Comparison of Different Teaching Methods in Students' Perceptions

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ABSTRACT Technical and vocational education provides students with the opportunity to focus on professional skills in the classroom. This research aims at sophomore students in technical and vocational schools, adopts teaching experiments to design different teaching methods as well as utilises repeated measurement of one-way ANOVA to compare theoretical programs, plan competitions and executive community-based tourism and the effects of other teaching methods for different learning perceptions. The results revealed that no matter what kind of teaching method is used, a clear educational goal and knowledge skills would generate better performance for students' egoistic and altruistic learning perceptions. In addition, the executive CBT teaching method is more effective in personal marine ecological education cognition than planned competitions and theoretical programs. This study further discusses the implications for a hybrid environment, teachers, and students engaged in teaching methods.

INTRODUCTION

In recent decades, the interaction between vocational education and the need for practical skills has emerged as a pressing issue for both scholars and policymakers (Young and Hordern 2022). Developing countries aiming to bridge economic gaps see boosting investments in vocational education as a direct remedy. Nevertheless, the ongoing grievances about mismatches between practical skills and education persist without end (McGrath and Yamada 2023). Technical vocational education prioritises the imparting of professional skills (Skolnik 2020). However, students often exhibit reluctance to engage in learning, stemming from factors such as low academic performance (Anderson and Sanga 2018), deficient self-confidence, and diminished motivation (Wang and Guo 2019). These challenges are exacerbated within the contemporary social landscape characterised by heightened pressure and perceived risks so as to heighten feelings of anxiety among students (Hammill et al. 2020). In response to this phenomenon, European technical and vocational education students would like to conduct practical work in the practice place in order to increase learning motivation, strengthen skills and self-confidence (Institut für Produktives Lernen in Europa (IPLE) 2016). However, since technical and vocational education require students to focus on professional skills, it is still questionable whether the knowledge learned in the classroom is sufficient to be applied in the workplace in recent years in Asia (Mok and Qian 2018).

The application of creativity to develop appropriate teaching methods plays an important role in guiding students' creative learning (Jia et al. 2017; Meihami 2022). Therefore, two potential problems in technical and vocational education should be discussed. First, how can teachers create stimulation and encouragement in teaching so that students are willing to spend time and energy in or out of the classroom? Second, what kind of teaching method can induce students to apply what they have learned in the real world?

The use of different teaching methods may have different learning effects on students (Jia et

al. 2017; Lee et al. 2018). Traditional instruction is that students acquire knowledge by listening to and watching the teaching content as well as reciting the course information. However, Nordstrom and Korpelainen (2011) believed that traditional teaching would increase students' workload. Also, it is difficult for students to achieve in-depth learning processes and create knowledge. Therefore, some researchers (Kirillova and Au 2020; Meihami 2022) advocated that teachers should adopt a variety of different teaching modes, design teaching environments that can show students' creativity and arouse curiosity as well as enhance students' learning motivation and performance. For instance, emphasising learner-centred teaching (Lee et al. 2019), creativity problem-based learning, service learning, integration of new technology into teaching (Meihami 2022; Prescott 2014), workshops (Pappalepore and Farrell 2017), group activities (Nordstrom and Korpelainen 2011), action learning (Brook and Milner 2014), game learning (Eckhaus et al. 2017; Ranieri et al. 2018), and field trip (Griffin 2017; Arcodia et al. 2021). These teaching methods provide contexts of real social events, allowing students to have learning opportunities for teamwork, development of cooperation skills and interpersonal communication skills. However, few studies (for example, Jia et al. 2017) have explored different design teaching methods at the same time and whether it has a substantial impact on students' cognitive learning in tourism programs.

In fact, in addition to implicit specific teaching principles, different teaching methods also have different difficulties in practical teaching applications, such as cost or time constraints (Lee et al. 2018). However, numerous past studies only focused on the effects of specific teaching methods on students' learning. Therefore, it is necessary to further explore which types of teaching methods have relative effects on students' learning or forming students' positive perception. Teacher-centred (Pappalepore and Farrell 2017) and student-centred teaching methods (Stansbie et al. 2016) were useful teaching tools in the past. This research utilised academic theoretical program, plan competition and executive community-based tourism that are commonly used in technical and vocational education as well as compared relative effects on students' perceptions.

Objectives of the Study

The purpose of education is not only to teach basic knowledge, theories, and professional skills, but at the same time, it also implies how to induce students to connect with other issues (Barnhardt 2015) and further develop altruistic perception (Dickerson et al. 2016). For instance, how to form teamwork (Jackson et al. 2020) as well as influence on social public interest (Wong 2020). In particular, the nature of education is to guide students to establish personal values, professional abilities and ideas that are conducive to social development (Wong 2020), as emphasised by self-construction theory. Self-concept is divided into independence and individualism, which also means that students construct their self-concept through self-centred and interdependent self-view (Michaelidou and Hassan 2008). Therefore, this research not only pays attention to students' education benefits, but also further understands students' learning perceptions as well as adds responsibility for changes in the ecological environment in order to respond to student social responsibility issues in the globalisation era.

Literature Review

Teaching Method Categories: Theoretical Program, Plan Competition and Executive Community-based Tourism

The teacher-centred is the most traditional teaching method. The teacher is the leader of classroom activities (Prescott 2014) and emphasises the importance of transferring knowledge to the student. The student plays a passive role in the learning process and does not have many choices. At the same time, students tend to remember facts rather than meanings (Nordstrom and Korpelainen 2011; Stansbie et al. 2016), that is, memorising learning without the opportunity to think.

