

Research on the Influence of Invisible Knowledge Learning in Online Learning on Students’ Entrepreneurial Orientation

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Abstract—Knowledge management is the inevitable product of the information age, and knowledge transformation is the result of the interaction between network learners and learning resources. The four aspects of the SECI (Socialization, Externalization, Combination, Internalization) model can help students accelerate their learning of entrepreneurial tacit knowledge in e-learning to realize the construction of entrepreneurial knowledge with entrepreneurial orientation as the core. Based on the SECI model, this paper proposes four hypotheses on the effects of tacit knowledge learning on students’ entrepreneurial orientation in e-learning. It takes e-learning familiarity as the regulating variable and analyzes the regulating effect of tacit knowledge learning on students’ entrepreneurial orientation and whether their grade, discipline, and gender will lead to significant differences in entrepreneurial orientation. The results indicate that the questionnaire designed in this paper has generally effective α . The coefficient is 0.865 and the reliability level is good. The minimum value of the AVE (Average variance extraction) was 0.545 and the minimum value of CR (Combinatorial reliability) was 0.819, indicating that the overall validity and structural validity were high. The three aspects of sociality, dominance, and recessiveness cause the learning of tacit knowledge to have an obvious positive effect on students’ entrepreneurship. The results of this study have important reference value for promoting teachers’ entrepreneurial knowledge sharing and innovation and cultivating students’ entrepreneurial orientation.

Keywords—online learning, invisible knowledge, student, entrepreneurial orientation, regulating effect

1 Introduction

Under the background of the Internet plus, the popularity of online learning methods has accelerated in China, especially because of the pandemic. Many universities and online education enterprises have invested heavily in building virtual training rooms to realize online learning and teaching. Through the establishment of shared files and learning communities, teachers and students can teach and learn in real-time, which promotes interactive learning between teachers and students. At present, China

has started building an inclusive 5G communication network to enable all kinds of learning mobile terminals (such as mobile phones, tablets, computers, etc.) can link quickly to the Internet for online learning with sufficient traffic. Most knowledge involved in online learning is explicit and easy to detect, and thus, it has been widely studied. In addition to the explicit knowledge that people often learn, a considerable amount of invisible knowledge that people cannot learn still exist. Invisible knowledge is not easy to learn through formal knowledge expression, especially in the online environment. Invisible knowledge accounts for about 80% of the human learning process and the vast majority of knowledge composition. Implicit knowledge learning refers to the ability to deeply understand knowledge and learn by understanding the essence of knowledge and mastering the skills and acquiring experience. Entrepreneurial orientation is a typical invisible knowledge that requires students to deeply understand and transfer entrepreneurial skills after daily learning of simple explicit entrepreneurial knowledge. A considerable amount of such knowledge is hidden in the minds of entrepreneurs who teach students, and students' entrepreneurial orientation cannot be formed simply through explanation. Therefore, in the online environment, increasing the generation and transfer of students' entrepreneurial-oriented knowledge can comprehensively improve the level of students' entrepreneurial performance.

As China's entrepreneurship and innovation education has entered the deep implementation stage, the cultivation of students' entrepreneurial ability has become the key to entrepreneurship education. The formation of students' entrepreneurial orientation involves the quick transformation of the hidden knowledge of entrepreneurship into students' entrepreneurial skills. particularly in the process of online learning, entrepreneurship education is not simply listening to classes and completing homework but requires communication between teachers and students, and students' understanding of entrepreneurship orientation. This kind of entrepreneurial tacit knowledge requires constant self-awareness of students in the learning process, and their psychological adaptability, problem analysis ability, and value judgment ability affect their transformation effect of entrepreneurial tacit knowledge. Online learning can provide them with a more extensive and immediate learning platform that includes entrepreneurs with entrepreneurial experience to teach practical entrepreneurial knowledge to students, such as the examination and transformation of scientific research achievements, patent inventions, and market transformation, and promote the efficient transformation of massive invisible knowledge into students' abilities. Entrepreneurship is a practical activity. While comprehensively learning entrepreneurial knowledge, we should improve the entrepreneurial skill system, fully stimulate their entrepreneurial enthusiasm, and thoroughly improve their potential entrepreneurial ability and psychological quality.

