

## Effects of Creative Problem Solving Strategies Instruction on Tourism and Hospitality Undergraduate Students

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Growing attention has been paid to the adoption of creative problem solving (CPS) in education to encourage students to learn how to face creative challenges and solve realistic problems. This study developed and evaluated an 18-week creative module comprised of CPS methods, team building, and creation of a supportive atmosphere for undergraduate tourism and hospitality programs in Taiwan. Five tourism and hospitality education experts who have creativity teaching experience and conduct creativity research joined the curriculum development panel. A quasi-experimental design, with a sample of 268 students, was used to estimate the causal impacts of educational intervention. Pre- and post-tests were administered to both the control and experimental group. Students in the experimental group participated in a CPS-based course for a semester. The results showed that students who received the intervention significantly enhanced their creativity as assessed by their Abbreviated Torrance Test for Adults (ATTA) scores. The results indicated that the CPS-based course has a positive effect on the post-test results. This study's findings also indicated that students' motivation showed greater improvement in the experimental group. Analysis of the student focus group interviews also showed that the experimental group learned how to solve problems using creativity from the CPS-based course. This result supported our quantitative findings.

Keywords: creativity, creative instruction, creative problem solving, curriculum design, teaching strategy

專論

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## **Introduction**

In today's environment marked by a low birth rate and severe competitiveness, cultivating students with creative talent has become an issue of concern in contemporary education. Especially in the knowledge economy era, creativity plays an important role to gain a global competitive advantage. Because creativity is a form of human wisdom and knowledge expression, it can be converted into economic value to provide organizations and individuals with a sustainable competitive advantage (Wu, Wu, Chen, & Chen, 2014). Creativity also has a critical impact on the development of products, competitiveness and sustainable development for enterprises (Horng, Lin, & Chen, 2009).

Some initial research has investigated the importance of creativity in the tourism and hospitality industry (Horng, Liu, Chou, & Tsai, 2013; Richards, 2011) and has shown that the atmosphere may affect creative behavior (Hon, 2012; Wang, Rode, Shi, Luo, & Chen, 2013). Richards (2011) noted that while creativity has been recognized as a critical attribute for the development of the tourism industry, determining a standard definition of creativity remains problematic for tourism researchers and managers. Since Taylor (1988) suggested the '4Ps' of creativity, which include creative persons, processes, products, and environment ('creative press'), tourism studies have subsequently applied these concepts to tourism issues. For example, studies have used the concept of creative products to explain tourist attractions, the concept of creative processes to explain tourist behavior, the concept of creative environments to demonstrate how creative clusters develop, and the concept of 'creative class' to identify creative people (Florida, 2002). In tourism and hospitality education, students' creativity and innovative abilities can be evoked through in-class education and teaching strategies (Lin & Horng, 2011; Cheng, 2011). Cheng (2011) explored the effect of applying an innovative teaching strategy (i.e., CPS) in hospitality accounting courses to promote students' business creativity.

Currently, tourists are searching for more interactive and fulfilling experiences rather than being served by the travel industry (Tan, Luh, & Kung, 2014). The tourism industry includes travel agents, hotels, food and beverage services, transportation, and related products and services. The travel industry plays an important role in developing tourism. However, its products and services are easily

imitated by other businesses, resulting in homogeneous products that flood the market and lead to a loss of competitiveness. In addition, customer demands are ever-changing. In order to meet customer needs, the travel industry needs to become more creative and innovative to survive in a red ocean market (Richards, 2011).

The Taiwanese government launched the tourism marketing goal designated “Time for Taiwan” in 2014, and this initiative emphasized the importance of innovation and sustainable development. Moreover, the 2015 policy objectives call for improving tourism’s human resources with talent and encouraging green tourism development to boost both the attraction and competitiveness of tourism.

In today’s society, all walks of life emphasize the importance of creativity. Tourism and hospitality education should also catch up with the times. In order to meet the industry needs of tourism professionals, students’ creativity and innovative abilities can be evoked through in-class education and teaching strategies (Lin & Horng, 2011; Cheng, 2011). Therefore, higher education should provide students with learning opportunities for creativity and innovation instead of a traditional memorization-based education and a curriculum design based on the pedagogy of passive knowledge transfer.

Creative Problem Solving (CPS) is the most commonly used teaching method identified in Torrance’s (1972) research on creativity education. Many researchers suggest that students can identify real problems and generate possible solutions by employing CPS (Osburn & Mumford, 2006; Lin & Horng, 2011). Innovation competency and creativity should be included in the development of courses to improve the success rate of tourism and hospitality education (Horng & Hu, 2009). Therefore, this study expects to show improvement in tourism and hospitality students’ problem solving abilities and creativity through creative teaching strategies. The research purposes are as follows:

1. To improve students’ learning outcomes through group learning.
2. To enhance students’ problem solving ability and creativity through creative teaching intervention.
3. To provide suggestions for CPS teaching strategies for tourism and hospitality curricula.

This study assumes two hypotheses. First, after the end of the course, students

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in the CPS group possess higher problem solving abilities and creativity than those in the non-CPS group. Second, the CPS teaching strategies can boost students' learning outcomes, such as problem solving abilities and creativity.

## **Literature Review**

### **Creativity**

The term 'cultural industries' was initially coined in the 1940s by Horkheimer and Adorno (1972), who were fiercely critical of the commodification of art. They saw the cultural industries as the producers of repetitive cultural products for capitalist mass consumption. However, policymakers later began to use the 'cultural industries' as a more inclusive concept of culture than traditional or 'highbrow' approaches which dominated discussions of public intervention in the cultural field. The shift from cultural to creative industries, by combining the 'arts' with industrial production, the creative industries concept also challenges previous dichotomies between high and popular culture or elite and mass culture (Cunningham & Hartley, 2001). The idea that creativity is a freer form of cultural expression than the (re)production of culture is attractive not just to the producers of creative products, but also to many policy analysts, particularly in free market economies (Richards & Wilson, 2007).