Due to the shortcomings of traditional teaching methods, the teacher begins to adopt a student-centred teaching method. It is extremely diverse and contains an implicit theoretical basis. For example, some scholars (Ranieri et al. 2018; Guachalla and Gledhill 2019) applied experiential learning theory to design student-centred teaching methods. Ranieri et al. (2018) used a quasi-experimental method to allow 400 students to par-

ticipate in teaching experiments, and collected students' learning feedback through game-based activities. Guachalla and Gledhill (2019) utilised experience course modules to help students learn employability required in the tourism field. The teaching courses include written tests, group cooperation, personal interviews, autobiographical and resumes, cover letters and so on. Students have challenges in actions, reactions, responses and reflections in context (Strange and Gibson 2017). In addition, Arcodia et al. (2021) believed that tourism education starts with field trips can stimulate students' motivation (learning, tourism, fun and novelty), and benefit students (in-depth learning, interpersonal networks, professionalism) as well as destination (develop a niche market and deepen the destination experience). After experiential learning for two months, experiential tourism program made students aware of learning about different cultures, in-depth tourism issues, learning organised activities, helping future employment, the application of theoretical knowledge platforms, the effectiveness of teacher and industrial expert explanations.

Past teaching researches all implied that the use of a teacher's creativity is to design teaching methods through originality, effectiveness, and acceptability (Meihami 2022). Other teaching methods designed based on experiential learning include software (Green et al. 2015), games (Eckhaus et al. 2017), outdoor training (Fernández-Gámez et al. 2018), twin-cycle experiential learning model (Schreck et al. 2020) and case study (Hales and Jennings 2017). The above teaching methods provide students with opportunities to significantly increase their leadership skills, overall efficiency, research ability, adaptability and professional knowledge through practical experience.

Another commonly student-centred theoretical perspective is problem-based learning (PBL). PBL takes practical problems as the core, takes the problems that learners may encounter at the beginning, encourages students to group discussions, and then collects and analyses relevant information. Also, it integrates knowledge to solve problems in order to improve problem-solving skills and self-learning responsibility (D'Zurilla and Nezu 2007; Wang et al. 2015). Zwaal and Otting (2010) utilised PBL to design teaching plans. It is believed that the PBL learning process focuses on integrating knowledge in a wide range of principles or top-

ics, which is also the core of the hospitality management plan. A single course (Savin-Baden 2004) with a modular and interdisciplinary approach in the curriculum was adopted and brought positive cognition and value to students (Loyens et al. 2006). A 12-week PBL curriculum was used to investigate the impact of PBL curriculum on three psychological constructs (motivation, locus of control and self-esteem) (Martin et al. 2008). The results showed that PBL courses significantly increased students' intrinsic motivation, but had no effects on internal control tendencies. The benefits of students' perception of PBL are teamwork and could broaden knowledge learning opportunities. Lee et al. (2010) advocated that PBL adopted by student-centred learning is the most suitable method for developing students' practical skills and improving the learning involvement.

Another student-centred method includes action learning, which is a personal and organisational development method in which people deal with important organisational issues or problems and learn from their attempts to change things (Brook and Milner 2014; Pedler 1996). Service learning, cooperating with the learning experience of educational institutions and community partners, allows students to learn and develop by actively participating in service experience in order to meet community needs (Madden et al. 2014; Lee et al. 2018). Through work and communication with the community, students could understand real problems faced by community organisations (Pedersen et al. 2015). Therefore, students have the opportunity to apply what they have learned in course with a view to solving real-world problems, and promote civic responsibility (Lester and Robinson 2007), which has a high effect on students' learning (Jia et al. 2017).

According to the above mentioned, the teacher/student-centred teaching methods can be divided into traditional teaching and emphasise teachers to transfer knowledge as well as allow students to listen and recite comprehension, or emphasising doing by learning experience, solving problems and teamwork together in order to solve practical problems or build professional capabilities. Therefore, this research focuses on teaching methods containing three categories of theoretical program, students-centred plan competition and executive community-based tourism.

Egoistic and Altruistic Considerations: Students Learning Benefit Perception and Social Responsibility

From the self-construal theory, it can be seen why students' learning performance is not only beneficial to individuals, but also to society. Self-construal theory advocates that individual self-concept can be divided into autonomy and individualism, and therefore, it is more self-centred (Aaker and Lee 2001). At the same time, the individual can be regarded as part of social background (Briley and Wyer 2002). Therefore, the interdependent self-view emphasises the relationship between individuals and others (Fiske et al. 1998). People will influence personal behaviour via self-concept/self-interest (Michaelidou and Hassan 2008) or interdependent self-view/altruism (Padel and Foster 2005). For example, caring about personal health (self-interest) or environment (altruism) (Liang 2016) so as to purchase healthy food (such as organic food).

Self-construal theory can also be applied to explain student performance. Dickerson et al. (2016) argued that student learning performance is not only for personal educational interests, but also includes public interests of a wide range of society. Barnhardt (2015) pointed out that diversified courses on campuses play a role in creating social responsibility and forming students' commitment and attitude towards social justice. According to Wong (2020), it was mentioned that in order to develop social responsibility and ethical judgement, higher education should strengthen intellectual honesty and responsibility for society's moral health and social justice. Universities have a responsibility to help students to promote society's public interest (common good of society). Dickerson et al. (2016) indicated that collaborative action research for learning (CARL) can help students to learn professionalism, employability and enterprise, learning and research skills, intellectual depth, breadth and adaptability, respect for others, and social responsibility. Jackson et al. (2020) considered that under the work-integrated learning context, student performance includes working effectively with others, communicating effectively, self-awareness, thinking critically, data and technology, problem-solving, enterprise, self-management, responsibility and accountability, and professionalism. Therefore, this study adopts en-vironmental protection and ecotourism education perception to measure students' egoistic and altruistic benefits.