2 Basic theories and assumptions

2.1 Basic theory

Nonaka proposed the SECI model with wide influence [1]. This model gives a comprehensive and scientific explanation of the process of knowledge creation and is approved by researchers and businesspeople all over the world. Based on considerable knowledge theory research, he studied the practices of enterprises in automobile, electronics, and other fields in developed countries such as Japan and the United States comprehensively, resulting in the SECI model having a profound theoretical foundation and scientific-practical significance for enterprises. The SECI model has become one of the necessary models for knowledge management and innovation practitioners. The four stages of knowledge creation and the corresponding four fields mentioned in the SECI model are summarized as follows. Nonaka believed that knowledge learning is a key factor that affects the sustainable development of enterprises and individuals. Explicit knowledge accounts for a small part of knowledge, while tacit knowledge accounts for the vast majority of human cognition. Explicit and tacit knowledge are mutual feedback and interaction. The process of humans learning knowledge is the process of absorbing explicit knowledge and transforming invisible knowledge into their skills. The SECI model specifies four stages of knowledge transformation: socialization, externalization, combination, and internalization. The four stages of the SECI model have been widely studied and the studies tend to accept and agree with the four stages of the SECI model. The four stages can better explain the process of knowledge transformation, and are also the key theoretical basis for the hypotheses in this paper.

Lumpkin and Dess defined entrepreneurial orientation and considered it to focus on how the strategic objectives of enterprises and the specific implementation of entrepreneurial actions [2], including the procedures and decisions of entrepreneurial behaviors could be carried out. Entrepreneurship requires entrepreneurs to have stronger psychological endurance, have the potential to master new technologies, actively identify market opportunities of new products, and be able to bear the risks brought by entrepreneurship. Compared with the entrepreneurial spirit, which focuses mainly on the research of entrepreneurial components, entrepreneurial orientation focuses on the entire process of entrepreneurship.

2.2 Hypothesis proposal

The SECI model is a knowledge creation and transformation model proposed by the Japanese Professor Ikujiro Nonaka. This model includes “clustering,” the main content of which is to realize the sharing of knowledge within the group. The second is “externalization,” the purpose of which is to transform tacit knowledge into explicit knowledge, which can be realized using expression tools that including metaphor, analogy, concepts, and models. The third is “integration,” that is, to realize the leaping integration of explicit knowledge. Through various common media tools, such as information technology, all kinds of clearly expressed information are rearranged,

screened, spliced, and analyzed in a specific manner to realize knowledge creation at the metaphysical level. The last mode is “internalization,” that is, through the last step, explicit knowledge is transformed into implicit knowledge of learners, knowledge is completely solidified in learners’ hearts, and the effectiveness of learners’ knowledge in guiding life and work is enhanced. A large number of studies have fully shown that explicit knowledge has the characteristics of concrete and image, which makes it easy to be integrated by organization members and teams and finally transform into learners’ invisible knowledge. How SECI model can promote students’ entrepreneurial orientation, stimulate their entrepreneurial enthusiasm, and transfer their knowledge needs to be explored Songkram found that the inquiry method and collaborative learning method achieved perfect mediation through knowledge sharing [3]. The SECI model is helpful for students to achieve innovation and creation at a statistically significant level. Hosseini defined the SECI knowledge creation model as the framework of virtual classroom management and adopted a qualitative research method [4]. It was found that the SECI model was helpful in improving the learning performance of the online MBA course of the Iran University of Technology. Kutay analyzed the knowledge management of different technical support in the SECI framework in the university software engineering course and how it supports learning and found that the SECI model is an incomplete representation of knowledge management in this case [5], which is helpful to the constructiveness of university learning. Allal-Chérif showed that serious games helped to improve the socialization [6], externalization, combination, and internalization of knowledge, and promoted benchmarking management of the whole company. Bandera believed that the SECI model is suitable for start-ups in American business incubators [7]. It provides insights into the process of entrepreneurial knowledge creation and can significantly improve the viability of start-ups. Hutasuhut reported that the SECI model helps multinational companies realize knowledge transfer and can help residents improve their entrepreneurial preparation skills [8]. Thang conducted a study on two agricultural companies in Vietnam and reported that the SECI model can enhance the creativity and innovation ability of employees and ultimately achieve profit goals [9]. Rachmawati analyzed how tacit knowledge realizes the mode of social transfer and proposed the inter-relationship of several stages of the SECI model of tacit knowledge transfer [10]. Brännback considered R&D cooperation to be an important form of new knowledge creation in the knowledge-intensive high-tech enterprise environment and that the SECI model played an important role in successfully creating knowledge [11]. Sudtho showed that the implementation of the SECI model is positive for improving teachers’ teaching ability [12]. Liu found that the SECI model brings broader prospects for knowledge management research in a virtual team environment [13], and encourages enterprises to internalize knowledge management to replace socialization. Lis believed that the SECI model can help realize the internalization of military knowledge [14]. Tzavidas analyzed how knowledge can be shared between universities and industries. Research has shown that the value-added process of transforming data into knowledge is realized by establishing a database with a mutual visit function [15]. Karuoya analyzed the knowledge transfer ability and organizational effectiveness of private universities in Kenya based on the SECI model and determined that strength-