Creativity has been defined as an outcome focusing on the production of new and useful ideas concerning products, processes or services (Amabile, 1996; Oldham & Cummings, 1996; Woodman, Sawyer, & Griffin, 1993). Creativity-related research results have found that factors such as an individual's personality, cognitive style, problem-solving abilities, intrinsic motivation, family background, educational background, organizational culture context, and physical environment play important roles in the cultivation of creativity (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Sternberg & Lubart, 1995). Creativity and innovation assist the ability to conceptualize new products, processes, and systems (Birdir & Pearson, 2000). Researchers have devoted much attention to examining the important attributes and antecedents of creativity (Amabile, 1997; Ford & Gioia, 2000; George & Zhou, 2001; Pearce, 2004). In the decision-making process, creativity is of crucial importance (O'Halloran & O'Halloran, 2001). Along with daily progress in

knowledge, technology and data flow, organizations' managers will require higher education and skill development to keep pace with the developments in knowledge and technology to ensure that their organizations may link and tackle the problems utilizing collective knowledge and the contemplation of new and creative ideas (Mobarakeha, 2011).

Besides, recent studies that took an integrated approach developed relevant theories to support this view as follows. The investment theory of creativity holds the view that creativity consists of the following six interacting factors: intelligence, knowledge, thinking style, personality, motivation and environment (Sternberg & O'Hara, 1999). Horng and Hu (2008) used a qualitative research method and constructed a dynamic model of the creativity process, which comprises idea preparation, idea incubation, idea development, and product evaluation. The interactionist model proposed by Woodman and Schoenfeldt (1990) has been accepted and verified by most studies (Hon, 2012; Oldham & Cummings, 1996; Tierney, Farmer, & Graen, 1999; Woodman et al., 1993). It states that an individual's creative behavior results from the interaction between one's own condition, cognitive style, personality, motivation and knowledge, and these personal factors are also influenced by social context and background.

### **Creative Problem Solving and Creativity**

CPS is a creative problem solving model proposed by Osborn, Parnes, Treffinger and Isaksen, who were members of the Creative Studies Project at Buffalo State College. In 1952, Osborn developed a comprehensive seven-stage CPS process as well as the most well-known term associated with the concept of creativity, "brainstorming" (Treffinger & Isaksen, 2005). After years of research on creativity and its process strategies, Osborn (1963) focused on applications of CPS in the educational arena and modified the seven-stage process into three more comprehensive stages: fact-finding, idea-finding and solution-finding. Parnes (1967) continued to perform research on the CPS process and advocated the Osborn-Parnes Five Stages CPS Model that included fact-finding, problem-finding, idea-finding, solution-finding and acceptance-finding. Isaksen and Treffinger (1985) considered the individual differences issue and then proposed a six-stage CPS model that replaced the fact-finding stage with data-finding, added a mess-finding stage to the front end of the CPS model, and organized six stages into three components of problem solving activity. The three components include understanding the problem, generating ideas, and planning for action.

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To make CPS natural, descriptive and flexible, Isaksen, Dorval and Treffinger (2000) grouped these stages into four components and eight different stages portrayed in circular rather than linear form (Treffinger, Selby, & Isaksen, 2008). The four elements include understanding the challenge, generating ideas, preparing for action, and planning your approach. The first element, “understanding the challenge”, includes constructing opportunities, exploring data, and framing problems. The “generating ideas” component includes coming out with many unusual ideas or solutions when facing problems. In the stage of “preparing for action”, individuals have to develop solutions and promising ideas. Moreover, individuals must search for potential sources in order to find better solutions for improved acceptance. The component of “planning your approach” includes the appraising tasks and designing process stages that are at the center of the CPS framework. This step serves as a management element, guiding problem solvers in analyzing and selecting process components and stages carefully.

From the development history of the CPS model, a systemic approach to CPS is regarded as a reliable tool for creativity testing and enables individuals and groups to act on opportunities, respond to challenges, balance creative and critical thinking, overcome concerns, and manage changes (Treffinger & Isaksen, 2005). Isaksen and Treffinger (1985) suggested three components and six stages CPS model. The classroom perspective of dividing students into different groups proposed in Sullivan, Johnson, Owens and Conway (2014) can change the learning environment and stimulate students’ problem solving abilities.

Creativity is one of the most important elements for enhancing the innovation performance (Dewett & Gruys, 2007). Individuals adopt the creative thinking process to generate new ideas or problem-solving solutions. Yeh’s (2004) research findings also support the idea that problem solving abilities such as organizing and analyzing problems, planning and adjusting working progress, staying judgmental and being sensitive in observations are positively related to creative performance.

### **CPS and Creative Education**

Currently, educators advocate for university students to possess the knowledge and skills for future career and life development, especially in today’s knowledge economy and an era marked by rapid technology growth. Nurturing higher education

students' creativity can enhance their competitive advantage for surviving in an unpredictable and highly competitive environment (Wu et al., 2014). One of the objectives of university education is to produce talents in the academic and practical fields. Therefore, providing better opportunities for students to foster and display creativity becomes an unavoidable issue.

Growing attention has been paid to the application of CPS in education to encourage students to learn how to solve creative challenges and realistic problems. Many researchers focus on teaching students the CPS stages or employing CPS to generate creative solutions (Treffinger & Young, 1994; Lin & Horng, 2011). Lin and Horng (2011) designed a CPS curriculum to develop the creative skills of culinary students. The results indicated that a CPS-based course can enhance culinary arts students' CPS abilities. Therefore, the CPS curricular model has been successful for improving practical outcomes as well as creative thinking and student interaction. Horng, Hong, ChanLin, Chang and Chu (2005) suggest integrated activities closely connected to life experience as a basis for development of creative thinking within education, as well as strategies for creative instructions such as student-centered learning, a connection between teaching content and real life, open-ended questions, and the encouragement of creative thinking.

In tourism and hospitality education, the instructors apply student-centered learning (Kim & Davies, 2014), problem-based learning (Zwaal & Otting, 2010), and CPS (Cheng, 2011) to improve students' learning outcomes. As noted by Kim and Davies (2014), students in a learner-centered environment can have richer learning outcomes than those in the traditional teacher-centered model. The results from Zwaal and Otting (2010) show that paying more attention to the learning processes and group dynamics may improve the quality of learning and problem solving skills. The CPS model can be applied to other practical courses, such as marketing and human resource management because the tourism and hospitality industry is multi-faceted (Horng et al., 2009). Cultivating creativity is clearly crucial for students' occupational careers. Therefore, the application of CPS education should be encouraged among educators to equip students with business creativity (Cheng, 2011).

