

**TEACHING METHODS AND THE PERSONAL ENTREPRENEURIAL COMPETENCIES  
(PECS) OF THE BS IN ENTREPRENEURSHIP STUDENTS BATCH 2016  
OF THE MARIANO MARCOS STATE UNIVERSITY, CITY OF BATAAC,  
ILOCOS NORTE, PHILIPPINES**

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**Abstract**

The Bachelor of Science in Entrepreneurship Program identified five significant competencies that its graduates must possess: entrepreneurial orientation and motivation; identification of business opportunities; preparation of business plans; completion of requirements to start a business; and efficient and effective operation and management of a business. The researchers believe that entrepreneurship teachers play a vital role in developing these competencies through proper teaching methods, hence this research.

Ten personal entrepreneurial competencies adopted from the Management Systems International and McBer Team questionnaire and were aligned with the Minimum Curricular Requirements for Bachelor of Science in Entrepreneurship (CMO No. 17, s 2005) set by the Commission on Higher Education were used. Ex-ante analysis indicated that students had moderately high scores in all the ten competencies, while ex-post analysis in their senior year revealed high scores in goal setting but moderately high scores in the other competencies. The t-test, however, showed a very significant difference in commitment to work contract, demand for quality and efficiency, goal setting, information seeking, persuasion and networking, and self-confidence, while a significant difference was noted in opportunity seeking and persistence. A significant relationship was also noted between presentations and persistence and commitment to work contract; immersion environments and self-confidence; portfolio and self-confidence and risk-taking; role-playing and persistence; and demonstration and self-confidence.

Student presentations, collaborative learning, immersion environments, and management games are considered very effective teaching methods. The results of the study benefit faculty members teaching entrepreneurship so that they can select the most appropriate teaching methods related to the student's personal entrepreneurial competencies.

**Keywords:** CMO No. 17, s. 2005, entrepreneurship education, Personal Entrepreneurial Competencies, teaching methods

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## Introduction

Entrepreneurship education is important in developing students' intentions to start their businesses (Karimi et al., 2016; Tantawy et al., 2021, as cited in Liu et al., 2022). Entrepreneurship education is a systematic, conscious, and goal-oriented process by which non-entrepreneur individuals with the necessary potential are creatively trained. Entrepreneurship education is an activity that aims to increase, improve, and develop non-entrepreneurs attitudes, skills, and abilities by transferring knowledge and information required for entrepreneurship. Moreover, it shapes students' beliefs and values to foster an entrepreneurial culture (Khanijazni, 2009). The primary outcomes of entrepreneurship education include increasing students' awareness, knowledge, and understanding of entrepreneurship concepts and practices, developing entrepreneurial skills and competencies, developing empathy, motivating and inspiring students toward an entrepreneurial career, and preparing them to start a business (Hannon et al., 2006 as cited in Arasti et al., 2012). According to Matlay (2006), entrepreneurship education is widely accepted. Policymakers hope that this will increase the quantity and quality of entrepreneurial activity.

Moreover, Sardeshmukh and Smith-Nelson (2011) stated that there is a need to provide the type of education required to develop an opportunity-oriented entrepreneurial mindset among tertiary students. Arasti et al. (2012) emphasize the importance of teachers' roles and skills in effective entrepreneurship education. To do this, teachers must be aware of and employ various teaching methods to support business development. According to Mwasalwiba (2010), as cited in Fatoki (2014), academicians face a challenge in selecting teaching methods that align with their course

objectives, environments, and even the types of students in the program. Olokundun et al. (2018) believe experiential teaching methods must be adopted to develop entrepreneurial capabilities. In support of these, Pech et al. (2021) stressed that entrepreneurship instructors must employ various teaching methods and integrate theory and practice, and active learning techniques should be used more frequently.

The study of Reyes and Manipol (2015) identified the various teaching methodologies of ENTRP 1 (Unleashing the Entrepreneurial Spirit), an introductory course in entrepreneurship used by the Department of Agribusiness Management and Entrepreneurship (DAME) of the University of the Philippines Los Baños (UPLB). The teaching methodologies were business pitch competitions, lectures, Personal Entrepreneurial Competency Assessment (PEC), exercises, videos, interviews with entrepreneurs, and readings with reaction papers. Based on the findings, all of the teaching methods currently used in ENTRP 1 have a positive effect on raising students' awareness of entrepreneurship. The business pitch competition and lectures received the highest ratings, while reading with a reaction paper and conducting an entrepreneur interview received the lowest ratings, though still within acceptable ranges. Moreover, the study also proposed teaching methodologies for students' entrepreneurial awareness. It includes the following: invitations of entrepreneurs to give talks, company visits, test marketing, and case analysis. Inviting actual entrepreneurs to share experiences got the highest positive response, followed by company visits.