ening knowledge socialization can promote the transfer of teacher knowledge to students [16]. From the existing research literature, it can be seen that entrepreneurial orientation is a highly conceptual concept combined with concrete operation, which is a complicated process for students to build entrepreneurial orientation. In online learning, students can take advantage of the abundant online learning resources, anytime, anywhere, and realize in-depth learning of entrepreneurship orientation. In the online learning process, the discussion teaching method and case analysis teaching method, which are the main methods to realize the tacit knowledge of entrepreneurship, can be used. By strengthening the communication between teachers and students, students and entrepreneurship education teachers can not only enliven the classroom atmosphere but also highlight the pertinence of examples. In this way, a dynamic and open teaching method is realized. Teachers do not directly give answers to the specific problems of the case. Students need to learn invisible knowledge through observing, feeling, analyzing, and judging information, and further expand the breadth and depth of thinking. Therefore, the online learning mode can provide a richer teaching environment, massive teaching resources, and real-time interactive communication for the discussion teaching method and case analysis teaching method, which is conducive to accelerating the learning and mastery of entrepreneurial tacit knowledge by students.

This paper puts forward the following assumptions:

H1: Conditional resource socialization causes the learning of tacit knowledge have an obvious positive effect on students' entrepreneurship.

H2: The tacit knowledge externalization makes the learning of tacit knowledge have an obvious positive effect on students' entrepreneurship.

H3: The combination of explicit resources makes the learning of tacit knowledge have an obvious positive effect on students' entrepreneurship.

H4: The internalization of high-quality resources makes the learning of tacit knowledge have an obvious positive effect on students' entrepreneurship.

Many universities have fully adopted the offline learning model because of the pandemic. Students have a huge amount of time to study online, especially because the entrepreneurship-oriented learning and cultivation of students require more tacit knowledge transformation functions to improve the effect. If a student is familiar with online learning methods, it will theoretically help him improve his entrepreneurial orientation more obviously through invisible knowledge learning. Therefore, this paper puts forward the following assumption:

H5: Familiarity with online learning skills plays a moderating role in invisible knowledge learning for students' entrepreneurship.

3 Research design

3.1 Research tool

This paper adopts the method of questionnaire survey analysis. First, the authors designed the questionnaire “Influence of Invisible Knowledge Learning on Students’

Entrepreneurial Orientation in Online Learning” as a measurement tool composed of 25 questions. The questionnaire consists of three parts: the first part is focuses on the basic information of the subjects, and includes four items, namely, gender, grade, subject, and online learning preference, to investigate the differences in grade, gender, subject, and familiarity of online learning skills of tacit knowledge in online learning. The second part is the question of explanatory variables, which are aimed at four aspects including knowledge grouping, knowledge externalization, knowledge fusion, and knowledge internalization, each of which consists of four questions, totaling 16 questions. The third part is the question of the explained variable, using the classic questionnaire in the 1996 paper by Lumpkin and Dess, including five questions.