Horng and Hu (2009) believed that creativity is not purely innate, because all students possess a certain level of scattered and focused thinking abilities. Creativity courses should be inspected its purpose, content, teaching method, document reading, assignment, and assessments (Chen, 2009). Creativity education should



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incorporate creative thinking techniques and strategies into the course progress, which could then act as a catalyst to the creative journey (Horng & Hu, 2009; Niu & Sternberg, 2003). The effectiveness of these creativity education strategies has been scientifically proven.

## **Methodology**

To carry out CPS-based teaching intervention through course design, the research team invited five tourism and hospitality education experts who have creativity teaching experience and conduct creativity research to join a curriculum development panel. First, the tourism and hospitality instructors integrated tour planning academic knowledge and skills, creativity and problem solving skills into curriculum design. Tour planning involves tourism geography, creativity, time controlling, and cost valuation skills. Thus, tour planning course can improve students' creativity and ability to propose new and appropriate problem-solving methods or produce new products. Second, the research team held curriculum meetings many times to resolve how to proceed with the course and the learning outcome survey after class. This education intervention involved in the tourism and hospitality departments, and the common focus was tour planning. For the students of hospitality departments, their tour planning mainly focused on culinary tourism design.

### **Quasi-Experimental Pedagogy**

Creative thinking is both a method and a tool. Applying creative thinking techniques can facilitate creativity and problem solving ability. This course is designed to focus on inspiring students' creativity and integrating creative environment management in the tourism and hospitality industry. In this study, the course content design adopted the three components and six stages CPS model suggested by Isaksen and Treffinger (1985). The classroom perspective of dividing students into different groups proposed in Sullivan et al. (2014) was adopted to change the learning environment and stimulate students' problem solving abilities, so they can contribute to innovative tour planning outcomes.

The research employed a quasi-experimental method to implement a tour planning course, which is an elective course. A quasi-experiment is an empirical study used to estimate the causal impact of an intervention on its target population.

Pre- and post-tests were administered to both the control and experimental groups. The experimental group students participated in a CPS-based tour planning course for a semester. The course included nine units and used multiple teaching methods such as lectures, panel discussions and Power Point presentations. In the 18-week experimental instruction program, six educational interventions were adopted, including brainstorming, the mandala method, the synectics method, the hope listing method, the forced relationship method, and mind mapping. As suggested by Liu and Schoenwetter (2004), instructors begin with direct instruction in using thinking tools, and then incorporate the tools into course contents. In idea thinking phase, students think about diverse ideas that can solve the problem at issue by making use of the relevant methods. The tools include brainstorming, mind mapping, and so on (Jeon & Kim, 2015; Liu & Schoenwetter, 2004; Thompson & Lordan, 1999). Moreover, teachers built an innovative learning environment and atmosphere into the whole semester.

## **Participants and Procedure**

The participants were undergraduate students in the tourism and hospitality management department at three universities in Taiwan. The three instructors (one teacher each school) are the members of this research team, understand the purpose and process of this study, and develop the curriculum and instruction strategy together. They have similar teaching years (around five), and all have relevant professional background in the industry. During the whole process, three teachers also maintain close discussion and communication to reduce the expected effect and teaching differences. Besides, because they are not only the member of this study but also the original teacher of the class, it can reduce the expected effect of the experimenter. Both the experimental group and control group participated in the course of tour planning. The syllabus of both groups is shown in Table 1. A total of 141 students (three classes), one class each school, were in the experimental group and participated in the tour planning course based on CPS. The tour planning course is appropriate, because it involves problem solving activity and includes understanding the problem, generating ideas, and planning for action. Meanwhile, the control group, which did not involve problem solving activity, included a total of 127 students (three classes, one class each school). Students in this course understood the course's objectives, outline and tasks. During the course process, students were required to divide into groups. Moreover, each of them was required to participate in group discussions and contribute their own ideas to complete

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weekly missions. Therefore, this study hoped to promote students' problem solving abilities and creativity through group learning and CPS teaching. The CPS educational intervention process is shown in Fig. 1.

Table 1 *Syllabus*

Week	Theme
1	Course introduction and pre-test
2	Tourism and hospitality management concept
3	The importance of sustainable management
4	Introduction to tour planning
5	Principles of tour planning
6	Budget
7	Progress report (1)
8	Progress report (2)
9	Midterm week
10	Progress report (3)
11	Green and creative tour thinking
12	Green and innovative planning
13	Presentation of tour planning
14	Tour planning and marketing
15	Final report (1)
16	Final report (2)
17	Post-test and focus group interviews
18	Final exam week

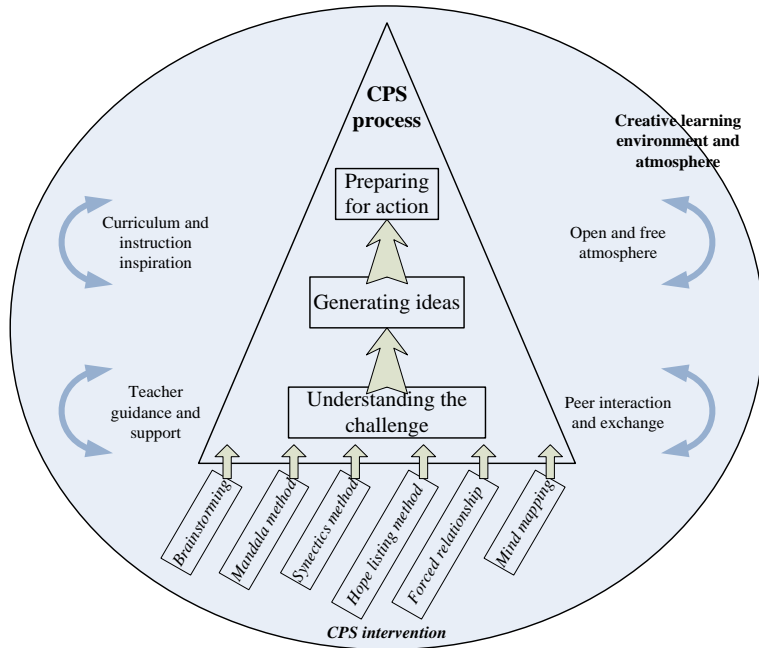


Figure 1 Student creativity learning process and learning environment

The first week included course introduction to let students understand the teaching goals, the way to proceed and pre-test the experimental and control group. The second week served to introduce the concept of tourism and hospitality management. The experimental group students were divided into groups to discuss further lectures and to build a team work environment. From the third week, CPS lectures including brainstorming, the mandala method and the synectics method allowed students to have a subject team discussion for 3 weeks. At the eighth week, the midterm exam required students to complete the primary 3-day local tour design with creativity and a green concept. These presentations lasted for three weeks. During the 11th week, teachers taught green and creative tour planning as well as 5R (research, reduce, reuse, recycle and rescue) and the way to present it. From the 12th to 14th weeks, teachers conducted creative teaching interventions sequentially, applying the following teaching strategies: the hope listing method, the forced relationship method, and mind mapping. Table 2 describes the six interventions of CPS. Teachers also provided students with the theme and mission discussion every week to promote students' abilities in solving problems and thinking creatively and