Arasti et al. (2012) interviewed six experts and asked them about the teaching methods appropriate for entrepreneurship education. Results showed that all

interviewees confirmed group discussions, group projects, and simulations to be appropriate. The interviewed experts also added problem-solving, training in an enterprise, and scientific visits. In the same study, ten professors teaching business planning and fundamentals of entrepreneurship were interviewed to elicit information on the best teaching methods most appropriate for the subject. The results showed that group projects, case studies, individual projects, developing a new venture creation project, and problem-solving are the top five most appropriate teaching methods for business planning.

From the undergraduate students' perspective, Samsudin et al. (2019) investigated suitable teaching methods in entrepreneurship education. They found that the students preferred industry visits, interactive lectures, and ideation and innovation activities.

The BS Entrepreneurship Program of the Mariano Marcos State University—College of Business, Economics, and Accountancy aims to produce graduates who will put up and manage their businesses. Commission on Higher Education Memorandum Order No. 17, s. 2005 (CMO No. 17, s. 2005) prescribed the minimum curricular requirements for a Bachelor of Science in Entrepreneurship and identified five significant competencies that a BS Entrepreneurship graduate must possess: have the orientation and motivation of an entrepreneur; identify business opportunities; prepare business plans; accomplish requirements to start a business and operate and manage a business efficiently and effectively. The end goal, however, is for a graduate to operate and manage a business efficiently and effectively.

However, the program must find a way to produce entrepreneurs because the

graduates prefer to be employed. Moreover, for the BS in Entrepreneurship graduates from School Year 2014 to 2016, out of 114 graduates, only four (3.50%) established their own businesses, and the rest were either employed or unemployed (Barot, 2017). A similar study found that the BS Entrepreneurship graduates of the College are hesitant to establish their businesses because of their lack of experience and unforeseen business challenges and expenses. These problems surfaced because of the students' low risk-taking abilities and self-confidence.

Risk-taking and self-confidence are two of successful entrepreneurs' ten personal entrepreneurial competencies. If a person is not prepared to take risks, that person has no business being an entrepreneur. Entrepreneurship is linked to risk-taking (Alton, 2016). Moreover, self-confidence is the foundation of a resilient mindset, which is essential for entrepreneurs. Without confidence, an entrepreneur will not succeed (Kaur, 2022). This means that self-confidence could be a driving force to help students start their ventures. These competencies are believed to be cultivated and developed; therefore, the intensive preparation of the students contributes to a strong drive to do business. The researchers believe that entrepreneurship teachers play a vital role in developing these competencies through proper teaching methods.

This study focused on the personal entrepreneurial competencies of the BS in Entrepreneurship Students Batch 2016 and the teaching methods adapted by entrepreneurship teachers. Specifically, the study aimed to 1) identify the level of PECs of the students in 2012 and 2016; 2) determine the significant difference between the students' PECs in 2012 and 2016; 3) determine the perceived level of effectiveness

of the teaching methods adapted by the entrepreneurship faculty, and 4) determine the relationship between the teaching methods adapted and the students' PECs.

**Methodology**

The population comprises BS Entrepreneurship students admitted in the AY 2012-2013 first semester. Only those who graduated in 2016 were taken from this group in the sample. This is to have a homogenous group that allows comparison of their PECs when they were admitted (ex-ante) and when they graduated (ex-post) from the program. Forty students were included during the academic year 2012-2013. However, eight did not continue with the program and transferred, while the others stopped. The remaining thirty-two students were the respondents of this study. Transferees and shiftees who graduated in 2016 were not included in the survey since they could not participate in the ex-ante survey in 2012.

This study used the descriptive-correlational design to describe the variables and how they relate to one another. The survey method was used to elicit the students' PEC profile and the perceived

effectiveness of the teaching methods employed by the core faculty members in the BS Entrepreneurship program.

The PEC of the students when they were in their first year was compared with their PEC in their fourth year. The PEC survey questionnaire, adapted from the questionnaire developed by MSI and the McBer Team, was used to elicit information on the PEC profile of the students. To ensure that the competencies identified in CMO No. 17, s. 2005 are covered in the adapted questionnaire, the researchers made use of these, which was also used by Barot (2017) in her study.