3.2 Research objects

This study adopted the method of convenient random sampling and distributed “The Influence of Invisible Knowledge Learning on Students’ Entrepreneurial Orientation in Online Learning” designed by the author’s research group to students of a 985 university in Zhejiang Province. This questionnaire is generated by Questionnaire Star (www.wjx.cn) platform and distributed online through QQ, Weibo, WeChat, campus BBS, and other channels. A total of 214 questionnaires were distributed, and those that did not answer completely and seriously were deleted. Finally, 152 valid questionnaires were obtained, with an effective recovery rate of 71.03%. To control the measurement error and ensure the objectivity and scientificity of the test, the test was distributed anonymously and collected on the spot. SPSS22.0 software was used to conduct basic descriptive statistical analysis, reliability and validity analysis, regression analysis, equation analysis, and adjustment effect analysis on the collected data. The descriptive statistical results of the basic information of the respondents are shown in Table 1.

Table 1. Frequency analysis results

Name	Option	Frequency	Percentage (%)	Cumulative percentage (%)
Gender	Female	85	55.92	55.92
	Male	67	44.08	100
Grade	Grade 1	37	24.34	24.34
	Grade 2	69	45.39	69.74
	Grade 3	28	18.42	88.16
	Grade 4	18	11.84	100.00
Discipline	Education	17	11.18	11.18
	Law	24	15.79	26.97
	Economics	64	42.11	69.08
	Management	22	14.47	83.55
	Neo Confucianism	18	11.84	95.39
Familiarity	Engineering	7	4.61	100.00
	No	44	28.95	28.95
	Yes	108	71.05	100.00
Total		152	100.00	100.00

4 Result analysis

4.1 Reliability and validity analysis

Reliability analysis is used to study the reliability and accuracy of the quantitative data. The reliability of this questionnaire is measured by Cronbach's α coefficient. First, the alpha coefficient is analyzed and if this value is higher than 0.8, it means that the reliability is high. If this value is between 0.7 and 0.8, the reliability is good. If this value is between 0.6 and 0.7, the reliability is acceptable. If this value is less than 0.6, the reliability is poor. The reliability analysis results of the questionnaire designed in this paper are shown in Table 2.

Table 2. Cronbach reliability analysis

Variable name	Issue number	Total correlation of correction items (CITC)	Item deleted alpha coefficient	Cronbach α coefficient	Cronbach α coefficient
Socialization	S1	0.559	0.871	0.849	0.865
	S2	0.743	0.786		
	S3	0.723	0.793		
	S4	0.755	0.783		
Externalization	E1	0.614	0.744	0.797	
	E2	0.703	0.696		
	E3	0.758	0.67		
	E4	0.383	0.845		
Combination	C1	0.673	0.812	0.848	
	C2	0.661	0.817		
	C3	0.825	0.752		
	C4	0.619	0.846		
Internalization	I1	0.864	0.936	0.948	
	I2	0.885	0.928		
	I3	0.861	0.935		
	I4	0.892	0.927		
Entrepreneurial-Orientation	E-O1	0.751	0.924	0.929	
	E-O2	0.739	0.927		
	E-O3	0.855	0.904		
	E-O4	0.864	0.903		
	E-O5	0.860	0.903		

Table 2 shows that the CITC values of the analysis items are all greater than 0.4, indicating a good correlation between the analysis items. The minimum Cronbach α coefficient of the five variable questions is 0.797, and the overall Cronbach α coefficient is 0.865, indicating that the reliability level of this questionnaire is good.

Validity analysis includes aggregate validity and structural validity. AVE and CR are used to analyze the convergence validity. Generally, the aggregate validity is high when the AVE is greater than 0.5 and CR value is greater than 0.7.

Table 3 shows that the AVE values corresponding to the five factors are all greater than 0.5, and the CR values are all higher than 0.7, which means that the data have good convergence validity. Construct validity was used to evaluate the validity of this questionnaire. Through exploratory factor analysis, 21 items of questionnaires are obtained, which is consistent with the theoretical structure, indicating that the structural validity is ideal.

Table 3. Model AVE and CR indicator results

Variable name	AVE value extracted by mean variance	Combined reliability CR value
Socialization	0.591	0.852
Externalization	0.545	0.819
Combination	0.595	0.853
Internalization	0.820	0.948
Entrepreneurial-Orientation	0.722	0.928

Table 4 shows that the discrimination validity is analyzed for all variables. The square root value of AVE is greater than the maximum absolute value of the correlation coefficient between factors, which means it has good discrimination validity.

