ISBN: 978-981-14-2064-1

Differences of Personnel Training Requirements about Tea Science (Creative Design) among Teacher, Student and Enterpriser

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Abstract

Tea culture is an important part of Chinese traditional culture. With the rise of creative industries and the proposal of the strategy of rural revitalization, tea culture and creative design begin to develop synergistically. In 2014, Anxi College of Tea Science of Fujian Agriculture and Forestry University set up a new major which is Tea Science (Creative Design). The major aims at enhancing the competitiveness of the tea industry and tea students to meet the changing needs of society though integrating creative design into tea science. But a new major has inevitable contradictions of personnel taining requirements among teacher, student and enterprise. Therefore, this study trying to explore the differences of personnel training needs about Tea Science (Creative Design) among the three groups. First of all, summarized 9 personnel training requirements by expert interview and literature review; applied one-way ANOVA to explore the significant difference in the three groups; used depth interviews to find the reasons for these difference and proposed strategy. It hopes to advance the development of the major.

Key words: Interdisciplinary, Tea culture, Creative design, Personnel training

Introduction

China is the first country to discover and utilize tea in the world. It is also the only country that has formed Tea science into a systematic subject. In China, tea science has formed a multilevel and complete education scientific system. It can be divided into technical secondary school's degree, junior college's degree, bachelor's degree, master's degree and doctor's degree. [1] Tea science is a comprehensive application subject that takes tea as the research object and integrates biological science, engineering technology, economy, trade and culture. [2] At present, there are 22 undergraduate colleges and universities with tea majors in China. They have trained a large number of high-quality professionals for the development of China's tea industry over 60 years. [3] It plays an important role in promoting the economic development of tea industry. With the development of economy and society, tea industry is faced with more opportunities and challenges. It puts forward new requirements for the cultivation of tea technical personnel. At the end of December 2017, the ministry of agriculture and other nine departments issued the notice on the identification of the list (the first batch) of advantageous agricultural product zones with Chinese characteristics. In the first batch of 62 lists, a total of 6 tea producing regions were selected. The notice requires that China's advantageous agricultural advantage zones to fully implement the party's 19th national spirit. In accordance with the outline of the plan for the construction of an advantageous area with special agricultural products, the notice also requires tea producing areas to base on the characteristics of resources, increase capital investment, strengthen scientific and technological support, promote industrial prosperity, promote brand agriculture, drive farmers to increase income, make new and greater contribution to the smooth implementation of the strategy of rural revitalization.

The support and emphasis of the state have brought new opportunities and challenges to the development of tea science and tea industry. In addition to focusing on the development of its own discipline, tea science should also start to pay attention to the construction and development of tea farmers, tea villages, tea brands and other aspects. However, the traditional major of tea science is the study of the relationship between the growth and development of tea trees and environmental conditions and its regulation approaches, the relationship between the formation mechanism of tea quality and technological conditions and its regulation methods, the development of the active components and functional products of tea, the development of economic relations and the law of economic activities in the tea industry. In the context of the new era, how to broaden the vision of traditional tea science from focusing on tea itself to other related aspects, which puts forward a new problem for the education of tea talents. This problem is complex and requires a comprehensive application of various knowledge to solve. It needs creativity to guide tea science students to break the tradition and choose professional knowledge reasonably in combination with the actual situation of each place to solve this problem. Creativity is associated with the ability to create and generate new ideas from their precedents. [4] It can effectively help an individual should select information to combine and manipulate in solving problems. Creativity can be learned and gained by design courses. Design is closely related to creativity in that is involved with the generation and realization of new ideas, as well as problem solving. [5]

Before this, Anxi College of Tea Science of Fujian Agriculture and Forestry University had proactively set up

major in Tea Science (Creative Design) nationwide. It aims to improve the creativity of tea science students by introducing design courses. It may allow the tea science students to be more qualified to meet the needs of the new era of tea science talents. This is great news for the tea community. Since 2012, after three times of professional demonstration meeting (consisting of well-known experts in tea science, design and tea industry), a cultivation scheme for this major has been formed. This cultivation scheme divides the professional ability training of major in tea science (creative design) into six modules. They are tea skills module, tea sales module, tea culture module, creative ability module, aesthetic ability module and design skills module. To build a professional faculty team based on the requirements for each professional ability cultivation module. The teaching team is mainly composed of 2 professors of tea science, 2 associate professors of tea science, 3 lecturers of tea science, 1 lecturer of mechanical design, 4 lecturers of design and 1 experimentalist. In 2014, 54 students were enrolled.

This is a new and interdisciplinary major. It has some inevitable problems. This requires the collaboration and influence of the three most relevant groups with each other: teacher, student and the enterpriser. For teachers, different expectations and inclinations will directly affect their choice and emphasis on teaching knowledge. It directly affects students' acquisition of knowledge and skills. For students, they care about whether the skills they are taught meet their expectations. Because the expectation of students will affect their learning initiative. For enterprises, their requirements for students' personnel training is derived from the market demand, not the teachers. Therefore, is there any difference in the personnel training requirements among teachers, students and enterprisers? What cause the difference? And why? It is worth exploring further.

Research process and method

Based on the cultivation scheme of the major in Tea Science (Creative Design), this study conducted a survey on the "personnel training requirements of the student majoring in Tea Science (Creative Design)" through literature research method and expert interviews. Then the personnel training requirements of this major were summarized. The experts included 5 tea teachers with more than 5 years of teaching experience, 5 middle-level managers or above in the industry of national famous tea enterprises, 5 designers with more than 5 years design experience.