In determining the level of Personal Entrepreneurial Competencies of the students, the following norms were used:

<u>Scores</u>	<u>Descriptive Interpretation</u>
20.01 – 25.00	High Competency
15.01 – 20.00	Moderate High Competency
10.01 – 15.00	Average Competency
5.01 – 10.00	Moderate Low Competence
0.00 – 5.00	Low Competency

Required competencies of BS Entrepreneurship graduates based on Article IV Sec. 7 of CMO No. 17 s. 2005	The corresponding competencies based on Management Systems International and McBer Team, which will most likely attain the competencies in the CMO
Have an orientation and motivation of an entrepreneur Identify business opportunities  Prepare business plans  Accomplish the requirements to start a business Operate and manage a business efficiently and effectively	Persistence and self-confidence  Opportunity-seeking, risk-taking, persuasion and networking, and information-seeking Systematic planning and monitoring and goal setting Commitment to work contract and demand for quality and efficiency All the personal entrepreneurial competencies fall under this competency standard as all characteristics are required to attain enterprise goals and objectives

To determine the level of effectiveness of the teaching strategies and methods adapted by the BS Entrep core faculty, the students were instructed to rate the level of effectiveness of the different activities per subject based on the following scale: 4 – very effective; 3 – effective; 2 – moderately effective; 1 – not effective. The researchers then grouped similar activities into different methods, such as student presentations, collaborative learning, immersion environments, management games, portfolios, role-playing, brainstorming, and demonstration. The students validated the results through interviews.

Frequencies, means, and weighted average mean were used to determine the PECs profile of the respondents and the

effectiveness of the teaching strategies adopted by the BS Entrep core faculty in teaching major subjects. The t-test was adopted to determine the degree of difference between the ex-post and ex-ante variables. Pearson product-moment correlation was used to determine the relationship between the effectiveness of the teaching methods and the PECs of the students.

**Results and Discussion**

**Level of Personal Entrepreneurial Competencies of the BS Entrepreneurship Students Batch 2016**

The table shows that the students have moderate-high scores in all the competencies during their first year. This means that as

Table 1. Level of Personal Entrepreneurial Competencies of the BS Entrepreneurship Students batch 2016 during the AY 2012-2013 and AY 2015-2016

Competencies	Ex-Ante (AY 2012-2013)		Ex-Post (AY 2015-2016)	
	Average Score	Descriptive Interpretation	Average Score	Descriptive Interpretation
Opportunity Seeking	17.63	Moderate High Competency	18.78	Moderate High Competency
Persistence	17.66	Moderate High Competency	19.09	Moderate High Competency
Commitment to the Work Contract	17.00	Moderate High Competency	18.31	Moderate High Competency
Demand for Quality and Efficiency	16.13	Moderate High Competency	19.34	Moderate High Competency
Risk Taking	16.31	Moderate High Competency	17.19	Moderate High Competency
Goal Setting	15.94	Moderate High Competency	20.28	High Competency
Information Seeking	16.91	Moderate High Competency	19.25	Moderate High Competency
Systematic Planning and Monitoring	17.31	Moderate High Competency	18.19	Moderate High Competency
Persuasion and Networking	15.41	Moderate High Competency	17.56	Moderate High Competency
Self-confidence	16.47	Moderate High Competency	18.25	Moderate High Competency
OVERALL MEAN	16.68	Moderate High Competency	18.62	Moderate High Competency

early as the first year, the students already possessed these ten competencies, which may have triggered them to enroll in the BS Entrepreneurship program. However, it is worth noting that the average scores in all the PECs increased in their fourth year. It is also evident that during their fourth year, the students had moderate-high scores in almost all the competencies except for goal setting, where the students got high scores.

Entrepreneurship students admitted in 2012 demonstrated improved personal entrepreneurial competencies in 2016, as indicated by the increase in their average scores and the significant differences. The researchers believe that one of the factors that affected the increase in the students' PECs is the teaching methods adopted by the faculty members in the program. Pasha (2022) conforms with the findings of other authors on the importance of educational factors for developing entrepreneurial competencies and entrepreneurial intentions. Moreover, Neck and Greene (2011) stressed the importance of applying different pedagogical methods in teaching entrepreneurship to assist students in developing their entrepreneurial skills. However, Hyuk and Park (2019), as cited in Pasha (2022), stated that besides educational factors, personal factors have the greatest impact on the development of entrepreneurial competencies.