Table 4. Discrimination validity: Pearson correlation and square root value of AVE

	Socialization	Externalization	Combination	Internalization	Entrepreneurial-Orientation
Socialization	0.769	-	-	-	-
Externalization	0.06	0.738	-	-	-
Combination	0.237	0.077	0.771	-	-
Internalization	0.252	0.101	0.158	0.906	-
Entrepreneurial-Orientation	0.388	0.192	0.161	0.321	0.85

Remarks: The diagonal blue numbers are the square root value of AVE

4.2 Regression results

The linear regression method is used to verify the hypotheses H1–H4 one by one, and the regression results are shown in Table 5.

Table 5. Regression results

	Regression coefficients	95% CI	VIF
Constant	0.637 (1.003)	-0.608 ~ 1.881	-
Socialization	0.440** (4.102)	0.230 ~ 0.651	1.116
Externalization	0.184* (2.027)	0.006 ~ 0.363	1.015
Combination	0.048 (0.533)	-0.129 ~ 0.225	1.075
Internalization	0.191** (2.923)	0.063 ~ 0.318	1.087
Sample size	152		
R ²	0.228		
Adjustment R ²	0.207		
F value	F (4,147)=10.833,p=0.000		

D-W value: 1.409, * p<0.05 ** p<0.01 t value in parentheses

Table 5 shows the following:

Suppose H1 holds; that is, socialization makes invisible knowledge learning have an obvious positive influence on students’ entrepreneurship. Students’ learning process is always the process of sharing tacit knowledge among individuals. Various online learning platforms under online learning mode make socialization pass tacit knowledge by sharing their own experiences and is also an effective way to know others’ entrepreneurial experience and share entrepreneurial skills. In a sense, the tacit knowledge of entrepreneurship can be fully shared only when the self is an integral part of the greater self. By observing and practicing entrepreneurial skills, students can transfer such invisible knowledge among themselves and accelerate the cultivation of their entrepreneurial ability. Similarly, the socialization of mobile learning resources also needs the observation and imitation of social practice, such as learning community, inquiry group, apprenticeship, etc. The interaction between individuals contributes to the socialization of tacit knowledge.

Suppose H2 holds; that is, the externalization (internalization) makes invisible knowledge learning have an obvious positive influence on students’ entrepreneurship. Because the tacit knowledge of entrepreneurship is not very clear and expressible, it needs to be transformed into a form that others can easily understand. In the process of dialogue, individuals should transcend the internal and external boundaries, that is, they should listen to others and consider how to contribute to the interests of others. The best way to externalize tacit knowledge is to adopt apprenticeship. The master will share his own experience with his apprentice so that the way of thinking and the ability of operation can reach an agreement, and tacit knowledge can be obtained through close observation and imitation. Therefore, online learning can gather a large number of enterprise mentors with entrepreneurial practical experience to share their stories online so that the holders of entrepreneurial tacit knowledge can generate new ideas and arguments and provide new principles through the process of communication and cooperation with students to generate new knowledge. After friction and collision, various viewpoints and ideas complete the construction of knowledge through analysis and cooperation, and then bring their research results into the mobile learning resource database, to enrich learning resources.

Suppose H3 does not hold; that is, the combination will not make invisible knowledge learning have an obvious positive influence on students' entrepreneurship. The main potential reason for assuming that H3 does not hold water may be that in online learning mode, speech symbols are generated through various media, such as information technology. Although large number of online platforms can be found at present, more emphasis is placed on technology, and no obvious innovation in evaluating, screening, and combining explicit mobile learning resources, such as knowledge management tools for entrepreneurship through online platforms can be observed. With the emergence of mobile learning resource platforms, increased learning resources in life and outside school are placed on the network in large quantities. However, the lack of professional entrepreneurship and targeted development of these resources by entrepreneurs has resulted in these resources not being effectively transformed into resources in school, which reduces the learners' participation rate and lowers the learning performance level of mobile learning resources. This situation has inspired universities not to simply optimize the existing curriculum resources into mobile learning resources, but to strengthen the top-level design of schools, integrating learning resources from multiple sources, such as online communities, BBS, and learning websites, for mobile learning is a very effective way of resource combination.

