mainly responsible to carry out adult education, online education and self-taught examination, covering southwest areas including Sichuan, Yunnan, Guizhou and Chongqing. Currently, its online education has trained over 200,000 students, and is

training over 60,000 students. Compared to southeastern coastal cities, southwest area has a relatively lower level of overall economy, uneven educational qualities and unevenly distributed educational resources. A study of online education in a specific area helps improve and enhance the online education in the area.

1. THEORETICAL CONCEPTION AND RESEARCH HYPOTHESIS

On the basis of the analysis of existing researches, combined with expert and student interviews, this article summarizes the influencing factors of online education students' learning motivations from three-dimensional perspectives of internal factors and external factors. Internal factors mainly refer to individual internal features, such as curiosity and self-control, etc. External factors refer to more factors, such as time, teacher and learning platform, etc. This study takes a combinative method of theory building and questionnaire to identify the influencing factors, but because there is no appropriate scale to carry out criterion analysis, this study is only an exploratory study.

The study assumes that the learning motivations of network education learners contain eleven external environmental factors and internal factors, including hobby, achievement motivation, time, self-control and concentration power, etc., as shown in Table 1.

Table 1
Conception Table of Influencing Factors of Online Learners' Motivation

First class indicators	Second class indicators
Internal factors	Hobby
	Achievement motivation
	Self-efficacy
	Self-control and concentration ability
External factors	Time
	Work
	Teacher
	Peer
	Learning activity
	Learning platform
	Learning resource

2. STUDY METHODS

2.1 Study Materials

According to relevant literatures, open questionnaires, expert advices and based on theoretical conception, the author creates *Influencing Factors of Online Education Students' Learning Motivation Questionnaire* which contains a total of 50 questions. Except for personal basic features, the scale uses Richter five grades scoring method to score from 1 to 5 points from the grade of very inconsistent with the grade of very consistent.

2.2 Study Process

2.2.1 Prediction

We randomly selected 100 online education students in Southwest University as the correspondents, sent the questionnaire to them by email, and took back 92 valid questionnaires.

2.2.2 Project Analysis

The questionnaire carries out analysis through a combination of methods, including CR value,α value after question has been deleted, commonality, factor loading and total correlation. After inappropriate questions have been deleted, a more formal questionnaire has been created. The questionnaire contains a total of 48 questions, including 4 lie detection questions.

2.3.3 Formal Implementation

The study randomly selected 600 online education students from College of Network and Continuing Education of Southwest University as the respondents, acquired a total of 578 questionnaires, and excluded 16 invalid questionnaires by lie detector, having an effective response rate of 93.6%. It uses SPSS 20.0 social science statistical software to carry out statistical analysis.

3. RESULT ANALYSIS

3.1 Exploratory Factor Analysis

3.1.1 Sample Appropriateness Analysis

The correlation between variables is a prerequisite for factor analysis. There are 11 variables in this study, and the relevant characteristics between the variables are to be tested by Bartlett sphericity test, whose value is 8,972.5, and the significance level is 0.000, indicating that there is a possibility to share factors between the variables. KMO test value is 0.951, which proves that the questionnaire is suitable for factor analysis, as shown in Table 2 below:

Table 2
Online Education Students' Learning Motivation Questionnaire KMO and Bartlett Sphericity Test Results

KMO value	Bartlett sphericity test value	Significance level
0.951	2.478E3464	0.000**

*Note. *$p<0.05$, **$p<0.01$;

3.1.2 Factor Extraction

The questionnaire conducts multiple exploratory factor analysis to 48 questions by principal component analysis, and determines the number of factors with reference to the following criteria: eigenvalue of factor must be higher than or equal to 1, factors must be in line with the Cartel "steep step" test principle, each factor must contain at least 3 or more items, factor loading must be higher than 0.3 and factors must be easier to name. Eventually 11 factors have been extracted, with a contribution rate of 71.22% as shown in Table 3.