In 2012, the students got moderately high scores in all ten competencies, while in 2016, they got high scores in goal setting but moderately high scores in the other competencies. This finding supports the findings in Paladan's (2015) study that senior students have moderate personal entrepreneurial competency as they have already gained more knowledge and experience about establishing a business venture. A very significant difference in the

following competencies was observed: commitment to the work contract, demand for quality and efficiency, goal setting, information seeking, persuasion and networking, and self-confidence. A significant difference was noted in opportunity seeking and persistence, but no significant difference in risk-taking and systematic planning and monitoring. At some point, this result corroborates the study of Bautista, Barlis, and Nazario (2007), where they found that their student-respondents are weakest and thus need the greatest improvement in opportunity-seeking, risk-taking, and self-confidence. However, this contradicts the findings of Paladan (2015), where the students obtained high scores in risk-taking.

Based on observations, students become more serious in life and their studies during their senior year. In context, the students' concerns were directed toward obtaining a diploma and the possibilities like getting a job, better pay, high quality of life, and prestige, among others (Leal et al., 2013). Therefore, goal setting is a major activity that a senior student – one who hopes to graduate on time – must undertake. This could be the reason why the students got a high score in this competency.

#### **Difference between the Personal Entrepreneurial Competencies of the BS Entrepreneurship Students batch 2016 taken in AY 2012-2013 and AY 2015 -2016**

In Table 1, it was noted that the student's scores in their Personal Entrepreneurial Competencies (PECs) improved, especially along goal setting with a descriptive interpretation of high competency. Table 2 shows how significant these changes are in their PECs.

There is a very significant difference between the ex-ante and ex-post PECs of the students, along with commitment to the work contract, demand for quality and efficiency,

Table 2. Difference between the Personal Entrepreneurial Competencies of the BS Entrepreneurship Students batch 2016 taken in AY 2012-2013 and AY 2015-2016

Competencies	t-value	p-value
Opportunity Seeking	-2.2404*	0.0324
Persistence	-2.6145*	0.0137
Commitment to the Work Contract	-3.4110**	0.0018
Demand for Quality and Efficiency	-7.2511**	0.0000
Risk Taking	-1.6664	0.1057
Goal Setting	-8.6317**	0.0000
Information Seeking	-3.5548**	0.0012
Systematic Planning and Monitoring	-1.4658	0.1528
Persuasion and Networking	-2.8243**	0.0082
Self-confidence	-2.7483**	0.0100

\*significant at .05

\*\*significant at .01

t-crit=2.0395

goal setting, information seeking, persuasion and networking, and self-confidence. A significant difference is noted with opportunity seeking and persistence, while there is no significant difference between their PECs in their first and fourth year with risk-taking and systematic planning and monitoring.

Table 2 shows a very significant difference in the competencies: commitment to work contract, demand for quality and efficiency, goal setting, information seeking, persuasion and networking, and self-confidence. The students' exposure to various activities helped enhance their ability to become committed to the responsibilities assigned to them and demand quality and efficiency. For instance, during their immersion (internships), most of the students got very high ratings along these competencies and got positive feedback from their supervisors like "worked hard to achieve goals; can always be counted on to work overtime when necessary, and shows commitment and dedication to work." Their exposure as part of an organization helped the students exert effort to finish all work on time without sacrificing quality. According to

Paladan (2015), students who have a high level of demand for quality and efficiency have the entrepreneurial ability to try to do things better, faster, or cheaper; they can set high standards of excellence and will not compromise on the standards they set. Wardana et al. (2020) state the importance of providing internships, visiting companies, and allowing students to conduct interviews with successful entrepreneurs. These methods will increase their entrepreneurial willingness and skills (Potishuk & Kratzer, 2017). Alusen (2016) also recommended using more active learning, internship, and simulation activities to improve the entrepreneurial competencies that will encourage entrepreneurship. The subjects offered during the fourth year require efficiency because actual outputs like a business plan, business registration, and results of business operations are the basis of final grades. In their study, Garcia, Lara, and Lopez (2019) concluded that creating a business plan promotes the development of entrepreneurial skills, possibly because students who create business plans have special entrepreneurship-oriented attitudes.