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enable them to work out a well-constructed and creative tour plan. From the 15th to 17th weeks, students held a 3-day tour plan presentation competition in groups. The top three were rewarded. Interventions allow students to present their own group's ideas and common views. Teachers asked them to vote for the most creative group, which would receive a reward. The final week of lecture served to conclude the course and to hold a focus group interview and post-test to understand students' learning processes and shared experiences. Finally, this research employed focus group interviews, including the top three groups (with better learning effectiveness) and some students with poor performance each school, to understand students' learning outcomes and teaching reflections for the sake of future course planning and suggestions. The top three groups seem to get the most from the CPS-based course and then appear on their performance.

Table 2 *Six Interventions of CPS (the Experimental Group)*

Week	CPS	Description
3	Brainstorming	Ask students to discuss the elements of creative and green tour planning; no criticism; welcome the free ride.
4	Hope listing method	Guide students to propose more creative and green programs; through continuous hope listing and thinking how to be better to explore the solution of problems and improve countermeasures.
5	Mandala method	Ask students to discuss the most attractive itinerary; think then write; try to fill; refurbishment; use colors; regular review; slow down thinking.
12	Synectics method	Share the most attractive itinerary and design a creative poster; fantasy analogy; direct analogy; personal analogy; symbolic analogy.
13	Forced relationship	Guide students to list the needs of special customers (such as no money students and the elderly; at least 3) as well as special transportation (such as helicopter and heat balloons; at least 3); forced to combine, assess the feasibility of each combination.
14	Mind mapping	Sell their own creative and green tour planning by the poster; draw graphics and write the theme in the center; lead to the branch and the small branch line; use colors, patterns and symbols to classify.

Sullivan et al. (2014) investigated the relationship between classroom behavior and academic performance. The results noted that teachers can consider aspects related to the physical environment, the curriculum and resources, and their teaching to engage students in learning process. Therefore, this research employed this perspective to encourage students to interact with group members during CPS teaching intervention, to create classroom conditions that promote academic engagement and to build more productive and creative behaviors.

## **Measures**

This research employed the Abbreviated Torrance Test for Adults (ATTA) to measure students' creativity and creativity thinking abilities both in pre- and post-tests. Drawing on the history of creativity research, the Tests of Divergent Thinking are often used to estimate the potential for creative thinking. Divergent thinking is required when an individual needs to determine out a correct or conventional answer to a question or solution to a problem (Runco, Dow, & Smith, 2006). ATTA has been proposed by Torrance, who constructed it from Guilford's Divergent Thinking Tests. ATTA is useful for examining four aspects of an individual's divergent thinking: fluency, originality, flexibility, and elaboration (Torrance, 1974). ATTA is a shortened version of the Torrance Tests of Creative Thinking (TTCT). The ATTA provides substantial insight into the creativity of adults by quantifying figural and verbal creative strengths. The ATTA consists of four norm-referenced abilities along with fifteen criterion-referenced creativity indicators that when added together will give the creativity index.

To conduct triangulation analysis, this research collected qualitative data from student focus group interviews to guarantee the project's credibility. The interview outline includes: Do you think that this course will increase your personal knowledge and ability? What personal problem-solving skills does this teaching enhance? What does this course make you impressed? What are your suggestions? The researcher collected three sets of interview data from different student groups at the end of the lecture. After coding and analyzing the data, the qualitative document may reveal the truth about students' feelings concerning this educational intervention process.

## Results and Discussion

### Quantitative Results

Administered before and after the educational program, the pre- and post-tests were conducted to evaluate the effectiveness of the program. This research employed ATTA to measure students' creativity and creativity thinking abilities in both pre- and post-tests. The results of the pretests served as a co-variant for ANCOVA analysis to identify the difference between pre- and post-tests. In addition, the study also employed qualitative methods including student focus group interviews to cross-reference with the quantitative results.

To deal with the difference among schools, the researcher carried out one-way ANOVA. Taking flexibility as an example, Table 3 showed that different schools don't have significant impact on flexibility score at 95% confidence level ( $p = 0.31 > 0.05$ ). In Table 4, post-hoc comparison (Scheffe method) also showed that there is no significant difference between school A and B ( $p = 0.32 > 0.05$ ), school A and C ( $p = 0.91 > 0.05$ ), school B and C ( $p = 0.57 > 0.05$ ).

Table 3 *One-Way ANOVA (Flexibility Score)*

Source of variance	SS	df	MS	F	Sig.
Between Groups	13.19	2	6.59	1.17	0.31
Within Groups	779.85	138	5.65		
Total	793.04	140			

Table 4 *Post-Hoc Comparison (Flexibility Score by Scheffe Method)*

Method (I)	Method (J)	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
					Lower	Upper
A	B	0.77	0.51	0.32	-0.49	2.02
	C	0.20	0.46	0.91	-0.95	1.35
B	A	-0.77	0.51	0.32	-2.02	0.49
	C	-0.57	0.53	0.57	-1.88	0.75
C	A	-0.20	0.46	0.91	-1.35	0.95
	B	0.57	0.53	0.57	-0.75	1.88

A, B, C: three schools.

The researcher then tested the students' creativity using SPSS. The experimental and control groups served as the independent variables for ANCOVA analysis. Table 5 shows ATTA covariance analysis. The main effect result of ATTA showed that the covariance effect met significant value ( $F = 159.876, p < 0.05$ ). The results showed that there were ATTA differences intra-group. Post-hoc comparison also showed that in the post-tests, both the experimental and control groups had higher ATTA scores than in the pre-tests. The intra-group effect had significant value ( $F = 66.736, p < 0.05$ ). It indicated that the CPS-based course has a positive performance on the post-test results.