Therefore, the definition of egoistic learning in this research adopted the perspective of self-centred (Aaker and Lee 2001; Michaelidou and Hassan 2008), which focuses on self-knowledge learning and the growth of students' personal knowledge. Refers to altruistic learning, interdependent self-view (Fiske et al. 1998; Padel and Foster 2005) was adopted to explore students' awareness of changing their personal behaviours in favour of the environment, and concern about environmental responsibilities.

METHODOLOGY

Research Questions

The purpose of this research was to explore the effects of different teaching methods on students' learning performance and personal social responsibility. Therefore, this research proposed the research questions as follows based on Earley (2014).

1. Which type of teaching methods allow students to possess a higher knowledge and learning perception (egoistic consideration)?
2. Which type of teaching methods are better for students to develop awareness of environmental responsibility (altruistic consideration)?

Course Context

According to Brook and Milner (2014), Lee et al. (2010) and Nordstrom and Korpelainen (2011), the course introduction should include course name, course credits and teaching period, contents and objectives as well as teaching and learning tools. Leisure activity design and planning course was selected in this study which contained a 2-credit course for a semester and was designed with marine leisure activities in traditional fishing village communities as a theme, 18 weeks with 2 hours per week. The course contents contained theoretical courses on marine resources, marine ecological tourism/community tourism, teachers and industrial experts with marine ecological background guided students to convey knowledge related to the fishing village community, a total of 5 weeks

(10 hours), planning competition based on the PBL principle, which conducted activity planning teaching, guided students to form a team, collected and integrated various resources with teamwork to write the plan, and conducted the competition in the 12th week, a total of 7 weeks (14 hours), and executive community-based tourism, which guided students to visit the community, adjusted the tour according to local resources, recruited tourists to perform tour activities, and displayed performance, totally 6 weeks (12 hours). The teaching goal was to cultivate students' ability to plan community leisure and tourism in accordance with the standards of tour planning. Teaching tools included traditional classrooms, marine ecological audio and video, PBL course outlines, and brainstorming, whereas students' learning tools contained competition courses, 2 hours of group discussions outside class every week, community field visits, online social media applications and so on. The core concept of curricula is seen in Table 1.

Experimental Design and Procedure

In order to ensure the rigour of the research process, this research designed the curricula according to the four stages of preparation, scaffolding, application and review (Yau et al. 2001). In the preliminary stage, in order to ensure the rigour of the research process, the instructor understood course objectives and requirements before teaching. The steps and contents of the course had been discussed and designed with the author and community. Also, this research conducted preliminary communication with an appropriate cooper-

ation mode. The scaffolding stage had the course materials formed by discussions between teachers, industrial experts and members of community associations. Students listened and understood theoretical knowledge in traditional classrooms. In the application stage, except for marine resources and community tourism designed courses, which were lectured by industrial experts, the rest of the courses were taught by the same teachers. The review stage had the knowledge learned in the course displayed with a final performance.

The theoretical course included storytelling, metaphoric thinking, rich pictures, six thinking hats, and brainstorming in order to help students understand marine resources and community knowledge (Brook and Milner 2014). The plan competition was to design a community of ocean marine tourism. In order to complete this work, students must form a team of 6-7 people together. Each group arranged a teaching assistant to assist in the research. Students also had 2 hours discussion during the 6th to 12th week. The 12th week was a competition. The cooperative community was from Cieding Distric, Kaohsiung City, which belongs to a traditional fishing village community. The main industry is fishery. It is rich in mullet and mullet roe. The population is about 30,500. The local community association is to protect the ecological environment. In addition, this community has cooperated with many universities in conservation and tour design. Relevant recreational facilities and community humanities are all helpful with this study. Finally, the same group of students visited the community to check on-site resources, then adjusted the activities and executed the tour. At the end of the semester, they

Table1: Core concept of curricula

Course	Core concept	Course contents	Instruction costs
Theoretical Courses	Teachers guided students to convey knowledge related to fishing village community	Marine resources, marine ecological tourism/community	The lowest, including the hourly fee of industrial experts and the cost tourism of stationery for student discussions
Plan Competition	Students collected and integrated resources from designing marine tourism activities in community through teamwork	Tour-plan design, method and competition	Moderate, including teaching assistant fee, stationery fee for student discussion, and competition venue layout
Executive CBT	Students adjusted the itinerary according to proposal plan and the executive marine tourism community	Community on-site visits, tourist recruitment, execution of tours, and display performance	The highest, including the cost of on-site visits and perform activities (such as transportation, stationery, navigation and meals)

submitted a complete written report and presented videos and presentations. The participants were the second-year grade of leisure and recreation management technical and vocational college students, with a total of 63. After obtaining the consent of teachers and students, this study filled out the questionnaire three times in sequence (Fig. 1).

Data Collection

The practice of issuing questionnaires after the end of different courses was based on Ranieri et al. (2018). The first questionnaire was conducted on the same day after the completion of the theoretical course in the 6th week. The second and third online questionnaires were issued after the 18th week of on-site activities. Students were 12 males and 51 females of the tourism majoring in vocational and technical college. The average age was 19-20 years.

Measurements

This study adopted a questionnaire survey. The questionnaire items were referenced by Dickerson et al. (2016) and Warton and Brander (2017). The definition and item items of scale manipula-

tion can been seen in Table 2. The questionnaire items were designed according to the research themes of the changes to marine environment is the responsibility of an altruistic consideration, representing the degree to which an individual believes that they are willing to protect marine environment responsibly and change behaviour, marine ecological education is an egoistic consideration, representing the degree to which the individual believes that learning marine knowledge can benefit from education, and participants' gender and age are referenced from Xu et al. (2019).