Goal-setting is the process of taking active steps to achieve desired outcomes (<https://inside.ewu.edu/calearning/psychological-skills/goal-setting>). The person plans for his actions and carefully decides where to go (Alusen, 2016). The students may have improved their goal-setting competency through Entrp 107 (Business Plan II) and Entrp 200b (Business Plan Implementation II) subjects. Both subjects require the development of vision, mission, goals, and objectives and identifying the necessary strategies to attain these. Information-seeking is the behavior of gathering information from relevant sources, and this information is relevant to developing business strategies (Alusen, 2016). Entrp 101 (Business Opportunity Identification I) and Entrp 105 (Business Opportunity Identification II) have helped improve the students' information-seeking ability since they were required to gather ample information to identify business opportunities and eventually develop business ideas. Entrp 106 (Business Plan I) is also a factor since they were required to gather data (market analysis) to determine the viability and feasibility of their chosen business. These findings contradict Paladan's (2015) study, which found that students obtained the lowest scores in commitment to work contracts, goal setting, and information seeking.

Persuasion and networking also show a very significant difference. This is because, during the first year, most entrepreneurship subjects do not require persuasion and networking. It is in the third and fourth years that the students learn to persuade others by defending their feasibility studies and business plans, encouraging customers to buy their products, or establishing networks with distributors and suppliers. The students also attend off-campus activities such as seminars and trade fairs, which help

strengthen their ability to connect with others. According to Alusen (2016), non-attendance and exposure to off-campus activities such as symposiums, seminars, trade shows, conventions, and conferences may hinder students' ability to expand their networks, assertiveness, and communication skills. Staying in a particular business for almost a semester with business owners and clients helped the students improve these competencies. Moreover, the students worked hard to achieve their business goals in their Entrp 200b subject (Business Plan Implementation II). They exerted effort to persuade customers to buy their products and established networks with suppliers who could provide them with lower input prices.

Meanwhile, the significant difference observed between opportunity-seeking and persistence could be brought by students' exposure to seeking opportunities as early as their first year in the BS Entrep program. For instance, the Entre Nego project of the Young Entrepreneur's Society (YES) – an academic organization of the BS Entrepreneurship students – allows them to seek possible opportunities to invest a certain amount of money. This is done annually. As to their fourth year, the students have been more vigilant and aggressive in identifying opportunities to make their investments grow. Persistence is necessary to accomplish all the requirements, especially during the students' fourth or last year. Compared to their first year, where students tend to be lax, fourth-year students tend to be more devoted since they want to graduate on time. Therefore, the students try to pass all their subjects despite obstacles or hardships like too many requirements or conflicting schedules.

Risk-taking, on the other hand, does not have a significant difference. Their academic load has inhibited the students' risk-taking



ability. During their fourth year, the students were not focused solely on implementing their business because they still had other subjects. This could be the reason why the students have limited options on what and where to venture; thus, risk-taking was low. Considering the students' financial capability, most of them depend solely on the income of the head of the family; thus, they are afraid of losing money, which affects their risk-taking ability. Notably, even practicing entrepreneurs are weak in risk-taking (Bautista et al., 2007).

The results also show no significant difference in systematic planning and monitoring, which contradicts a very significant difference in goal setting because when you plan, you need to set goals. This is because, as freshmen, they were not yet motivated to set goals since they were still focused on adjusting to their new environment. However, in their fourth year, the urge to pass all the academic requirements and graduate from the program motivated the students to improve their goal-setting activities. Although the students have improved in goal setting, an important aspect

of systematic planning, they have overlooked the monitoring aspect. Based on observation, the students were too focused on achieving their goals and concentrated on the result. They tend to execute tasks at a significant cost without monitoring and thinking things through to look for alternative ways to achieve the goals easier and at a lesser cost. For instance, during their business plan implementation, the students were too aggressive in increasing their sales but failed to monitor if policies had been properly implemented.

#### **Level of the effectiveness of the strategies and teaching methods adapted by the faculty members of the BS Entrepreneurship program**

Table 3 shows the level of effectiveness of the teaching methods adapted by the core faculty members, as perceived by the students. It shows that students' presentations, collaborative learning, immersion environments, and management games are very effective, while portfolio, role-playing, brainstorming, and demonstration are considered effective.

Table 3. Level of the effectiveness of the teaching methods adapted by BS Entrepreneurship program faculty members.