Table 5 Summary of ATTA Covariance Analysis

Source of variance	SS	df	MS	F	Sig.
Intercept	3640.110	1	3640.110	61.293	.000
Creativity	9494.765	1	9494.765	159.876	.000
Group	3963.345	1	3963.345	66.736	.000
Error	15737.913	265	59.388		
Total	1260547.000	268			

In addition to the overall significance, this study further tested the significance of ATTA four aspects (i.e., fluency, originality, flexibility, and elaboration) by paired-samples t test. In Table 6, firstly, the t value of FLU (b) – FLU (a) is -6.64, the confidence interval of 95% is (-1.66, -0.90), and the significance level is 0.00 (far less than 5%). So, CPS interventions did cause significant change in fluency of ATTA. Second, the t value of ORI (b) – ORI (a) is -1.98, the confidence interval of 95% is (-1.15, -0.00), and the significance level is 0.05. Thus, CPS interventions also caused significant change in originality of ATTA. Thirdly, the t value of FLE (b) – FLE (a) is -9.06, the confidence interval of 95% is (-2.58, -1.66), and the significance level is 0.00 (far less than 5%). Therefore, CPS interventions did cause significant change in flexibility of ATTA. Finally, the t value of ELA (b) – ELA (a) is 1.58, the confidence interval of 95% is (-0.08, 0.74), and the significance level is 0.12 (far greater than 5%). Thus, CPS interventions did not cause significant change in elaboration of ATTA.



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Table 6 Paired-Samples *t* Test of ATTA Four Aspects

	Mean	SD	Error	95% C.I. of		<i>t</i>	<i>df</i>	Sig.
				the difference				
				Lower	Upper			
FLU (b) – FLU (a)	-1.28	2.28	0.19	-1.66	-0.90	-6.64	140	0.00
ORI (b) – ORI (a)	-0.57	3.45	0.29	-1.15	-0.00	-1.98	140	0.05
FLE (b) – FLE (a)	-2.12	2.78	0.23	-2.58	-1.66	-9.06	140	0.00
ELA (b) – ELA (a)	0.33	2.46	0.21	-0.08	0.74	1.58	140	0.12

FLU: fluency; ORI: originality; FLE: flexibility; ELA: elaboration; (b): (before); (a): (after).

## Qualitative Results

In the analysis of student focus group interviews, the results showed that the experimental group students learned how to solve the creative problem from the CPS tour planning course, and the students totally agreed that teaching them with CPS can prompt their creativity. This result supported our quantitative findings.

*After several times of CPS teaching intervention, I have learned how to plan a tour with green and creative concept. For instance, organic and seasonal food, green hotel, and low-carbon transport. Besides, taking public transport or cycling, bringing own environmental protection tableware, sleeping in the tree house or tent can also achieve the purpose of low-carbon. In addition, the teacher employed different creative techniques. It truly let us learn how to think creatively. During the course, the teacher gave us an assignment and encouraged us to think creatively to solve the problem. These teaching techniques pushed us to face the problem, think of solutions and communicate with peers. As a result, we have learned how to generate new ideas.*

*(Student 11)*

*If I have enough time, I hope to retake this credit...I would ask if each ingredient can be exchanged for a better one. This is my quest for perfection...*

*(Student 01)*

In addition, they did not only learn from each other but also challenged others' ideas through team discussion, providing a creative learning environment. The experimental group students said that this small group interaction was very important to their creative development when they conquer each project design.

*I totally enjoyed with each CPS teaching course. The teamwork and team discussions facilitated and stimulated brainstorming and imagination. The process was interesting and free for crazy ideas coming out. Each team member has to contribute ideas and reach a consensus through communication and coordination. This process is very important for creative ideas development. Sometimes, I feel everyone's ideas are so new and special that I have never thought.*

*(Student 53)*

*I would shoot and prepare works from different angles, although the class time is limited...I would ask students to observe, analyze and comment. I would listen to what they say and accept their views as much as possible.*

*(Student 03)*

On the other hand, this study recorded the contents of student focus group interviews and made a verbatim. In accordance with its contents through the process of data analysis, this study gradually extracted from the meaning of the text revealed. The analytical procedure refers to Beck's (1994) method. The findings summarize some themes, such as personality, data collect, idea generate, confirm, creativity, satisfaction, environment and participate.

Through creative teaching techniques such as brainstorming and mind-mapping, the use of divergent thinking can stimulate creativity (Fasko, 2001). When employing divergent thinking, students have to exhaust all possibilities; in convergent thinking, critical thinking is most important (Treffinger & Isaksen, 2005).

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Moreover, the team-based learning can stimulate students' interest and curiosity during their learning process (Kim & Davies, 2014). As shown above, students' learning outcomes totally support that the application of CPS approach in tour planning course can foster students' creativity.

## **Conclusions**

In order to have insight into the research outcomes and processes, the researchers employed both quantitative and qualitative methods to measure students' learning performances after the implementation of CPS-based teaching intervention. This study aimed to determine whether the CPS teaching intervention can enhance creativity and creative problem solving abilities among tourism and hospitality undergraduate students. Moreover, the research findings can provide suggestions of CPS teaching strategies for tourism and hospitality curricula.

The quantitative data showed that both the experimental and control group had higher creativity and ATTA scores in post-tests than pre-tests. Furthermore, the intra-group effect had significant values. This indicated that the CPS-based course has a positive performance on the post-test results. In other words, students' creativity and problem solving abilities can be boosted after CPS-based teaching intervention for a semester. This finding supports the application of CPS educational intervention to enhance tourism and hospitality students' creativity and problem solving abilities (Lin & Horng, 2011). The curriculum design of creative thinking focuses on nurturing competency rather than inculcating knowledge contents directly. Therefore, teachers should prepare course contents that can stimulate lively teaching and transcend typical thinking methods (Birdir & Pearson, 2000). Besides, this study found that CPS interventions did cause significant changes in fluency, originality and flexibility of ATTA.

Furthermore, drawing on the qualitative analysis results, the researcher suggests applying team discussion and learning to encourage lots of peer interaction and help students' learning performances. Prior studies have mentioned the importance of the interaction between the mental and external operations in creative activities (Ishii & Miwa, 2005). Horng and Hu (2009) used a culinary creativity educational method, which is different from traditional teaching methods (i.e.,

lecture and demonstration), and found that the method helped students enhance their interest in learning and creative motivation. Horng and Hu (2009) also highlighted the importance of teamwork in the culinary arts for students' creative performances. As a result, this study suggests that designing and providing a team learning environment can foster participants' creativity. Recently, various educational courses have focused on creativity, such as engineering education (Elata & Garaway, 2002) and general education (Ishii & Miwa, 2005), and thus tourism and hospitality educators cannot overlook this hot issue. Therefore, cultivating creativity among tourism and hospitality students is strongly encouraged for students' occupational careers.