In addition, at the end of the semester (week 18), students filled out a learning reflection sheet for what they have learned in this semester with an eye to reflecting on the inspiration of the course contents and the advantages and disadvantages of the course. This study utilised thematic analysis to analyse the contents of the students' learning reflections, and the title is "What have you learned from this program?" and "What is your reflection regarding this program?" The data analytics were based on transformation theory (Horng et al. 2019). The results, which combined the quantitative and qualitative data, can be constructed into an experiential curriculum model for educators to help guide their teaching more clearly
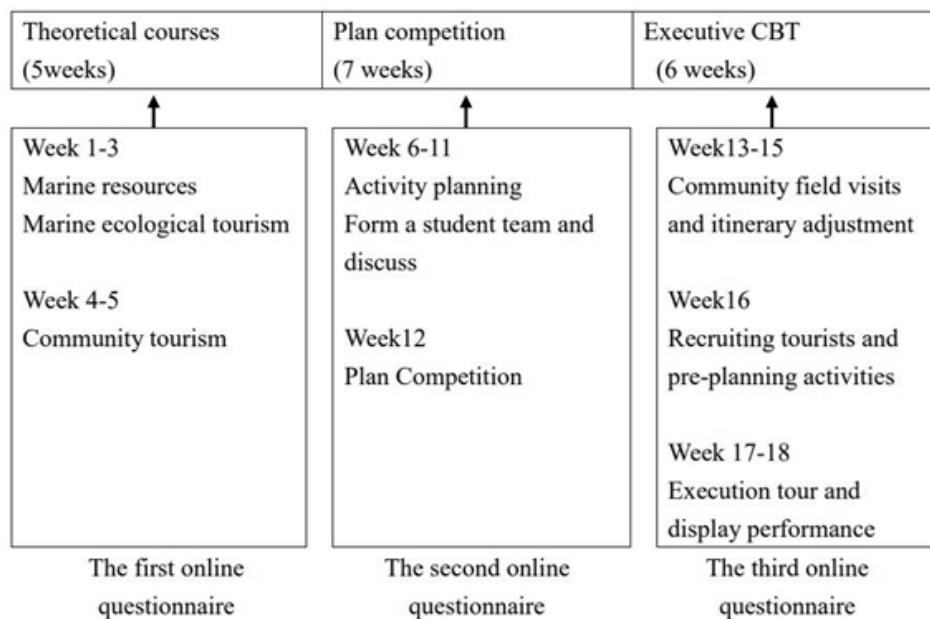

Fig. 1. Three teaching modules' schedules

Table 2: Definition and item items of scale manipulation

Variable	Operation definition	Item
Altruistic Perception Environmental responsibility	Change behavior to protect marine environment	OEC1. Do you think you will change yourtravel behavior? OEC2. Unwilling to take airplane? OEC3. Willing to pay carbon price tax. OEC4. Find a low-carbon footprintdestination. OEC5. Leave it as you found it.
Egoistic Perception Learning of environmental knowledge	Learn ecological conservation knowledge	ELP1. Enrich environmental knowledge of marine ecology. ELP2. Deepen understanding of marine ecological conservation concept. ELP3. Induce to participate in marine experiential activities

RESULTS

In this study, the same participants conducted course questionnaire surveys three times, so the Test-Retest reliability Coefficient was conducted y, and the three dimensions Cronbach α were all higher than 0.7. The correlation matrix is as seen in Table 3. The correlation coefficient values range from -1 to 1, with 0 indicating no correlation, 1 indicating perfect positive correlation, and -1 indicating perfect negative correlation. Table 3 shows that the correlation coefficient of 1 between learning of environment knowledge and theoretical courses signifies a perfect positive correlation and implies a strong relationship between these variables. Conversely, the correlation coefficient of 0.503 between theoretical courses and plan competition suggests a moderate positive correlation. Likewise, the correlation coefficient of 0.624 between executive CBT and plan competition indicates a moderate positive correlation. In addition, this study used factor analysis to test validity, and the value of the varimax eigenvalue was greater than 1. The results of the three questionnaires analysis all met standards. The factor load was all higher than 0.5. For instance, in the item OEC1 in Table 4, the factor loading is 0.836 for the first online ques-

tionnaire, 0.717 for the second online questionnaire, and 0.920 for the third online questionnaire. These values indicate the degree to which OEC1 contributes to measuring environmental responsibility in each questionnaire. In addition, cumulative explained variance was higher than 50 percent. For the first, second, and third online questionnaires of items from OEC1 to OEC5, the cumulative explained variances are 71.37 percent, 64.92 percent and 71.85 percent, respectively. Also, for the items from ELP1 to ELP 3, the cumulative explained variances of first, second and third online questionnaires are 87.94 percent, 83.99 percent and 85.86 percent, respectively. The higher factor loadings suggest stronger associations between the item and the construct.

This study adopted repeated-measure one-way ANOVA to test research questions one and two. Also, this study utilised PES(η2) as the standard measure of effect size, which is the smallest (0.02), medium (0.13), and large (0.26) (Bakeman 2005). In addition, Mauchly's test of sphericity was to test fundamental assumptions. The results revealed in Table 5 with regard to research question 1, this study evaluated the effect sizes and the significances estimated by Greenhouses-Geisser correction because Mauchly's test of sphericity

Table 3: Correlation matrix

Learning of environment knowledge	Theoretical courses	Plan competi-tion	Executive CBT	Environmental responsibility	Theoretical courses	Plan competition	Executive CBT
Theoretical courses	1			Theoretical courses	1		
Plan competition	.503**	1		Plan competition	.447**	1	
Executive CBT	.379**	.702**	1	Executive CBT	.625**	.624**	1

Table 4: Factor analysis result

Environmental responsibility	The first online question-naire	The second online question-naire	The third online question-naire	Marine ecology education	The first online question-naire	The second online question-naire	The third online question-naire
Items	Factor loading	Factor loading	Factor loading	Items	Factor loading	Factor loading	Factor loading
OEC1.	.836	.717	.920	ELP1.	.934	.910	.920
OEC2.	.794	.631	.808	ELP2.	.951	.963	.945
OEC3.	.805	.816	.674	ELP3.	.928	.875	.914
OEC4.	.881	.934	.906				
OEC5.	.902	.892	.904				
Cumulative explained variance	71.37%	64.92%	71.85%		87.94%	83.99%	85.86%