<b>Teaching Methods</b>	<b>Weighted Mean</b>	<b>Descriptive Interpretation</b>
Student Presentations	3.82	Very Effective
Collaborative Learning	3.77	Very Effective
Immersion Environments	3.75	Very Effective
Management Games	3.68	Very Effective
Portfolio	3.50	Effective
Role Playing	3.45	Effective
Brainstorming	3.42	Effective
Demonstration	3.36	Effective
<b>OVERALL MEAN</b>	<b>3.59</b>	<b>Effective</b>

Student presentations were regarded as very effective by the students. This means that presenting their outputs is a very effective way of helping them express their thoughts and defend their research outputs in their feasibility studies and business plans. Student presentations encourage critical thinking, and the students must also apply what they have learned in the classroom and share the information they gathered through research (Pinar & Trapp, 2011, as cited in Thor et al., 2017). Moreover, presentations enable students to communicate their understanding of concepts to their peers while creating an environment for discussing those concepts (Whiting & Wynn-Williams, 2004, as cited in Thor et al., 2017). Collaborative learning is a teaching and learning approach in which students work together to solve a problem, complete a task, or create a product (Laal & Laal, 2011). This teaching method was also perceived to be very effective by the students. Most students in the BS Entrepreneurship program undertake group work, which requires collaboration, interaction, and effective communication. They have considered this very effective since the risk of not finishing the output on time is lesser. Moreover, the students believed that group effort could result in better outputs. This supports Johnsons' (2009) survey, as cited in Laal and Ghodsi (2011) that cooperation will result in higher achievement and better productivity. Immersion environments were also regarded as very effective by the students. This method provides students with real experience, which will increase their entrepreneurial willingness and skills (Potishuk & Kratzer, 2017). Being in a real business environment is essential for students (Arasti, Falavarjani, & Imanipour (2012). Like in Entrp 200a (Business Plan

Implementation I), the students are required to complete 200 hours of immersion in a business related to the student's business. Moreover, the students must secure the necessary permits and licenses from concerned government agencies to operate legally. The practicum coordinator made prior arrangements at the local government unit to waive the payment of actual fees. On one hand, Entrp 200b (Business Plan Implementation II) requires the students to operate their own businesses for 240 hours and 60 hours at the CBEA Entrep Laboratory. Alongside operating their own businesses, the students operate the CBEA Entrep Laboratory, a facility intended for BS Entrepreneurship students. Most of the students who were asked during the validation of the results claimed that immersion activities were very good strategies. However, two students revealed that they disliked preparing financial reports, which is part of their immersion to show the results of business operations and finally submitted to the instructor. Lastly, management games, which were often used in Entrp 101 (Business Opportunity Identification I), were also perceived to be very effective. Students were given management games in planning, leading, and following. In interviews conducted, the students enjoyed games because they could actively participate (Shubik, 2002 as cited in Tasnim, 2012) and enjoy while learning. Games are identified as sites for 'playful' learning (Tasnim, 2012). The students only regarded portfolio, role-playing, brainstorming, and demonstration as effective. Interestingly, Pech, Řehoř, and Slabová (2021) investigated the preferred teaching methods of students and discovered that role-playing ranked third out of eight teaching methods.

**Relationship between the effectiveness of the teaching methods adapted by the faculty members of the BS Entrep program and personal entrepreneurial competencies of the students**

Table 4 presents the relationship between the teaching methods adopted by the BS Entrepreneurship program faculty members and the student's personal entrepreneurial competencies. It is noted that four competencies are significantly related to teaching methods. These are self-confidence, persistence, commitment to the work contract, and risk-taking. Student presentations are significantly associated with persistence and commitment to the work contract, while immersion environments are significantly related to self-confidence. Portfolio, on the other hand, is significantly associated with self-confidence and risk-taking. Role-playing is significantly related to persistence, while demonstration is significantly related to self-confidence.

The effective use of student presentations, such as requiring the students to present the results of their survey and results of business operations, will lead to a higher level of persistence. As to commitment to work contracts, effective presentations will also lead to a higher level of this competency. For instance, setting presentation deadlines will help the students become committed to their work. Commitment is devoting significant time and attention to something because it is right and important, and meeting the deadline is critical (Alusen, 2016). An immersion environment, perceived to be very effective, may affect the students' self-confidence. Staying in a particular business for almost a semester with business owners and clients may help the students gain confidence, especially in communicating and dealing with people. Submission of students' portfolios is significantly related to self-confidence and risk-taking. This means that requiring the

Table 4. Relationship between teaching methods adapted by faculty members of the BS Entrepreneurship program and Personal Entrepreneurial Competencies of the BS Entrepreneurship Students batch 2016.