Table 3
**Factor Analysis of Online Education Students'
Learning Motivation Questionnaire ($N = 7122$)**

Factor	Number of questions	Factor loading	Accumulative contribution rate
F1	3		4.165
F2	3		8.461
F3	3		3.286
F4	3		3.712
F5	2		5.261
F6	4		12.276
F7	5		7.463
F8	5		5.221
F9	5		4.723
F10	6		10.231
F11	5		6.423
Total	44		71.22%

Table 4
Online Education Students' Learning Motivation Questionnaire Reliability Test Table

Internal factor	Hobby	Achievement motivation	Self-efficacy	Self-control and concentration ability	Overall questionnaire
α coefficient	0.802	0.827	0.856	0.879	0.931
Split-half coefficient	0.743	0.761	0.876	0.739	0.927

External factor	Time	Work	Teacher	Peer	Learning activity	Learning platform	Learning resource	Overall questionnaire
α coefficient	0.896	0.851	0.874	0.806	0.836	0.846	0.821	0.937
Split-half coefficient	0.724	0.751	0.796	0.812	0.776	0.718	0.796	0.925

As can be seen from Table 4, the internal consistency coefficients (Cronbach's Alpha coefficient) of the influencing factors of the students' learning motivation are between 0.802-0.879, and the split-half coefficients (Guttman Split-Half coefficient) of the factors are between 0.743- 0.876. The internal consistency coefficient of the entire questionnaire is 0.931, split-half reliability is 0.927, indicating that the questionnaire has a good reliability.

3.3 Validity

3.3.1 Content Validity

Content validity is mainly verified through logical analysis, and the correspondence between scale questions and the content is determined by consulting experts. The original questions of the questionnaire were designed based mainly on existing literatures, surveys and interviews. 20 students were randomly selected to score from 1 to 5 points on the language accessibility of the questionnaire. Questions with 4 points or less were excluded to ensure a good content validity of the questionnaire.

3.3.2 Construct Validity

Construct validity refers to the extent to which a test actually measure a theoretical structure and characteristics, or the degree to which a test is able to explain the structure or characteristics of a psychological theory. Common method to analyze construct validity is factor analysis. By exploratory factor analysis we can get 11 factors affecting online education students' learning motivation, which is

As can be seen from Table 3, the results of factor analysis is consistent with the theoretical conception, indicating that the questionnaire has a good construct validity.

3.2 Reliability Test

This study uses internal consistency coefficient (Cronbach's Alpha coefficient) and split-half coefficient (Guttman Split-Half coefficient) to conduct reliability test, and the results are shown in Table 4.

basically consistent with the initial theoretical conception. The correlation coefficients between the factors and questionnaire total score are between 0.770-0.836 ($p < 0.01$), and the correlation coefficients between the factors are between 0.443-0.618 ($p < 0.01$), indicating that the factors constitute an organic whole link. Questionnaire total score has a higher correlation with the factors, and but inter-correlation of the factors is moderate, indicating that the factors have an independence with each other and each factor can properly reflect the contents to be measured by the questionnaire. Therefore, the questionnaire has a good construct validity.

4. PRIMARY ANALYSIS ON THE FACTORS AFFECTING NETWORK EDUCATION STUDENTS' LEARNING MOTIVATION

The analysis shows that there are 11 factors which affect network education students' learning motivation, namely interest, achievement motivation, self-efficacy, self-control and concentration, time, work, teacher, peer, learning activity, learning platform and learning resource.

F1 Interest: The interest in this study refers to a high intrinsic curiosity shown by learners to the knowledge or skill in a specific area, which has an obvious incentive to promote the learners to participate in online teaching and maintain a high level of learning motivation. The study

proves the presence of such an objective factor, namely when a learner has an interest in an online learning activity, it will be easier for him to keep the focus, mobilize personal cognitive energy and improve cognitive level (Lim, 2004).

F2 Achievement motivation: learners receiving online education have different targets, such as job requirement, interest, further study and so on. The study proves the presence of such an objective factor, and it (F2) has the highest contribution rate among all the internal factors. The higher the attractiveness of an online education is, the greater is the learners' achievement motivation. Since learners of online education are mostly adults, they have a relatively higher level of achievement motivation.