Table 5: Repeated measure one-way ANOVA

Environmental responsibility	Mean (SD)	Source	Type III sum of squares (df)	F-value (p value)
Theoretical courses	5.11(1.15)	Intercept	5373.867(1)	1911.460(.000)
Plan competition	5.38(1.04)	Error	174.306(62)	.129(ς^2)
Executive CBT	5.50(1.24)			

Multivariate analysis of variance: Wilks' Lamda:Wilks' Lamda $F_{(df=2)}$=4.532, p=.015
Variation within subjects: assumption of sphericity $F_{(df=2)}$=4.555, p=.012
Verification of intra-subject comparison: factor1 $F_{(df=1)}$=9.19, p=.004
Mauchly's test of sphericity: 969(χ^2=1.921, df=2), p=.383
Post-Hoc Execution Course >Theoretical Course

Learning of environment knowledge	Mean (SD)	Source	Type III sum of squares (df)	F-value (p value)
Theoretical courses	5.55(1.14)	Intercept	6292.012(1)	3137.171(.000)
Plan competition	5.79(0.89)	Error	124.349(62)	.113(ς^2)
Executive CBT	5.97(0.95)			

Multivariate analysis of variance:Wilks' Lamda $F_{(df=2)}$, p=.021
Mauchly's test of sphericity: W=.734(χ^2=18.882, df=2), p=.000
Variation within subjects: G-G $F_{(df=2)}$=5.558, p=.009
Verification of intra-subject comparison: factor1 $F_{(df=1)}$=7.902, p=.007
Post-Hoc execution course >theoretical course and plan competition
In learning of environment knowledge, null hypothesis was rejected in Mauchly's test of sphericity [Approximate-χ^2 = 3102.342 (BKW); 2766.386 (BKW × DCH)]. Greenhouses-Geisser corrected the values of degree of freedom

($\chi2$=18.882) reported that the covariance matrices between errors were significantly different from the unit matrix. The variation between subjects (F=3137.17, p<.001) revealed that different courses had significant differences in students' marine education learning perception. Post-hoc comparisons found that executive community-based tourism activity was significantly higher than theoretical course and plan competition (Mc=5.97>Mb=5.79, Ma=5.55). Regarding research question 2, Mauchly's test of sphericity (1.921) indicated that the assumption of sphericity in all items was not violat-

ed, and therefore, no correction was used. The variation between subjects (F=1911.46, p<.001) pointed out that different courses had significant differences in students' responsibilities for changes in the marine environment. Post-hoc comparisons found that executive community-based tourism activity was significantly higher than in the theoretical course (Mc=5.50>Ma=5.11). However, mean value between the plan competition and execution course made little difference (Mc=5.5, Mb=5.38). The F-value, significance level, and mean scores for each variable related to different teaching pro-

grams were reported and seen in Table 5. It shows that for theoretical courses, the mean is 5.55 (SD=1.14). The Type III sum of squares is 6292.012 (1 df), and F-value is 3137.171 (p<.000). For plan competition, the mean is 5.79 (SD=0.89). The Type III sum of squares for error is 124.349 (62 df), with an F-value of 0.113 (η2). For executive CBT, the mean is 5.97 (SD=0.95).

In addition, teachers in this study required students to display their performance at the end of semester, including a learning reflection sheet. According to the text contents of the reflection sheet, numerous students pointed out that they could learn about the operation of the real world and deepen their understanding of executive community-based tourism activity via cooperating with the community/tourism and recreation organisation. At the same time, the process of participation also exposed them to the marine environment, the humanities and history of community, and life sharing of community members, which further triggered the willingness of individuals to change their behaviours to benefit the overall ecological environment. It can be seen that the students' reflection also echoed the results of the analysis.

In the process of making the plan, I encountered many obstacles, such as the unsatisfactory cost estimation or imperfect arrangement of the activity schedule. The practical learning was really more impressive than listening to theory in the classroom. (Student 10, male)

The teacher was very concerned about the contents of our plans. In the process of designing the tour, he often told us practical experiences that happened in the community, and provided us with many ideas. Thank you, teacher! (Student 33, female)

I preferred a practical way of doing things because we can go to the community to see other people's lives, and then learn about their community's stories and tourism resources. I feel so touched while designing these activities. (Student 40, female)

DISCUSSION

Vocational education places a strong emphasis on providing students with practical, applicable knowledge and skill sets (Li and Pilz 2023; Sanderse 2024). To assess the most effective teaching method, this study discovered that a hybrid environment integrating schools and communities

yields the highest teaching efficacy, primarily attributable to variations in knowledge focal points. Past studies (Milton and Morgan 2023; Andrew et al. 2023) also proposed that meaningful learning is based on the context of the learning experience and an environment where knowledge is accessible. Therefore, the hybrid environment combines relevant and effective elements of vocational school and workplace to form a specific and unique learning environment. Such a hybrid environment can enhance students' learning journey, as the knowledge and skills derived from two different settings are distinct. While technical and vocational schools offer formal and broad knowledge and skills, workplaces provide context-specific expertise and skills (Amegah 2023).

Regarding research question 1, the executive CBT method of this research was more effective than plan competitions and theoretical courses in marine ecological education perception (egoistic behaviour). It can be seen that for students in technical and vocational education, Erna et al. (2023) described that this method performed by individuals can make students deeply impressed It revealed that students pay special attention to practical experience for their own learning and perception. For personal learning perception, practical learning courses are significantly better than the other two types of courses (Natalia et al. 2023). It can be seen that in altruistic behaviour, as long as the curriculum is student-centred, it will be favoured by students. In terms of egoistic behaviour, it is necessary to emphasise practical learning methods. Therefore, students prefer learning by doing, which is a more active style of classroom (Nagle et al. 2023.)