Teaching Methods	Self-confidence	Persistence	Commitment to the Work Contract	Risk Taking
Student Presentations	0.0364	0.3768**	0.2963*	-0.0501
Collaborative Learning	0.0809	0.1520	0.2396	0.0820
Immersion Environments	0.3524**	-0.0481	0.0833	0.2216
Management Games	0.2558	0.0883	-0.0256	0.0636
Portfolio	0.3409**	-0.1018	0.2014	0.3040*
Role Playing	0.1363	0.3558**	-0.0465	0.0665
Brainstorming	0.1142	-0.0605	0.1395	0.1295
Demonstration	0.3527**	-0.1556	-0.1253	0.1829

\*\* significant at 0.05

\* significant at 0.10

students to compile all their activities in a given subject and allowing them to be creative in their portfolio will help them develop confidence in their outputs. Trying something different to make their portfolio unique also improves the students' risk-taking abilities. Role-playing is an active teaching method that allows students to "try on" different organizational roles (Pech et al., 2021). This means that choosing students' roles helps them improve their persistence. Demonstration allows the students to show how to start a conversation, become assertive, and communicate clearly in class. Therefore, effectively using this method can help the students improve their self-confidence. Although they were perceived to be very effective, collaborative learning and management games resulted in no significant relationship to any of the competencies. Therefore, this finding requires a more in-depth study of the effectiveness of the teaching methods and the introduction of various games and collaborative learning activities.

### Conclusions and Recommendations

The students' entrepreneurial competencies showed improvement over the four-year period (2012-2016), with a particularly notable increase in goal setting, reaching a level of high competency.

While opportunity-seeking and persistence demonstrated significant differences, no such differences were noted in risk-taking and systematic planning and monitoring. The two latter PECs need to be further improved.

The teaching methods considered very effective by the students are those that allow them to express their thoughts and work with other students. Giving the students the chance to actively participate in class and work in a real business setting is also

considered very effective.

The teaching methods adopted by the faculty members handling entrepreneurship subjects are significantly related to persistence, commitment to work contracts, self-confidence, and risk-taking.

From the above conclusions, it is recommended that the faculty members handling entrepreneurship subjects consider exploring other teaching methods proven effective by other researchers. The same methodology may also be used in the other batches of BS Entrep students to verify the results of this study. In addition, a study on the factors affecting the personal entrepreneurial competencies of the students may be conducted.

### Literature Cited

- Alton, L. (2016). Five things every entrepreneur should know about risk-taking. <https://www.entrepreneur.com/growing-a-business/>
- Alusen, M. L. (2016). Personal Entrepreneurial Competencies of LPU-Laguna BSBA Graduating Students: Basis for Curriculum Enhancement. *LPU-Laguna Journal of Multidisciplinary Research*, 4(4).
- Arasti, Z., Falavarjani, M. K., & Imanipour, N. (2012). A Study of Teaching Methods in Entrepreneurship Education for Graduate Students. *Higher education studies*, 2(1), 2-10. <http://dx.doi.org/10.5539/hes.v2n1p2>
- Azarcon, E.R. et.al., (2008) *Entrepreneurship Principles and Practices (A Modular Approach)*. 2nd Ed. Baguio City: Valencia Educational Supply.
- Barot, R. G. (2017). *Proposed Measures to Motivate the Bachelor of Science in Entrepreneurship Graduates and*