Through paired-samples t test, we further found that CPS interventions have significant impacts on fluency, originality and flexibility of ATTA. This is important difference between quantitative and qualitative methods, because focus group interviews don't get the finding. Fluency is the ability to create a large number and related ideas. Originality is the ability to create unusual, new or unique ideas. Flexibility is the ability to handle information and objects in different ways under the same stimulus. On the other hand, elaboration is the ability to refine the concept. Thus, elaboration seems to be more difficult from fluency, originality and flexibility for students. However, at the beginning of CPS intervention, students are underdeveloped and do not seem to be very active. Besides, it takes time to explain the principle (e.g., content and structure) of tour design. It is also a bit difficult for students to fully absorb. On the other hand, students are not very familiar with the application of CPS methods, so it spends a lot of time to explain. This is also the important difference between quantitative and qualitative finding.

In tourism and hospitality education, the importance of learning environment has been widely discussed and recognized as strongly influencing students' learning and problem-solving skills (Haven & Botterill, 2003; Kim & Davies, 2014; Mimirinis & Bhattacharya, 2007). The most important function of tourism and hospitality education is to prepare students for a learning environment and its associated cognitive activities (Sigala, 2002). Our findings indicate that tourism and hospitality management education course design should focus not only on professional knowledgeable teachers but also on creative educational practices that encourage a positive learning environment and avoid generating inhibitive environmental factors to enhance tourism and hospitality students' creativity. In light of this finding, we consider creative environment and educational intervention to be

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crucial, thus advancing the understanding of their role in the creative process, particularly in the context of the tourism and hospitality management education system. This study suggests that educators need to build a creative teaching and learning environment in a way that improves students' interest in learning and nurtures educational practices that best aid student learning (Chen & Chou, 2009; Lashley & Barron, 2006).

This study has several limitations. First, the findings showed that students experienced great creativity improvement. However, researchers could not further investigate students' learning outcomes and changes. The suggestion is to conduct longitudinal research in the future. Second, ethical issues are another concern. That is, only the experimental group of students benefit from the curriculum. Thus, the researchers suggest that creativity teaching intervention should be used more generally in tourism and hospitality education. Finally, limited by research scope, we did not include control variables such as IQ, academic performance and learning motivation.

By integrating theoretical perspectives on tourism and hospitality and curriculum development, this study developed an 18-week tourism and hospitality creativity module and assessed its effectiveness in improving students' creative performances using an experimental education intervention. The results presented here suggest that creativity, which we measured with the Abbreviated Torrance Test for Adults (ATTA), can be enhanced through the creative problem solving method. Participation in the experimental group led to creative capacity enhancement compared to participation in the control group. The creative tour plan course included rapid prototyping and improvisational activities with various constraints (e.g., time, materials, and topic) and external prompts. When participants were exposed to these activities repeatedly, the intent was to enhance their bias toward action, increase resilience when experiencing failure, and increase their ability to synthesize novel connections (Hawthorne, Quintin, Saggar, Bott, Keinitz, Liu, & Reiss, 2014). In addition, in the experiment group, students' motivation would be improved after interventions. The empirical evidence demonstrated that intrinsic motivation is associated with higher levels of creativity (Amabile, Hill, Hennessey, & Tighe, 1994). Therefore, when developing students' creativity, not only adopting creative teaching strategy but also improving their motivation is essential.

This study makes several recommendations for future research. First, students currently enrolled in higher education courses (e.g., hospitality) must contend with a curriculum that overemphasizes theoretical discussions (Ko, 2012). This study suggests that future studies should combine theoretical and practical perspectives on tourism and hospitality for the development of creative tourism and hospitality courses to enhance student creativity. Second, this study focuses on tourism and hospitality students, creative intervention methods, and innovative learning environment and atmosphere. Future research can examine the effect of the intervention by using other instructional approaches or teaching strategies, such as collaborative teaching with industrial managers, to continue improving course development and learning effectiveness. Finally, this study only explores the final effect of CPS teaching strategies. Future research can detect different effects of each intervention and their interaction.

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## References

- Amabile, T. M. (1996). *Creativity in context*. New York, NY: Westview Press, Inc.
- Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review*, 40(1), 39-58.
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154-1184.
- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The work preference inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology*, 66(5), 950-967.
- Beck, C. T. (1994). Phenomenology: Its use in nursing research. *International*

Effects of Creative Problem Solving Strategies Instruction on  
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*Journal of Nursing Studies*, 31(6), 499-510.

- Birdir, K., & Pearson, T. E. (2000). Research chefs' competencies: A Delphi approach. *International Journal of Contemporary Hospitality Management*, 12, 205-209.
- Chen, C. Y. (2009). University level creativity course content in Taiwan. *Curriculum & Instruction Quarterly*, 12(2), 1-18.
- Chen, Y. S., & Chou, C. W. (2009). The impact of goal orientation on creativity training: A growth model analysis of hierarchical linear modeling. *Curriculum & Instruction Quarterly*, 12(2), 19-46.
- Cheng, K. W. (2011). Enhancing students' business creativity through adoption of an innovative teaching strategy in Taiwan. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 10(2), 109-120.
- Cunningham, S., & Hartley, J. (2001, July). *Creative industries – From blue poles to fat pipes*. Paper presented at Australia Academy of the Humanities, National Summit on the Humanities and Social Sciences, National Museum of Australia, Canberra, Australia.
- Dewett, T., & Gruys, M. L. (2007). Advancing the case for creativity through graduate business education. *Thinking Skills and Creativity*, 2(2), 85-95.
- Elata, D., & Garaway, I. (2002). A creative introduction to mechanical engineering. *International Journal of Engineering Education*, 18(5), 566-575.
- Fasko, D. (2001). Education and creativity. *Creativity Research Journal*, 13(3-4), 317-327.
- Florida, R. (2002). *The rise of the creative class: And how it's transforming work, leisure, community and everyday life*. New York, NY: Basic Books.
- Ford, C. M., & Gioia, D. A. (2000). Factors influencing creativity in the domain of managerial decision making. *Journal of Management*, 26(4), 705-732.
- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach.

