

# THE EFFECTS OF ONLINE PEER ASSESSMENT AND FAMILY ENTREPRENEURIAL EXPERIENCE ON STUDENTS' BUSINESS PLANNING PERFORMANCE

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#### **ABSTRACT**

*Problem Statement:* In recent years, many educators and researchers in the field of education have made efforts to leverage the advantages provided by online peer assessment, leading to its extensive application in a range of domains, particularly higher education. However, studies on the roles of the reviewer and author in online peer assessment are often limited to student perceptions and feelings, rather than empirical data and it remains unclear how these influence learning. It is essential to determine which role benefits students more, or whether both roles together contribute to learning. In addition, the business experience of the parents to have a significant influence on the entrepreneurial spirit of the children. Therefore, entrepreneurial experience of the family and learning modes should be considered together when exploring students' business planning writing performance.

*Purpose of Study:* This study explores whether the performance of students in business planning classes is influenced by the roles they play in the review process (reviewer, author or both) as well as by the entrepreneurial experience of their families

Methods: This study recruited 128 students from two fourth year elective classes in entrepreneur management at a university in northern Taiwan. The non-equivalent group quasi-experimental design was utilized to compare the quality of business plans written under three assessment modes. a 3x2 ANCOVA was used to investigate the interaction between the assessment mode and entrepreneurial experience of the family. The dependent variables indicated the quality of the business plans measured according to the seven business plan assessment criteria.

Findings and Results: Results showed the learning effectiveness of those in the reviewer group is far more successful than for those in the author group. Our results also showed that if the student's family had entrepreneurial experience, the learning gains of the peer group would be better than those of the other two groups.

Recommendations: Researchers who are interested in this issue might continue to explore the topic through the following: (1) investigate whether results differ in different educational settings or with different cultural backgrounds; (2) perform similar studies in different disciplines and compare their results with those of this study. (3) To overcome the practical difficulties in observing the continued entrepreneurial actions of students, researchers could encourage students to participate in entrepreneurial competitions within or outside of campus, to better observe entrepreneurial performance after the business planning course.

Keywords: online peer assessment, entrepreneurship, business plan, higher education, peer observation and feedback.

## INTRODUCTION

Peer assessment often enhances the quality of the learning process, trains critical thinking ability, and increases learner autonomy (Falchikov and Goldfinch, 2000; Pope, 2001). In recent years, many educators and researchers in the field of education have made efforts to leverage the advantages provided by online peer assessment, leading to its extensive application in a range of domains, particularly higher education (Van den Berg, Admiraal and Pilot, 2006; Wen and Tsai, 2008).

Peer assessment involves students' evaluating the work of their peers and providing feedback, including quantitative ratings or qualitative suggestions on how to improve performance (Orsmond, Merry and Callaghan, 2004). In the process of peer assessment, students play the roles of reviewer (assessor) and author (assessee). They learn to judge the quality of performance through observation and analysis and comparison of one work with others. The process of giving and receiving peer feedback may even compel students to revise and re-evaluate their own work.



In such an environment, additional feedback is provided, because the process of reviewing is not limited to the teacher. Furthermore, feedback from one's peers differs fundamentally from that of instructors, providing students with greater flexibility in evaluating the meaning and value of peer feedback and deciding whether to revise their work accordingly. Students have the opportunity to communicate with the reviewers, which enhances their awareness of the assessors' viewpoint and evaluation (Katstra, Tollefson and Gilbert, 1987). All of this combines to enhance the intention of writing and to motivate students to excel.

However, implementing peer assessment into the traditional teaching environment can be a complex and time consuming process, due to the difficulties involved in the collection and delivery of data (Davis, 2000). Furthermore, preserving anonymity to relieve social pressure is essential to maintain the reliability of the peer assessment process. Zhao (1998) found that maintaining anonymity between the reviewer and author encourages students to provide more suggestions and increases the usefulness and authenticity of their feedback.

Internet technology provides the opportunity for online peer assessment, which assists in overcoming many of the obstacles involved in traditional peer assessment, particularly those associated with anonymity. Sung et al. (2003), based on the observation of 34 undergraduate students, reported that online peer assessment has a positive influence on learning. Li and Steckelberg (2005) examined the impact of anonymous online peer assessment on the quality of WebQuest projects prepared by students in a teacher training program. The results revealed that students with experience in peer assessment outperformed those without.