F3 Self-efficacy: In this study, self-efficacy refers to the faith and sense of self-worth of learners to complete learning tasks. The study proves the objective presence of self-efficacy. Dweck has proved that self-efficacy has both positive and negative impacts on learning motivation (Pajares, 1999). A learner with a higher self-efficacy tends to have more confidence and independence to complete his study, and also performs better in terms of concentration and persistence (Dweck, 1988).

F4 Self-control and concentration: The unique teaching form of network education is different from traditional classroom, its unconstrained and non-monitored state requires students to have a higher self-control and focus. The study proves that self-control and concentration objectively exist. Statistics show that about 75% of network learners participate in on-the-job learning, and about 63% of them are married. Such learners are more vulnerable to interferences in their learning process, leading to a deficiency of learning motivation. The enhancement of learner-centered self-control and concentration in the network environment has a significant role in maintaining a high learning motivation.

F5 Time: The discretionary time of learners to participate in e-learning is summarized as the factor of time. There are many factors affecting students' dropout and persistence (Kemp 2002). The higher learning motivation is, the higher the likelihood of learning success is. Time is an important factor to affect learning motivation (Morris, 2005). Study shows that the factor of time objectively exists, which corresponds to Morries' conclusion. Although students involved in online learning have a higher flexibility than traditional learning, they spend most time on working and living, and their discretionary time for learning are not sufficient, so reasonable arrangement for learning is also crucial for the successful completion of network learning.

F6 Work: The factor of work refers to the circumstance that learners participate in online education by reason of job hunting, job change or promotion. The study shows that the factor of work exists objectively, and has the highest contribution rate of 12.276 among all the external factors, indicating that work is the most important factor affecting learners' learning motivation. About 75% online learners are working people, and the majority of them learn on account of promotion or job change. Some students learn on account of job hunting.

F7 Teacher: The factor of the teacher refers to the circumstance that teachers of online education fully and effectively communicate and feedback with the learners. The study proves that the factor of teacher exists objectively. Teachers' involvement, guidance and feedback can solve problems for learners timely, enhance their sense of belonging, stimulate their learning motivation and help maintain a more lasting learning state.

F8 Peer: The learners who participate in online learning, cooperate, exchange and compete with each other are called as the factor of peer. The study proves the objective existence of the factor of peer, but its contribution rate is the lowest among all the external factors, indicating that peer has a certain influence on network learners' learning motivation. Peer has a more positive role in promoting co-learning and a sense of participation in community-based network education.

F9 Learning activity: The learning form, task difficulty and learning requirement of online education are summarized as the factor of learning activity. The study proves the objective existence of the factor of learning activity. Learners can take different forms of learning in accordance with their personal preferences, such as autonomous learning, discussion and group study, etc. Too difficult learning tasks and learning requirements can lead to learning failure.

F10 Learning platform: Easy operation, comprehensive function and supportive service of learning platform of network education are summarized as the factor of learning platform. The study proves that the factor of learning platform exists objectively, and has a contribution rate only second to the factor of work. The major reason is that in online education learners directly contact with learning platform, which is the channel to acquire knowledge and the carrier to disseminate knowledge. Easy operation, comprehensive function and clear orientation of a learning platform is beneficiary for the learners to maintain a good leaning motivation.

F11 Learning resource: Richness, readability and accessibility of the course materials, audio and video resources provided by educational institutions is summarized as the factor of learning resource. The study proves the objective existence of learning resource. Network learning takes place during learners' autonomous utilization of learning resources. Richness, readability of learning resources and convenience of retrieval affect the learning process and learning outcome. When a learning resource is suitable for learners to use it will be beneficial to stimulate their motivation, otherwise it will reduce their motivation.

CONCLUSION

(a) The *Influencing Factors of Online Education Students' Learning Motivation Questionnaire* established by this study has met the requirement of reliability and validity of standard scale, and can be applied as the tool for teachers or researchers in network educational institutions.

(b) The analysis of exploratory factors suggests the following results: The factors affecting online education students' learning motivations (based on College of Network and Continuing Education in Southwest University) are mainly composed of 11 factors, including interest, achievement motivation, self-efficacy, self-control and concentration, time, work, teacher, peer, learning activity, learning platform and learning resource. Wherein work and learning platform are the main factors, and achievement motivation is the most important factor.

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