Concerning research question 2, this study's findings demonstrated that practical experience surpassed theoretical coursework in fostering responsibility towards environmental changes (altruistic behaviour). Also, Dreer (2023) mentioned that practical experience notably influenced this responsibility more than theoretical instruction did. Interestingly, the disparity between practical experience and plan competitions was minimal (Mb=5.38; Mc=5.5). It highlights how student-centred approaches prompt environmental awareness and behavioural changes. Considering the higher costs associated with practical experience compared to theoretical courses or competitions, these results suggest implications for course development. Hence, to prioritise social responsibility and altru-

istic behavior, Rosendo (2023) also described that cost-effective student-centred methods like plan competitions could be preferable.

Moreover, the participants all agreed that the teachers provide good suggestions and correct their mistakes during the learning process. In technical and vocational education, Bolaños et al. (2024) stated that role of the teacher is that of a mentor and coach, which guides students to think independently and solve problems. Furthermore, the results of this research believed that in addition to playing the role of guide and coach, teachers in technical and vocational education need to strengthen their role as a boundary spanner in a hybrid environment. For example, this study took community tourism as an itinerary, and teachers played the role of communicating with community and tourism organisations in the process of cooperation. At the same time, teachers are faced with the challenge of boundary spanner. Because the implementation of courses involves time and teaching design, teachers will have challenges to implement similar courses. Pan and Yao (2023) proposed that schools or teaching units should provide relevant measurements to assist teachers, such as interpersonal connection, cost support (such as tour execution funds) or academic support.

Finally, practical learning prompts students to consider how they can apply classroom learning during field community tours. This study demonstrates that engaging in group discussions facilitates more comprehensive learning among students. More importantly, tourism is a dynamic structure affected by social atmosphere and issues. Therefore, it is necessary to raise student-related cases and issues. In addition to guiding students in learning, Reu and Jarldorn (2023) proposed that it also requires students to pay attention to community and social issues. Gradually, students communicate, discuss and understand the needs of local residents/collaborators, and shape images as experts to facilitate the promotion of travel activities.

CONCLUSION

This research identifies effective teaching methods that influence students' egoistic and altruistic learning in real-world contexts. In tourism-related technical and vocational education, educators must impart theoretical and conceptual tourism knowledge and develop students' skills in workplace problem-solving. Key skills include communication, coordination, field observation, and adaptability to local conditions, enabling authentic task engagement and capability integration.

The study also emphasizes designing effective learning environments as guides for teachers. It also highlights the role of educators as experts and coaches in hybrid settings and advocates community engagement to tailor courses. Shifting teaching mindsets to view creativity as a continuous, incremental process is essential. Practical learning through community field tours could help students appreciate innovation and adjust activities based on observations as well as fosters expertise and real-world application of tourism concepts.

The research suggests that future studies should analyze students' learning performance in a hybrid environment, focusing on changes in behaviors like tourism and environmental protection. It also recommends considering the cost-benefit of courses, including time, transportation, and activity funds, and examining the relationship between learning and benefits. Additionally, studies should explore different knowledge types in hybrid environment and their influence on students' skill development.

RECOMMENDATIONS

This study suggests that offering customized hands-on learning experiences focusing on egoistic and altruistic behavior, alongside effective teaching methods, aids students in technical and vocational schools in applying theoretical knowledge to practical skills. Educators are encouraged to strengthen their role as facilitators, bridging academia and industry. Recognizing students' dual roles as learners and future experts is essential for fostering a dynamic learning environment.

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REFERENCES

Aaker JL, Lee AY 2001. I'll seek pleasures and 'we' avoid pains: The role of self-regulatory goals in information processing and persuasion. *Journal of Consumer Research*, 28(1): 33-49.

Amegah A 2023. Business without social responsibility is business without morality: Employer engagement in upper secondary technical and vocational education and training schools in Ghana. *Journal of Vocational Education & Training*, 75(2): 391-415. https://doi.org/10.1080/13636820.2021.1879904

Anderson W, Sanga JJ 2018. Academia–industry partnerships for hospitality and tourism education in Tanzania. *Journal of Hospitality and Tourism Education*, 31: 34-48.

Andrews D, Van Lieshout E, Bhatta Kaudal B 2023. How, where, and when do students experience meaningful learning? *International Journal of Innovation in Science and Mathematics Education*, 31(3): 28-45. https://doi.org/10.30722/IJISME.31.03.003

Arcodia C, Novais MA, Cavlek N, Humpe A 2021. Educational tourism and experiential learning: Students' perceptions of field trips. *Tourism Review*, 76(1): 241-254.

Bakeman R 2005. Recommended effect size statistics for repeated measures designs. *Behavior Research Methods*, 37(3): 379-384.

Barnhardt CL 2015. Campus educational contexts and civic participation: Organizational links to collective action to collective action. *The Journal of Higher Education*, 86(1): 38-70.

Bolaños F, Pilerot O, Cerda-Oñate K, Cerna MÁ 2024. An understanding of school libraries within the technical vocational education and training system: Chile's CRA school libraries. *Journal of Librarianship and Information Science*. https://doi.org/10.1177/09610006231222625

Briley DA, Wyer RSJ 2002. The effect of group membership salience on the avoidance of negative outcomes: Implications for social and consumer decisions. *Journal of Consumer Research*, 29(3): 400-415.

Brook C, Milner C 2014. Reflections on 'creative' action learning in business education: Some issues in its theory and practice. *Teaching in Higher Education*, 19(2): 126-137.