Although the benefits of online peer assessment have been confirmed by studies such as those by Sung et al. (2003), there is a variety of factors that impact the effectiveness of online peer assessment. For example, Grasse and Person (1994) showed that learning achievement is positively related to the quality of the questions asked during online peer assessment. Controlling the quality of questioning to reflect on students' learning could further enhance the effectiveness of the peer review process (Davis, 2000). Identifying other possible factors that influence the learning outcomes of online peer assessment is a topic worthy of further investigation.

In this study, observational learning and self-regulated learning are adopted as a theoretical basis for the online peer assessment activities (Bandura, 1997; Lai & Law, 2006; Schunk, 2001). Peer observation and feedback are crucial to the online peer assessment process (Liu & Lee, 2013). Students assume the roles of both author and reviewer simultaneously. As a reviewer, they have to provide suggestions based on evaluation criteria, inspect and learn from others via observational learning, and then make adjustments to their own work. As an author, they receive peer feedback and then revise their work based on the feedback. Peer feedback can be seen as the scaffolding to support students to be able to complete their assignments. Since this feedback is formative in nature, it has the clear potential to foster the subsequent learning process. Through this process, students gradually develop into self-regulated learners. From a self-regulated learning perspective, it is critical to develop self-observation skills that can be used to compare the information gathered from observation to attain a performance goal. Sub-processes related to self-judgment are important. They are regarded as the steps in a learning monitoring process that helps learners to bring their behavior in line with their performance and goals (Schunk, 2001).

Studies on the roles of the reviewer and author in online peer assessment are often limited to student perceptions and feelings, rather than empirical data and it remains unclear how these influence learning. It is essential to determine which role benefits students more, or whether both roles together contribute to learning. Li, Liu and Steckelberg (2010) provided empirical data on how the roles of reviewer and author impact learning. The results indicate that when controlling for the quality of the initial projects, there is a significant relationship between the quality of the peer feedback students provided and the quality of their own projects. However, whether students played the roles of both reviewer and author in this instructional experiment and the interaction of these roles was not taken into account; therefore, estimates of effectiveness are biased. To overcome this shortcoming, we divided students into three groups: reviewers, authors, and peers. Finally, research into online peer assessment has tended to focus upon educational courses; therefore, in this study the focus is on the writing of business plans, which has seldom been explored in previous studies.

There are many cases of successful business ventures begun by university students, which have encouraged other students to engage in entrepreneurial activities. Klinger and Schündeln (2011) demonstrated that the development of a business plan is a key factor in entrepreneurial training. Since the 1970's, the development of business plans has been regarded as a core component of business training and entrepreneurial education (Hills, 1988; Finkle, Kuratko, & Goldsby, 2006). Honig (2004) described how many reputable American universities encourage students to participate in business plan contests and take pride in those who win. Russell, Atchison and Brooks (2008) noted that developing entrepreneurial skills is the top priority of governments seeking to



encourage business innovation. Business plan contests also enhance the confidence of participants and initiate the formation of networks for future business ventures.

It has also been shown that family experience starting a business has a strong influence on the entrepreneurial motivation of the offspring of such families. For example, Ooi, Selvarajah, and Meyer (2011) found that the occupation of the mother had a significant influence on the entrepreneurial attitudes of university students in Malaysia. Wang and Wong (2004) found that if the family of university students in Singapore had a background in management, the students would have greater aspiration to start a new business. Kirkwood (2007) conducted semi-structured interviews with 50 entrepreneurs. They found the business experience of the parents to have a significant influence on the entrepreneurial spirit of the children. It has been noted in other studies that the occupation of parents has a significant effect on the entrepreneurial intentions of the students (Ali, Topping and Tariq, 2011; Gurol and Atson, 2006; Zampetakis and Moustakis, 2006). This study explores whether the performance of students in business planning classes is influenced by the roles they play in the review process (reviewer, author or both) as well as by the entrepreneurial experience of their families, focusing on the following questions:

- 1. Is there a correlation between the assessment scores submitted by instructors and those submitted by students? How does this assessment process enhance the student's progress? Is there a difference in impact on learning performance for the various roles? Which role has the best learning effect?
- 2. Does the entrepreneurial experience of the family influence how students develop the writing of business plans?