Suppose H4 holds. That is, internalization makes invisible knowledge learning have an obvious positive influence on students' entrepreneurship. Internalization is the transformation of entrepreneurial explicit knowledge into entrepreneurial tacit knowledge, which becomes the intrinsic motivation of students' entrepreneurship and enhances their entrepreneurial self-efficacy. Explicit knowledge formed by combination should be internalized through practice, practice, and more practice. For learners to better understand and master the entrepreneurial knowledge they have learned, it is very important and effective to practice and reflect after learning entrepreneurship. Practice can consolidate what has been learned, review one's learning achievements, or construct what has been learned into theoretical accomplishment, and then express it reasonably. Assuming that the verification results of H1–H4 also focus on inspiring universities to realize the importance of these four steps in the process of designing online entrepreneurial learning resources, ensure the effective learning of entrepreneurial knowledge and ability transfer of students.

An analysis of the moderating effect of “whether you are familiar with online learning mode”.

Table 6 shows that the regulation can be divided into three models, and Model 1 includes an independent variable (SECI). Model 2 adds fame based on Model 1, and Model 3 adds interaction term (product term of independent variable and fame) based on Model 2. For Model 1, its purpose is to study the influence of the independent variable (tacit knowledge learning) on the dependent variable (entrepreneurial orientation) without considering the interference of family (family). Table 6 further shows that tacit knowledge learning is significant ($t=5.988$, $p=0.000<0.05$). It means that invisible knowledge learning will have a significant impact on entrepreneurial orientation. The adjustment effect can be viewed in two ways. The first is the significance of the change of F value from Model 2 to Model 3. The second is to check the significance of interaction items in Model 3, and this time, we will analyze the moderating

effect in a second way. From the above table, it can be seen that the interaction between tacit knowledge learning and familiarity with online learning skills is significant ($t=2.372$, $p=0.019<0.05$). It means that when tacit knowledge learning influences entrepreneurial orientation, the influence range is significantly different at different levels of familiarity with online learning skills as shown in Figure 1.

Table 6. Are you familiar with the moderating effect of online learning mode?

	Model 1	Model 2	Model 3
Constant	4.292** (50.041)	4.292** (49.885)	4.253** (49.291)
SECI	0.515** (5.988)	0.512** (5.856)	0.444** (4.901)
Familiarity	-	0.023 (0.259)	0.069 (0.785)
SECI-x*Familiarity	-	-	0.249* (2.372)
Sample size	152	152	152
R ²	0.193	0.193	0.223
Adjustment R ²	0.188	0.182	0.207
F value	F (1,150)=35.857,p=0.000	F (2,149)=17.851,p=0.000	F (3,148)=14.146,p=0.000
ΔR ²	0.193	0	0.03
ΔF value	F (1,150)=35.857,p=0.000	F (1,149)=0.067,p=0.796	F (1,148)=5.628,p=0.019