Dickerson C, Jarvis J, Stockwell L 2016. Staff–student collaboration: Student learning from working together to enhance educational practice in higher education. *Teaching in Higher Education*, 21(3): 249-265.

Dreer B 2023. Creating meaningful field experiences: The application of the job crafting concept to student teachers' practical learning. *Journal of Education for Teaching: JET*, 49(4): 711-723. https://doi.org/10.1080/02607476.2022.2122707

D'Zurilla TJ, Nezu AM, 2007. *Problem-Solving Therapy: A Positive Approach to Clinical Intervention.* New York: Springer.

Earley MA 2014. A synthesis of the literature on research methods education. *Teaching in Higher Education*, 19(3): 242-253.

Eckhaus E, Klein G, Kantor J 2017. Experiential learning in management education. *Business, Management and Education*, 15(1): 42-65.

Erna SI, Mohd YY, Hamdan H, Eri M, Aldina S 2023. Towards green behavior: Egoistic and biospheric values enhance green self-identities. *Jurnal Manajemen*, 27(3): 449-470. https://doi.org/10.24912/jm.v27i3.1369

Fernández-Gámez MA, Rosales-Pérez A, Molina-Gómez J, Mora-Lucena L 2018. The effects of outdoor training on the development of emotional intelligence among undergraduate tourism students. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 23: 39-49.

Fiske A Kitayama S, Markus HR, Nisbett R 1998. The cultural matrix of social psychology. In DT Gilbert, ST Fiske (Eds.): *Handbook of Social Psychology*. Boston: McGraw-Hill, pp. 915-981.

Green AJ, Chang W, Tanford S, Moll L 2015. Student perceptions towards using clickers and lecture software applications in hospitality lecture courses. *Journal of Teaching in Travel and Tourism*, 15(1): 29-47.

Griffin K 2017. Investigating field trips. In: P Benckendorff, A Zehrer (Eds.): *Handbook of Teaching and Learning in Tourism*. Cheltenham: Edward Elgar, pp. 290-304.

Guachalla A, Gledhill M 2019. Co-creating learning experiences to support student employability in travel and tourism. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 25.

Hales R, Jennings G 2017. Transformation for sustainability: The role of complexity in tourism students' understanding of sustainable tourism. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 21: 185-194.

Hammill J, Nguyen T, Henderson F 2020. Student engagement: The impact of positive psychology interventions on students. *Active Learning in Higher Education*, 23: 1-14.

Hejun Z, Nataliya S, Lijuan C, Guohou L 2022. Strategy of vocational education adapting to social and economic development. *Journal of Innovations and Sustainability*, 6(1): 3-13. https://doi.org/10.51599/is.2022.06.01.03

Horng JS, Hsu H, Tsai CY 2019. Learning corporate ethics and social responsibility: Developing an influential curriculum for undergraduate tourism and hospitality students. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 24: 100-109.

Institut für Produktives Lernen in Europa (IPLE) 2016. *Study Letter: Vocational Orientation Through Productive Learning and Productive Learning in Vocational Training in Different European Countries*. Institut für Produktives Lernen in Europa (IPLE).

Jackson D, Riebe L, Meek S, Ogilvie M, Kuilboer A, Murphy L, Collins N, Lynch K, Brock M 2020. Using an industry-aligned capabilities framework to effectively assess student performance in non-accredited work-integrated learning contexts. *Teaching in Higher Education*, 28: 802-821.

Jia X, Hu W, Cai F, Wang H, Li J, Runco MA, Chen Y 2017. The influence of teaching methods on creative problem finding. *Thinking Skills and Creativity*, 24: 86-94.

Kirillova K, Au W 2020. How to tourism and hospitality students find the path to research? *Journal of Teaching in Travel and Tourism*, 20(4): 284-307.

Lee TH, Shen PD, Tsai TW 2010. Enhance low-achieving students' learning involvement in Taiwan's higher education: An approach via e-learning with problem-based learning and self-regulated learning. *Teaching in Higher Education*, 15(5): 553–565.

Lee MJ, Kang H, Choi H, Lee JW, Olds D 2019. Students' perceptions of hospitality education 1uality in the United States higher education: Domestic versus international students. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 25: 100212.

Lee SJ, Wilder C, Yu C 2018. Exploring students' percep-tions of service-learning experience in an undergraduate web design course. *Teaching in Higher Education*, 23(2): 212-226.

Lester C, Robinson G 2007. *An American Mosaic: Service Learning Stories*. Washington, DC: American Associa-tion of Community Colleges.

Liang RD 2016. Predicting intentions to purchase organic food: The moderating effects of organic food prices. *British Food Journal*, 118(1): 183-199.

Li J, Pilz M 2023. International transfer of vocational edu-cation and training: A literature review. *Journal of Voca-tional Education & Training*, 75(2): 185-218. https://doi.org/10.1080/13636820.2020.1847566

Loyens SMM, Rikers RMJP, Schmidt HG 2006. Students' conceptions of constructivist learning: A comparison between a traditional and a problem-based learning curriculum. *Advances in Health Sciences Education*, 11: 365-379.

Madden EE, Davis J, Cronley C 2014. A comparative anal-ysis of service learning in social work and criminal jus-tice education. *Teaching in Higher Education*, 19(5): 470-483.

Martin L, West J, Bill K 2008. Incorporating problem-based learning strategies to develop learner autonomy and employability skills in sports science undergradu-ates. *Journal of Hospitality, Leisure, Sport and Tour-ism Education*, 7(1): 18-30.

Meihami H 2022. An exploratory investigation into EFL teacher educators' approaches to develop EFL teachers' ability to teach for creativity. *Thinking Skills and Cre-ativity*, 43: 101006. https://doi.org/10.1016/j.tsc.2022.101006

McGrath S, Yamada S 2023. Skills for development and vocational education and training: Current and emer-gent trends. *International Journal of Educational Development*, 102: 102853.