- Students of the Mariano Marcos State University to Establish a Business.* [Masteral thesis, Divine Word College of Laoag] Divine Word College of Laoag Research Repository.
- Bautista, R. S., Barlis, M. J. P., & Nazario, A.G. (2007). The Personal Entrepreneurial Competencies of BS Entrepreneurship Students of the Cordillera Administrative Region and Practicing Entrepreneurs in the Cities of Baguio, Dagupan, and San Fernando, La Union: A Comparison. 10th National Convention on Statistics (NCS) EDSA Shangri-La Hotel October 1-2, 2007. <http://www.nscb.gov.ph/ncs/10thNCS/papers/invited%20papers/ips-06/ips06-02.pdf>
- Fatoki, O. (2014). An Examination of the Teaching Methods for Entrepreneurship at a South African University. *The Mediterranean Journal of Social Sciences*, 5(23) Doi:10.5901/mjss.2014.v5n23p512
- Kaur, G. (2022). Ten ways to build your entrepreneurial confidence. <https://www.entrepreneur.com/leadership/>
- Kyguolienė, A., & Švipas, L. (2019). Personal entrepreneurial competencies of participants in experiential entrepreneurship education. *Organizacijų vadyba: sisteminiai tyrimai*, (82), 37-51.
- Garcia, R., Lara, A. & Lopez, E. Entrepreneurial Competencies in a Higher Education Business Plan Course. Vol. 61 No. 7/8, 2019 pp. 850-869 Emerald Publishing Limited 0040-0912 DOI 10.1108/ET-04-2018-0090
- Leal, E.A., Miranda, G.J., & Carmo, C.R.S. (2013). Self-Determination theory: an analysis of student motivation in an accounting degree program. [http://www.scielo.br/pdf/rcf/v24n62/en\\_07.pdf](http://www.scielo.br/pdf/rcf/v24n62/en_07.pdf)
- Matlay, H. (2006). Researching entrepreneurship and education: Part 2: what is entrepreneurship education and does it matter? *Education+ Training*.
- Neck, H. M. & Greene, P. G. (2011) 'Entrepreneurship Education: Known Worlds and New Frontiers, *Journal of Small Business Management*, 49(1), 55–70. <https://doi.org/10.1111/j.1540-627x.2010.00314.x>
- Laal, M. & Ghodsi, S. (2012). Benefits of collaborative learning. *Procedia - Social and Behavioral Sciences*, 31 (2012), 486-490. <https://doi.org/10.1016/j.sbspro.2011.12.091>
- Laal, M. & Laal, M. (2012). Collaborative learning: what is it? *Procedia - Social and Behavioral Sciences* 31 (2012) 491 – 495
- Paladan, N. (2015). Business University Student Entrepreneurial Competencies: Towards Readiness for Globalization. *Proceedings of the Second European Academic Research Conference on Global Business, Economics, Finance, and Banking*. [www.globalbizresearch.org](http://www.globalbizresearch.org)
- Pech, M., Rehor, P., & Slabová, M. (2021). Students' Preferences in Teaching Methods of Entrepreneurship Education. *Journal on Efficiency and Responsibility in Education and Science*, 14(2), 66-78. <http://dx.doi.org/10.7160/eriesj.2021.140201>
- Pesha, A. (2022). Factors in the Development of Entrepreneurial Competencies. In *SHS Web of Conferences*, (135). EDP Sciences.

- Potishuk, V. & Kratzer, J. (2017) 'Factors affecting entrepreneurial intentions and entrepreneurial attitudes in higher education, *Journal of Entrepreneurship Education*, 20(1), 25–44.
- Reyes, G. U., & Manipol, N. E. P. (2015). Impact of various Teaching Methodologies on the Entrepreneurial awareness and intention of Students at the University of the Philippines Los Banos. *International Journal of Academic Research in Business and Social Sciences*, 5(7), 350-362.
- Reyes, G. U., Mariano, R. A., Herrera, M. N. Q., Manipol, N. E. P., & Cubardo, J. J. S. (2018). Personal Entrepreneurial Competencies and Entrepreneurial Intention of Non-Business Students Enrolled in an Introductory Entrepreneurship Course. *Journal of Economics, Management & Agricultural Development*, 4(2390-2021-405), 93-102.
- Sardeshmukh, S. R., & Smith-Nelson, R. M. (2011). Educating for an entrepreneurial career: Developing opportunity-recognition ability. *Australian Journal of Career Development*, 20(3), 47-55.
- Tasnim, R. (2012). Playing Entrepreneurship: Can Games Make a Difference? *Entrepreneurial Business Review*, 2(4 Autumn 2012).
- Thor, D., Xiao, N., Zheng, M. Ruidan, M. and Xiao, X. (2017). An interactive online approach to small-group student presentations and discussions. doi:10.1152/advan.00019.2017
- Wardana, W. L., Narmaditya, B. S., Wibowo, A., Mahendra, A. M., Wibowo, N. A., Harwida, G., & Rohman, A. N. (2020) 'The impact of entrepreneurship education and students' entrepreneurial mindset: the mediating role of attitude and self-efficacy. *Heliyon*, 6(9), 1–8. <https://doi.org/10.1016/j.heliyon.2020.e04922>