## **METHODOLOGY**

#### **Participants**

This study recruited 128 (72 males and 56 females) students from two fourth year elective classes in entrepreneur management at a university in northern Taiwan. Sixty-five percent of the participants were business management majors, with the remainder majoring in a variety of other disciplines (e.g., Information Technology, Design, and Applied English). The students were divided into three groups: 64 were placed in the peer group and 64 were placed in the reviewer and author groups. Although the sample size was relatively small, the students covered a wide demographic including a variety academic backgrounds. All of the students wrote business plans. The descriptive statistics for the sample were as follows: the average age was 22.1 years, 61% of the participants were female, and 39% of the participants worked at least part-time during the semester.

# Online Peer Assessment Activities in the Course

This study was conducted from mid-term to the end of the semester (approximately two months). A modified two-round procedure was adopted in which the students were divided into three groups: reviewer group, author group, and peer group. Of the 128 students, 64 were placed in the peer group and 64 were placed in the reviewer and author groups. When students in the latter group logged into the Moodle system (the e-learning platform), they were randomly assigned to the reviewer and author groups. Business plans from the author group were randomly assigned to students in the reviewer group. Business plans in the peer group were assigned to other peers. The identity of authors and reviewers remained anonymous during the review process. Teachers managed students' accounts and tracked the peer assessment process.

Students were required to finish the first version of the business plan and upload it to Moodle within seven days of the beginning of the course. The business plans underwent three rounds of review and two rounds of modification. Each business plan had to be refined two times and submitted three times. In this period, students in the reviewer and peer groups had to review the plans and provide feedback based on the criteria of business planning. Students in the author and peer groups revised their business plans according to the peer feedback. Students in the reviewer group on the other hand, revised their business plans based on feedback from instructors (only quantitative scores). The first revised business plans (second version) were then uploaded to the Moodle platform. The second revision (third version) was completed in a similar manner. The reviewer group and peer group performed their final assessment and offered feedback during the last week.

Given the different roles of the three groups, their tasks and modes of assessment were different (see Table 1). The modes of assessment associated with the three groups are described below.

- Reviewer group: this group played the role of "provider". After reading the business plans from the author group, they gave a total score to each business plan based on seven assessment criteria and provided comments. Students in this group revised their business plans based on the scores given by the teacher.
- Author group: this group played the role of "recipient". They did not need to review or assess the business
  plans of others; they only revised their own work according to the comments from the reviewer group



and returned the revised versions for further consideration.

Peer group: this group played both roles: "provider" and "recipient". Students were paired up in this group, giving scores and comments on each other's business plans according to the seven assessment criteria.

Table 1: Three modes of student assessments

	Reviewer	Author	Peer	
Role of assessment	Provider	Recipient	Dual roles	
Revision basis	Feedback from the teacher	Feedback from the reviewer	Feedback from peers	
	(only scores)	group		

Assessment scores and feedback were given three times in this three-round review procedure. The data were analyzed and an attempt made to sum up which mode of assessment was more effective for learning. The three-round scores of instructors were adopted for the analysis of data. To prevent differences in the prior knowledge of students from affecting the experimental results and leading to inaccurate conclusions, the scores from the first round were utilized as prior knowledge (covariance) to eliminate the impact of this effect.

#### Criteria for Assessing Business Plans

To assess the pros and cons of the written business plans please refer to Vesper (1996) and Mason and Stark (2004), who used the concept of investors as the basis for assessment, as shown in Table 2.

In each round of assessment, every business plan was quantitatively rated in terms of seven dimensions: ability of operation, completeness, market orientation, realism, consistency, competitive advantage, and definitude. The scores ranged from 60 to 100 (with 60 and below = lowest score with proposal statement very incomplete; 100 = highest score with proposal statement very complete). Every business plan from the author and the peer groups was rated by peer reviewers in terms of these seven dimensions in each of the three rounds of the review procedure.

Similarly, the instructor evaluated the business plan of every group. This served as a standard score for each round of assessment. In addition to the quantitative evaluations of the seven dimensions, peers were asked to provide qualitative detailed comments or feedback for each business plan assigned for review. This enabled members of the author and peer groups to modify their plans by referring to the peer feedback.

As described above, the goal was to provide participants with clear evaluation criteria for the peer assessment process; therefore, before the actual implementation of peer assessment, the instructor explained the dimensions of the assessment in considerable detail. In addition, sample business plans and peer comments were used as examples and as an aid to clarify the criteria.

The instructor also devoted some class time to discussing and resolving problems related to the online peer assessment process. Providing well-defined criteria and support from the instructor promoted positive attitudes among participants toward the peer review.