*Journal of Applied Psychology*, 86(3), 513-524.

Haven, C., & Botterill, D. (2003). Virtual learning environments in hospitality, leisure, tourism and sport: A review. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 2(1), 75-92.

Hawthorne, G., Quintin, E., Saggar, M., Bott, N., Keinitz, E., Liu, N., & Reiss, A. (2014). Impact and sustainability of creative capacity building: The cognitive, behavioral, and neural correlates of increasing creative capacity. In L. Leifer, H. Plattner, & C. Meinel (Eds.), *Design thinking research* (pp. 65-77). Cham, Switzerland: Springer International.

Hon, A. H. (2012). Shaping environment conducive to environment to creativity: The role of intrinsic motivation. *Cornell Hospitality Quarterly*, 53(1), 53-64.

Horkheimer, M., & Adorno, T. (1972). *Dialectic of enlightenment*. New York, NY: Herder and Herder.

Hong, J-S., Hong, J-C., ChanLin, L-J., Chang, S-H., & Chu, H-C. (2005). Creative teachers and creative teaching strategies. *International Journal of Consumer Studies*, 29(4), 352-358.

Hong, J. S., & Hu, M. L. (2008). The mystery in the kitchen: Culinary creativity. *Creativity Research Journal*, 20, 1-10.

Hong, J-S., & Hu, M-L. (2009). The impact of creative culinary curriculum on creative culinary process and performance. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 8(2), 34-46.

Hong, J.-S., Lin, L., & Chen, L.-C. (2009). The design and development of creative cuisine curriculum. *Curriculum & Instruction Quarterly*, 12(4), 169-189.

Hong, J.-S., Liu, C.-H., Chou, S.-F., & Tsai, C.-Y. (2013). Creativity as a critical criterion for future restaurant space design: Developing a novel model with DEMATEL application. *International Journal of Hospitality Management*, 33, 96-105.

Isaksen, S. G., Dorval, K. B., & Treffinger, D. J. (2000). *Creative approaches to problem solving* (2nd ed.). Dubuque, IA: Kendall/Hunt.

Isaksen, S. G., & Treffinger, D. J. (1985). *Creative problem solving: The basic*



Effects of Creative Problem Solving Strategies Instruction on  
Tourism and Hospitality Undergraduate Students

course. Buffalo, NY: Bearly Limited.

- Ishii, N., & Miwa, K. (2005, April). Supporting reflective practice in creativity education. In *Proceedings of the 5th Conference on Creativity and Cognition* (pp. 150-157). London, England: ACM Press.
- Jeon, Y., & Kim, T. (2015). The development of the CT-CPS framework for creative and integrative software education. *Korean Journal of Teacher Education, 31*(3), 67-88.
- Kim, A. K., & Davies, J. (2014). A teacher's perspective on student centred learning: Towards the development of best practice in an undergraduate tourism course. *Journal of Hospitality, Leisure, Sport & Tourism Education, 14*, 6-14.
- Ko, W. H. (2012). A study of the relationships among effective learning, professional competence, and learning performance in culinary field. *Journal of Hospitality, Leisure, Sport & Tourism Education, 11*, 12-20.
- Lashley, C., & Barron, P. (2006). The learning style preferences of hospitality and tourism students: Observations from an international and cross-cultural study. *International Journal of Hospitality Management, 25*(4), 552-569.
- Lin, L., & Horng, J. S. (2011). Applying creative problem solving approach in culinary course. *Journal of Hospitality and Tourism, 8*(1), 39-55.
- Liu, Z., & Schoenwetter, D. J. (2004). Teaching creativity in engineering. *International Journal of Engineering Creativity, 20*(5), 801-808.
- Mimirinis, M., & Bhattacharya, M. (2007). Design of virtual learning environments for deep learning. *Journal of Interactive Learning Research, 18*(1), 55-64.
- Mobarakeha, N. S. (2011). The relation between the organizational culture and creativity of managers and experts of Khuzestan physical education organization. *Procedia - Social and Behavioral Sciences, 15*, 3648-3650.
- Niu, W., & Sternberg, R. J. (2003). Societal and school influence on students' creativity. *Psychology in the Schools, 40*, 103-114.
- O'Halloran, R. M., & O'Halloran, C. S. (2001). Creativity: A key factor for

- decision-making. *Journal of Hospitality and Tourism Education*, 13(2), 13-18.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607-634.
- Osborn, A. F. (1963). *Applied imagination: Principles and procedures of creative thinking* (3rd ed.). New York, NY: Charles Scribner's Sons.
- Osburn, H. K., & Mumford, M. D. (2006). Creativity and planning: Training interventions to develop creative problem-solving skills. *Creativity Research Journal*, 18(2), 173-190.
- Parnes, S. J. (1967). *Nurturing creative behavior*. New York, NY: Scribner's.
- Pearce, P. L. (2004). Theoretical innovation in Asia Pacific tourism research. *Asia Pacific Journal of Tourism Research*, 9(1), 57-70.
- Richards, G. (2011). Creativity and tourism: The state of the art. *Annals of Tourism Research*, 38(4), 1225-1253.
- Richards, G., & Wilson, J. (2007). *Tourism, creativity and development*. London, England: Routledge.
- Runco, M. A., Dow, G., & Smith, W. R. (2006). Information, experience, and divergent thinking: An empirical test. *Creativity Research Journal*, 18(3), 269-277.
- Sigala, M. (2002). The evolution of internet pedagogy: Benefits for tourism and hospitality education. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 1(2), 29-45.
- Sternberg, R. J., & Lubart, T. I. (1995). *Defying the crowd: Cultivating creativity in a culture of conformity*. New York, NY: Free Press.
- Sternberg, R. J., & O'Hara, L. A. (1999). Creativity and intelligence. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 251-272). New York, NY: Cambridge University Press.
- Sullivan, A. M., Johnson, B., Owens, L., & Conway, R. (2014). Punish them or engage them? Teachers' views of unproductive student behaviors in the classroom. *Australian Journal of Teacher Education*, 39, 43-56.