Dependent variable: average-y

* $p<0.05$ ** $p<0.01$ t value in parentheses

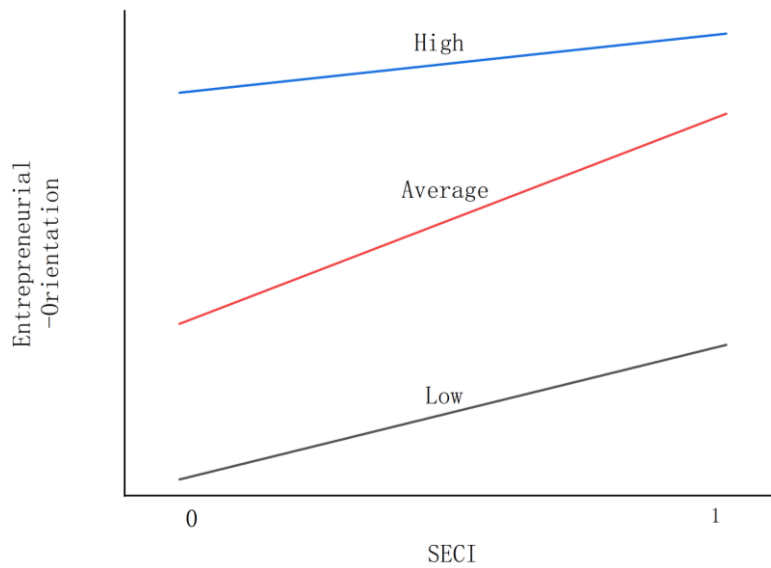


Fig. 1. Simple slope diagram

4.3 T-test and variance test

Table 7 shows that the variance analysis (one-way variance analysis) is used to study the differences between grades and genders in entrepreneurial orientation. Table 7 shows that all the samples of different grades are significant for entrepreneurial orientation ($p < 0.05$), which means the samples of different grades are different for entrepreneurial orientation. The concrete analysis shows grade has a significant level of 0.01 for entrepreneurial orientation ($F = 24.574$, $p = 0.000$), and the concrete comparison shows that the entrepreneurial orientation of the third-year students is higher than that of the first-year and second-year students mainly because the junior students are in the accumulation and the harvest period of knowledge learning during the four years of college, and they are rich in entrepreneurial knowledge. At this time, the entrepreneurial orientation of junior students is very obvious. Fourth, undergraduate students are faced with many challenges, such as job hunting, postgraduate entrance examination, and whether they would become civil servants. At this time, the entrepreneurial orientation is reduced, which also inspires universities to focus on entrepreneurial guidance for senior students. No obvious difference in entrepreneurship orientation among disciplines could be observed, indicating that the effect of entrepreneurship guidance courses in the whole university is relatively balanced, and no difference among disciplines can be found.

Table 7. Variance test results of grade and subject

Entrepreneurial-Orienta-tion	Grade(Mean ± standard deviation)						F	P
	1.0(n=37)	2.0(n=69)	3.0(n=28)	4.0(n=18)				
	4.58±0.79	4.39±0.99	4.81±1.09	2.50±1.00	24.574	0.000**		
Entrepreneurial-Orienta-tion	Discipline(Mean ± standard deviation)						F	P
	1.0 (n=17)	2.0 (n=24)	3.0 (n=64)	4.0 (n=22)	5.0 (n=18)	6.0 (n=7)		
	4.07±1.52	4.22±1.05	4.24±1.28	4.44±1.07	4.59±0.81	4.37±0.81	0.464	0.803

(Remarks* $p < 0.05$ ** $p < 0.01$)

Table 8 shows that the samples of different genders do not show significance for entrepreneurial orientation ($p > 0.05$), which means the samples of different genders show consistency for entrepreneurial orientation, and no difference can be observed. The entrepreneurial orientation of male students is slightly higher than that of female students. The main reason is that students, both male and female, have received rich entrepreneurial orientation education, which will not affect gender differences in entrepreneurial orientation.

Table 8. T test for gender

	Gender(Mean ± standard deviation)		t	p
	1.0(n=85)	2.0(n=67)		
Entrepreneurial-Orienta-tion	4.24±1.23	4.35±1.10	-0.56	0.576

* $p < 0.05$ ** $p < 0.01$

5 Conclusions

Online learning breaks the conventional way of learning. Instead of being fixed in the classroom or at home, online learning can get what you want to learn anytime and anywhere. The feature has been attracting increased learners to use various online terminal devices for learning. The online learning of the SECI model will be more helpful for learners to complete the entrepreneurial-oriented knowledge construction of students through the interaction with mobile learning resources in specific situations. Based on the SECI model, this paper puts forward four hypotheses on the influence of tacit knowledge learning on students' entrepreneurial orientation in online learning. Taking familiarity of online learning into account to analyze the moderating effect of tacit knowledge learning on students' entrepreneurial orientation, this paper analyzes whether significant differences among students' grades, disciplines, and gender can be found. The results show that the overall Cronbach's α coefficient of the questionnaire designed in this paper is 0.865, and the reliability level is good. The minimum value of AVE is 0.545 and the minimum value of CR is 0.819, indicating that the validity is high. Tacit knowledge learning has a significant positive effect on students' entrepreneurship through conditional socialization of resources, externalization of tacit knowledge, and internalization of high-quality resources. When tacit knowledge affects students' entrepreneurial orientation, a significant difference in the influence range when the familiarity of online learning is at different levels can be observed. The samples of different grades are all significant for entrepreneurial orientation. Discipline and gender do not show obvious differences in entrepreneurial orientation. Thus, in the future, we can continue to conduct in-depth research on the scale and structure of entrepreneurial orientation, the degree of transformation of tacit knowledge by different online learning modes, and the mechanism of tacit knowledge promoting students' entrepreneurial awareness and ability.

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