Table 2: Business plan assessment index

Criteria	Definition of Indicator
Ability of operation	To show that the management team has the abilities and adequate experience required to operate a business, has a future operating strategy, and is fully prepared for the industry, markets, products and technologies,.
Completeness	Encompasses business management functions and provides the information and supporting references required to satisfy investors.
Market orientation	To understand that profit comes from the demands of the market. Without definitive analysis of market demand, business plans are overly vague.
Realism	All figures should be as objective and practical as possible, managers should not estimate according to subjective wishes.
Consistency	The basic assumptions or estimates on which the entire business plan is based should be logical and reasonable.
Competitive advantage and investment niche	Business plans should fully display the relevant data, most importantly, to show the specific competitive advantages of the plan, and clearly point out the niche for investors.
Definitude	To clearly point out the market opportunities and competitive threats for the company, with



concrete information as proof. At the same time, the plan should provide possible resolutions, rather than vague explanations.

#### Research Design and Data Analysis

The non-equivalent group quasi-experimental design was utilized to compare the quality of business plans written under three assessment modes. Dependent sample T-tests were used to investigate changes from the first round to the second round and from the second round to the third round. A one-way ANOVA was used to test differences in the learning effects of three different assessment modes. Finally, a 3x2 (assessment mode: reviewer group, author group, and peer group; entrepreneurial experience of the family: business experience vs. no business experience) ANCOVA was used to investigate the interaction between the assessment mode and entrepreneurial experience of the family. The dependent variables indicated the quality of the business plans measured according to the seven business plan assessment criteria.

# RESULTS AND DISCUSSION

## Analysis of Student Learning Performance Using the Three Assessment Modes

Students participating in this study were assigned to a reviewer group, author group, or peer group. To verify the relationship between the scores of teachers and students, we conducted correlation analysis of the three-round review scores provided by the teacher and students. The significant correlation coefficients of three-round review were 0.528, 0.715, and 0.939 respectively, showing a strong correlation between the scores marked by peers and the expert scores. Furthermore, the peer scores became increasingly consistent with the teacher's evaluation after additional peer review rounds, indicating a high degree of validity.

We also utilized ANOVA to analyze the learning effects of different assessment modes, the results of which indicated no significant difference (F=2.3870; p>0.05) in the overall change of learning performance from the first review scores to the second review scores, among the reviewer, author, and peer groups (see Table 3). One possible explanation was that the students were unfamiliar with the three assessment modes at the beginning, resulting in less effective feedback from their peers. However, there was a significant (F=4.1376; p<0.05) change in learning performance from the second review scores to third review scores (see Table 4).

Furthermore, according to Scheffe's post hoc analysis, students in the reviewer group improved more between the second review and the third review than those in the author group. This implies that peer observation prompted students to reflect more on their own work than with peer feedback. Therefore, the teacher could improve the process by guiding the reviewers, such as defining clear and detailed evaluation standards. This is consistent with a study by Keat, Selvarajah and Meyer (2011), who found that the reviewer group experienced greater gains in learning than the author group, when the quality of questioning was controlled for.

A business plan can be viewed as a blueprint for business development. The purpose of writing a business plan is to obtain financing and to communicate with professional investors and financial institutions. When investors consider a business plan acceptable, they begin to evaluate it as an investment. Reviewers can learn to reflect on their own mistakes in business plan writing by reviewing the work of their peers, and make suitable modifications. In this way, the reviewers can enhance the quality of their own business plans.

A business plan is particularly important for those who wish to start a business. Entrepreneurs need to contemplate and state the comprehensive function of their proposed business, and explore the inadequacies of the plan through the process of writing. A business plan is a form of self-examination as well as a resume to recommend the business to others. By observing and judging their peers' work, the reviewers have an opportunity to see past their blind spots. This may be the reason that the reviewer group made greater strides between the second review and the third review than the author group did.

A series of paired t-tests was used to analyze changes in the scores of participants across the three rounds of review. As seen in Table 5, the scores in the three assessment groups showed significant increases between the first review and the second review, and between the second review and the third review. These results suggest that the writing of business plans can be greatly improved, regardless of the assessment mode used.