Michaelidou N, Hassan LM 2008. The role of health con-sciousness, food safety concern, and ethical identity on attitudes and intentions towards organic food. *Interna-tional Journal of Consumer Studies*, 32(2): 163-170.

Milton E, Morgan A 2023. Enquiry as a way of being: A practical framework to support leaders in both embrac-ing the complexity of and creating the conditions for meaningful professional learning. *Professional Devel-opment in Education*, 49(6): 1072-1086. https://doi.org/10.1080/19415257.2023.2251122

Natalia A, Aleksandra D, Aleksandra K, Ekaterina S, Dmitriy T 2023. Evaluation of linguistics students' learn-ing outcomes in peer teaching courses: The effect of altruistic and egoistic behaviors. *European Journal of Investigation in Health, Psychology and Education*, 13(11): 2681-2696. https://doi.org/10.3390/ejihpe 13110185

Nagle T, Birkbeck G, Daly N, Jones S, O'Sullivan J, Sammon D 2023. Methodological "learning-by-doing" for ac-tion design research. *Journal of Information Systems Education*, 34(3): 293-306.

Nordstrom K, Korpelainen P 2011. Creativity and inspira-tion for problem solving in engineering education. *Teach-ing in Higher Education*, 16(4): 439-450.

Padel S, Foster C 2005. Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British Food Journal*, 107(8): 606-625.

Pan X, Yao Y 2023. Enhancing Chinese students' academic engagement: The effect of teacher support and teacher-student rapport. *Frontiers in Psychology*, 14: 1188507. https://doi.org/10.3389/fpsyg.2023. 1188507

Pappalepore H, Farrell H 2017. Redressing the balance: Inverted hierarchies in the tourism classroom. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 21: 144-153.

Pavlova M 2019. Emerging environmental industries: Im-pact on required skills and TVET systems. *The Interna-tional Journal of Training Research*, 17(1): 144-158.

Pedersen PJ, Meyer JM, Hargrave M 2015. Learn global; serve local: Student outcomes from a community-based learning pedagogy. *Journal of Experiential Education*, 38(2): 189-206.

Pedler M 1996. *Action Learning for Managers*. London: Lemos and Crane.

Prescott J 2014. Teaching style and attitudes towards Face-book as an educational tool. *Active Learning in Higher Education*, 15(2): 117-128.

Ranieri M, Raffaghelli JE, Bruni I 2018. Game-based student response system: Revisiting its potentials and criticali-ties in large-size classes. *Active Learning in Higher Edu-cation*, 22: 1-14.

Reu P, Jarldorn M 2023. Social work students' perceptions of eco-social work in the curriculum. *Australian Social Work*, 76(4): 480-492. https://doi.org/10.1080/0312407X.2022.2102431

Rosendo CF, Alberto C, José V, Angel S 2023. A reinforce-ment learning approach to explore the role of social expectations in altruistic behavior. *Scientific Reports*, 13(1): 1-14. https://doi.org/10.1038/s41598-023-28659-0

Sanderse W 2024. Vocational education and Bildung: A mar-riage or divorce? *Journal of Vocational Education & Training*, 76(1): 146-163. https://doi.org/10.1080/13636820.2021.2015714

Savin-Baden M 2004. Understanding the impact of assess-ment on students in problem-based learning. *Innova-tions in Education and Teaching International*, 41(2): 223-233.

Schreck CM, Weilbach JT, Reitsma GM 2020. Improving graduate attributes by implementing an experiential learn-ing teaching approach: A case study in recreation educa-tion. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 26: 100214.

Shen PD, Lee TH, Tsai CW 2008. Enhancing skills of appli-cation software via web enabled problem-based learning and self-regulated learning: An exploratory study. *Inter-national Journal of Distance Education Technologies*, 6: 69-84.

Skolnik ML 2020. Canada's high rate of short-cycle tertiary education attainment: A reflection of the role of its community colleges in vocational education and train-ing. *Journal of Vocational Education & Training*, 73(4): 543–565.

Stansbie P, Nash R, Chang S 2016. Linking internships and classroom learning: A case study examination of hospital-ity and tourism management students. *Journal of Hospi-tality, Leisure, Sport and Tourism Education*, 19: 19-29.

Strange H, Gibson H 2017. An investigation into experiential and transformative learning in study abroad programs. *The Interdisciplinary Journal of Study Abroad*, 29(1): 85-100.

Wang WY, Keh NC, Chou CC, Wu CM 2015. Evaluation of teaching effectiveness of problem-based learning model on nursing college health physical fitness program. *Sports and Exercise Research*, 17(2): 154-168.

Wang A, Guo D 2019. Technical and vocational education in China: Enrolment and socioeconomic status. *Journal of Vocational Education & Training*, 71(4): 538-555.

Warton NM, Brander RW 2017. Improving tourist beach safety awareness: The benefits of watching Bondi rescue. *Tourism Management*, 63: 187-200.

Wong MY 2020. University students' perceptions of learning of moral education: A response to lifelong moral education in higher education. *Teaching in Higher Education*, 28: 654-671. https://doi.org/10.1080/13562517. 2020. 1852201

Xu S, Wang YC, Wen H 2019. A case study for student leadership development: A goal setting perspective. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 24: 168-177.

Yau RF, Guo CJ, Lieo S 2001. Conceptualizing mathematics teaching by doing research in the instructional setting: A case study of a pre-service mathematics teacher. *Chinese Journal of Science Education*, 9(1): 1-13.

Young M, Hordern J 2022. Does the vocational curriculum have a future? *Journal of Vocational Education & Training*, 74(1): 68-88.

Zwaal W, Otting H 2010. The process of problem-based hospitality management education. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 9(2): 17-30.