Effects of Creative Problem Solving Strategies Instruction on  
Tourism and Hospitality Undergraduate Students

- Tan, S-K., Luh, D-B., & Kung, S-F. (2014). A taxonomy of creative tourist in creative tourism. *Tourism Management*, 42, 248-259.
- Taylor, C. W. (1988). Various approaches to and definitions of creativity. In R. J. Sternberg (Ed.), *The nature of creativity: Contemporary psychological perspectives* (pp. 99-124). Cambridge, UK: Cambridge University Press.
- Thompson, G., & Lordan, M. (1999). A review of creativity principles applied to engineering design. *Journal of Process Mechanical Engineering*, 213, 17-31.
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personality Psychology*, 52, 591-620.
- Torrance, E. P. (1972). Predictive validity of Torrance Test of Creative Thinking. *Journal of Creative Behavior*, 6, 236-252.
- Torrance, E. P. (1974). *Torrance Tests of Creative Thinking: Norms and technical manual*. Bensenville, IL: Scholastic Testing Services.
- Treffinger, S. J., & Isaksen, S. G. (2005). Creative problem solving: The history, development, and implications for gifted education and talent development. *Gifted Child Quarterly*, 49(4), 342-353.
- Treffinger, D. J., & Selby, E. C., & Isaksen, S. G. (2008). Understanding individual problem-solving style: A key to learning and applying creative problem solving. *Learning and Individual Difference*, 18, 390-401.
- Treffinger, D. J., & Young, G. (1994). Creative problem solving and inventing. In L. Molotsky (Eds.), *Classroom guide for inventive thinking* (pp. 23-30). Richardson, TX: National Inventive Thinking Association.
- Wang, P., Rode, J. C., Shi, K., Luo, Z., & Chen, W. (2013). A workgroup climate perspective on the relationships among transformational leadership, workgroup diversity, and employee creativity. *Group & Organization Management*, 38(3), 334-360.
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of

organizational creativity. *Academy of Management Review*, 18(2), 293-321.

Woodman, R. W., & Schoenfeldt, L. F. (1990). An interactionist model of creative behavior. *The Journal of Creative Behavior*, 24(1), 10-20.

Wu, H-Y., Wu, H-S., Chen, I-S., & Chen, H-C. (2014). Exploring the critical influential factors of creativity for college students: A multiple criteria decision-making approach. *Thinking Skills and Creativity*, 11, 1-21.

Yeh, Y. (2004). The interactive influences of three ecological systems on R&D personnel's technological creativity. *Creativity Research Journal*, 16(1), 11-25.

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

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附錄 觀光餐旅創意管理教案綱要

周數	單元主題	內容綱要
1	課程介紹與前測	<ol style="list-style-type: none"> <li>1. 課程介紹與說明</li> <li>2. 創造力測驗</li> <li>3. 網路社群平台介紹</li> </ol>
2	觀光餐旅管理概念	<ol style="list-style-type: none"> <li>1. 觀光及餐旅趨勢分析</li> <li>2. 觀光創造力素養問卷</li> </ol>
3	永續經營重要性	<ol style="list-style-type: none"> <li>1. 永續觀光所面臨的挑戰</li> <li>2. 創造力思考說明</li> <li>3. 從綠色消費趨勢帶到觀光餐旅產業社會責任議題</li> <li>4. 觀光餐旅業的社會責任與道德課題</li> <li>5. 腦力激盪法應用與演練</li> </ol>
4	遊程設計概論	<ol style="list-style-type: none"> <li>1. 課程介紹與說明</li> <li>2. 創造力測驗</li> <li>6. 網路社群平台介紹遊程規劃的涵義</li> <li>7. 遊程分類</li> <li>8. 遊程設計包含要素</li> <li>9. 九宮格聯想法應用與演練</li> <li>10. 實施人格測驗</li> </ol>
5	遊程設計原則	<ol style="list-style-type: none"> <li>1. 遊程設計應具備專業知識以及遊程設計原則</li> <li>2. 遊程設計趨勢</li> <li>3. 分合法應用與演練</li> </ol>
6	經費預算編列	<ol style="list-style-type: none"> <li>1. 遊程規劃合理性</li> <li>2. 遊程設計預算編列</li> </ol>
7-10	期中進度報告	小組於課堂簡報進行 PK 針對學期報告提出初步構想與講師分享

附錄 觀光餐旅創意管理教案綱要(續)

周數	單元主題	內容綱要
11	綠色創意遊程思考	<ol style="list-style-type: none"><li>1. 講述綠色 5R 要素</li><li>2. 說明綠色要素與創意遊程設計關聯性</li></ol>
12	綠色創新規劃	<ol style="list-style-type: none"><li>1. 綠色觀光休閒消費市場以及個案規劃與研討</li><li>2. 提升綠色管理課題問題解決能力</li><li>3. 自由聯想法應用與演練</li></ol>
13	遊程設計簡報製作	<ol style="list-style-type: none"><li>1. 遊程設計簡報製作重點</li><li>2. 希望點列舉法應用與演練</li></ol>
14	遊程企劃與行銷	<ol style="list-style-type: none"><li>1. 遊程企劃行銷</li><li>2. 7W 檢討法應用與演練</li></ol>
15-16	期末報告	小組於課堂簡報進行 PK 針對學期報告提出初步構想與講師分享
17-18	後測及焦點團體訪談	<ol style="list-style-type: none"><li>1. 頒獎</li><li>2. 實施創造力素養問卷</li><li>3. 進行焦點團體訪談</li></ol>

## 觀光餐旅創造性問題解決教學之成效研究

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蕭漢良\*\*\*\*      劉志興\*\*\*\*\*      鐘鈺鈞\*\*\*\*\*

近年來的教育愈來愈著重創造性問題解決方法，藉以鼓勵學生解決創造性的挑戰與現實的問題。本研究發展並且評估 18 週的創意課程，包括創造性問題解決方法、團隊建立，為台灣觀光餐旅相關科系大學生創造有利的氛圍。透過具有創造力教學或研究豐富經驗的觀光餐旅教育專家一起發展課程，採取準實驗設計，分實驗組 141 人與對照組 127 人，實驗組學生參與一學期的創造性問題解決實驗教學，對照組實施一般教學法。經由陶倫斯創造力測驗成人適用精簡版的評估，兩組共變數分析，發現實驗組學生經歷創造性問題解決教學後之創造力有顯著的進步，且優於對照組，顯見創造性問題解決教學具有正向的影響。再從焦點團體的訪談結果亦可看出，透過創造性問題解決課程的介入，實驗組的學生學會如何運用創造力解決問題。

關鍵字：創造力、創造力教學、創造性問題解決、課程設計、教學策略

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