Table 3: Analysis of changes in the scores between the first and second reviews, among the three assessment modes

modes						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	28.3438	2.0000	14.1719	2.3870	0.096	
Within Groups	742.1250	125.0000	5.9370			
Total	770.4688	127.0000				

Table 4: Analysis of changes in the scores between the second and third reviews, among the three assessment modes

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	Sum of Squares	df	Mean Square	${f F}$	Sig.	Post hoc
Between Groups	73.2656	2.0000	36.6328	4.1376	0.018*	Reviewer > Author
Within Groups	1106.7031	125.0000	8.8536			
Total	1179.9688	127.0000				

<sup>\*</sup>p . .05.

Table 5: Scores in the three-round reviews of the three assessment groups

Assessment mode	Round		Average	Standard deviation	t value
	1	Pre-test	72.875	3.150	-25.911***
Reviewer	1	Post-test	81.344	3.686	-23.911
group	2	Pre-test	81.344	3.686	-17.923***
	2	Post-test	89.219	1.979	-17.923
	1	Pre-test	77.375	5.912	-12.880***
A 1141h a m amanum	1	Post-test	84.531	4.032	-12.880****
Author group	2	Pre-test	84.531	4.032	-6.371***
	2	Post-test	88.313	3.197	-0.3/1****
	1	Pre-test	77.766	4.147	27 057***
D	1	Post-test	85.734	4.029	-27.857***
Peer group	2	Pre-test	85.734	4.029	11.250***
	2	Post-test	89.922	3.538	-11.259***

<sup>\*\*\*</sup> *p* < .001.

# Relationship between the Entrepreneurial Experience of Families and Assessment Mode

The first review scores were used as a covariant in the analysis of covariance (ANCOVA) to analyze the influence of entrepreneurial experience in the family and assessment mode on the performance of business planning. The ANCOVA results (see Table 6) indicate a significant interaction between the entrepreneurial experience of the family and assessment mode with regard to business plan writing (F = 3.659, P = 0.029). The results shown in Tables 7 and 8 reveal that among participants whose family had entrepreneurial experience, those in the peer group demonstrated greater learning gains than those in the author group, and those in the author group outperformed those in the reviewer group (F=29.004; p<0.01). One possible explanation is that the families' entrepreneurial experience enabled the peer group to extract more useful information from both peer observation and peer feedback. This implies that instructional design should consider the families' entrepreneurial experience when conducting the activities of online peer assessment.

Moreover, students with entrepreneurial experience in the author group outperformed the reviewer group. This implies that families' entrepreneurial experience is more beneficial for peer feedback than for peer observation. In other words, families' entrepreneurial experience enables students get more helpful information from feedback than from observation. One possible explanation is that the teacher only provided the reviewer group with quantitative scores (no qualitative comments) with which to revise their business plans. In other words, although students in the reviewer group were able to review the business plans of their peers, they were unable to receive any suggestions with which to modify their own work from the evaluation of teachers. Thus, even if the students were inspired by entrepreneurial experience, they still could not apply the experience to improve their work when lacking specific suggestions for enhancing their business plans. This may have had a detrimental effect on the learning performance of those in the reviewer group. Although students in the author group were



unable to review the business plans of others, they were still able to modify the inadequacies of their business plans based on the reviewer feedback. Likewise, students in the author group likely applied what they saw and heard from their families to their business planning. This enabled them to analyze and compare the comments of their peers with those of their family. As a result, students in the author group demonstrated better learning gains than those in the reviewer group. Therefore, the teacher should consider the peer feedback approach as compared to peer observation for students with families with entrepreneurial experience.

Among students whose families had no entrepreneurial experience, no significant difference in learning performance was observed among the three groups. This implies that students in all three of the groups were insensitive to information related to the creation of a business when denied the benefit of entrepreneurial experience from their families. In other words, students could not extract useful information to improve their work based on peer observation, peer feedback or both. Therefore, from the perspective of instruction, hiring teachers with entrepreneurial experience might have a positive impact on learning. This issue could be investigated and discussed in greater detail in the future.

In both the author group and the peer group, students with entrepreneurial experience demonstrated better learning performance than those without such experience. As for the reviewer group, entrepreneurial experience from the family had no significant impact on business plan writing. This means that entrepreneurial experience in the family did not help the reviewer group integrate more useful information to improve their learning performance based upon peer observation. One possible explanation may be that in the role of the reviewer, which includes checking peers' work and providing suggestions about their work, is based on clear and concrete evaluation standards. In this case, students would just do their work by following the rules without the opportunity to reflect on their own job. Hence, entrepreneurial experience in the family had less influence on student performance in the peer group.

Table 6: Summary of 2x2 factorial design for the performance of business plan writing

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Source	Type III Sum of Squares	df	Mean Square	F	Sig.		
Family entrepreneurial experience	122.508	1	122.508	19.785	.000***		
Assessment mode	132.605	2	66.302	10.708	.000***		
Entrepreneurial experience of the family *assessment mode	45.314	2	22.657	3.659	.029*		
Error	749.224	121	6.192				
Total	1069029.000	128					
Corrected Total	1585.867	127					

<sup>\*</sup>p < .05.; \*\*\*p < .001.

Table 7: Simple main effects of the entrepreneurial experience of the family on the performance of business plan

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Source	Sum of Squares	df	Mean Square	F value	Significant	Comparison
Entrepreneurial experience of the family	-		•	•		•
With entrepreneurial experience	236.112	2	118.56	29.004	0.000***	peer > author > reviewer
Without entrepreneurial experience	52.149	2	26.075	2.606	0.081	

<sup>\*\*\*</sup> *p* < .001.

Table 8: Simple main effects of assessment mode on the performance of business plan writing

Source	T value	Significant	Comparison
Assessment method			
Reviewer group	-1.380	0.178	
Author group	-2.930	0.006**	experience > no experience
Peer group	-5.576	0.000***	experience > no experience

<sup>\*\*</sup> p < .01; \*\*\* p < .001.



## CONCLUSIONS

## **Key Findings and Theoretical Contributions**

Governments and universities in Taiwan have established a large number entrepreneurship courses designed to encourage students to start their own businesses, and business planning makes up the core of these courses. Without a well thought out business plan, it is difficult to attract investors; therefore, ensuring the content and quality of business plans is a crucial issue in business management. Courses that teach business plan writing could be beneficial to those who want to start their own business. Unlike the vague aspirations of vision planning, the basic elements involved in writing a business plan include an integrated framework and concrete action.

Peer assessment has seldom been applied in courses on business planning, perhaps because this could increase the workload of instructors and make grading more difficult. Nonetheless, integrating an online learning platform with the functions of peer assessment clearly prescribed could overcome these shortcomings.

This study differs from previous studies in that we simultaneously observed the learning performance of a peer group, reviewer group, and author group. We then analyzed how the entrepreneurial experience of families influenced learning effectiveness in the three groups. Results showed that all three of the assessment modes help to increase the learning performance of students, particularly those in the reviewer group. Overall, the learning effectiveness of those in the reviewer group is far more successful than for those in the author group. Finally, our results also showed that if the student's family had entrepreneurial experience, the learning gains of the peer group would be better than those of the other two groups.

Our research findings make a concrete contribution to the promotion of peer assessment in entrepreneurship courses in higher education. This study suggests an alternative course design for instructors using a teacher-centered approach to teach courses in business planning. Instructors could arrange assessment modes with students from different backgrounds, such as those with entrepreneurial experience, to increase the effectiveness of instruction. Finally, we find that for students whose families have entrepreneurial experience, those in the author group had better learning performance than those in the reviewer group. This contradicts the findings of previous studies in which the reviewer group outperformed the author group (Li, Liu, & Steckelberg, 2010). This may also have been caused by other variables except for the lack of qualitative feedback, which is an issue worthy of further exploration in a future study.

# Limitations and Suggestions for Future Research

This investigation has some limitations. First, the generalizability of the findings may be limited to samples of a similar nature and are not necessarily applicable to learner groups within different educational settings or cultural backgrounds.

Second, the characteristics of a "business planning" course are very different from those of other learning domains, such as mathematics or information science. Thus, the conclusions of our study cannot be generalized to other disciplines.

Third, students who participated in this course assembled business plans and showed a willingness to start up new businesses; however, the instructors only observed learning performance through pre- and post-test scores, due to limitations associated with observational time. Thus, the researchers were unable to observe how the students fared in the implementation of their business plans.

Based on the above limitations, researchers who are interested in this issue might continue to explore the topic through the following: (1) investigate whether results differ in different educational settings or with different cultural backgrounds; (2) perform similar studies in different disciplines and compare their results with those of this study. (3) To overcome the practical difficulties in observing the continued entrepreneurial actions of students, researchers could encourage students to participate in entrepreneurial competitions within or outside of campus, to better observe entrepreneurial performance after the business planning course.

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