Secondly, according to the summarized requirements, this study used Likert scale to make a questionnaire. Conducted a survey on the importance of 9 personnel training requirements for educators, students and enterpriser. The questionnaire results were analyzed through One way-ANOVA.

Thirdly, according to the results of One way-ANOVA, factors of significant differences among the three groups were found. Conducted another expert interview to find out the reasons for these factors. To extract a modified strategy based on them.

Results and analysis

A. Personnel training requirements

Through literature research, expert interview and focus group method, 9 Personnel training requirements (PTR) of Tea Science (Creative Design) were summarized. Description of each requirements, as follow:

1. Aesthetic appreciation ability (AAA): Have high aesthetic quality in tea room, tea setting design, tea package, tea sets selection and so on.
2. Design capability (DC): Familiar with basic product design ability and package design skills about tea.
3. Creative thinking ability (CTA): Demonstrate good creative thinking ability in the process of engaging in tea industry.
4. Tea processing and sensory evaluation ability (TPSEA): Understand how to process, make six categories of. Familiar with the evaluation standards and procedures of them and having some ability of tea sensory evaluation.
5. Tea cultivating techniques ability (TCTA): Understand basic knowledge of each category of tea plant culturing and breeding.
6. Tea art skills (TAS): Master tea-brewing skills of six kinds of tea. Familiar with basic procedure of tea art performance.
7. Tea culture accomplishment (TCA): Familiar with Chinese tea culture. Have their own opinion.
8. Tea sales and management ability (TSMA): Understand tea market, be familiar with the basic skills of tea sales and having the potential for tea management.
9. Product research and development ability (PRDA): Have the basic knowledge of tea science research, master basic skills of making and developing of deep-processing tea products.

B. Results of One way-ANOVA

According to the 9 requirements, conducted a Questionnaire survey for the three groups. 90 questionnaires were distributed. 90 questionnaires were recovered. 11 invalid questionnaires were excluded. A total of 79 valid questionnaires were sent out.

Though homogeneity of variance test, see in table 1. It can be found that item of "creative thinking ability" reach the level of significance (Sig=0.01<0.05), other 8 items do not reach. It indicates that the views in the requirement of "creative thinking ability" among the three groups do not meets the hypothesis of homogeneity of variance, others meet. So, the research dose not analysis and discuss the difference of the personnel training requirements of "creative thinking ability" among the three groups people. The table of descriptive statistics see in table 2. The result of One way-ANOVA see in table 3, it can be found that *P* value of design capability, tea cultivating techniques ability and product research and development ability are all less than 0.05, indicating significant difference. These three were analysis though Scheffe post-hoc test, the results see in table 4.

According to the results of One way-ANOVA, attitude of students, teachers and enterprisers exhibit significant differences (F=7.45, P=0.00) about personnel training requirement of design capability. From the results of Scheffe post-hoc test, in design capability, teachers pay more attention than enterpriser, students also pay more attention than enterpriser. Teachers and students have not significant

difference.

Attitude of the three group also exhibit significant difference (F=3.33, P=0.04) in tea cultivating techniques ability. Though Scheffe post-hoc test, students pay more attention than teacher in this aspect. There has not significant difference between enterprisers and students, or between enterprisers and teachers. According to the results of Descriptive statistics (see in table.2), Mean of teacher is 2.33, Mean of Enterprise is 2.90, mean of student is 3.13. So, the ranking of attention level is students, enterprisers, teachers. The attitude of enterprisers is more similar with students.

TABLE.1
RESULTS OF HOMOGENEITY OF VARIANCE TEST

PTR	**Levene Statistic**	**df1**	**df2**	**Sig.**
AAA	1.06	2.00	76.00	0.35
DC	2.96	2.00	76.00	0.06
CTA	5.28	2.00	76.00	0.01
TPSEA	2.32	2.00	76.00	0.11
TCTA	2.89	2.00	76.00	0.06
TAS	0.73	2.00	76.00	0.49
TCA	1.83	2.00	76.00	0.17
TSMA	0.91	2.00	76.00	0.41
PRDA	1.60	2.00	76.00	0.21

TABLE.2
DESCRIPTIVE STATISTICS FOR THE ATTITUDE OF THE THREE GROUPS

PTR	group	N	Mean	SD	Std. error
AAA	Teacher	21	4.76	.44	.10
	Enterprise	20	4.35	.67	.15
	Student	38	4.66	.94	.15
	Average	79	4.61	.77	.09
DC	Teacher	21	4.67	.58	.13
	Enterprise	20	3.80	1.15	.26
	Student	38	4.68	.84	.14
	Average	79	4.46	.94	.11
TPSEA	Teacher	21	3.52	1.03	.22
	Enterprise	20	4.35	.75	.17
	Student	38	3.97	1.28	.21
	Average	79	3.95	1.13	.13
TCTA	Teacher	21	2.33	.73	.16
	Enterprise	20	2.90	1.29	.29
	Student	38	3.13	1.23	.20
	Average	79	2.86	1.17	.13
TAS	Teacher	21	3.86	1.11	.24
	Enterprise	20	4.40	.82	.18
	Student	38	4.24	1.00	.16
	Average	79	4.18	1.00	.11
TCA	Teacher	21	4.43	.98	.21
	Enterprise	20	4.70	.47	.11
	Student	38	4.55	.98	.16
	Average	79	4.56	.87	.10
TSMA	Teacher	21	3.29	1.23	.27
	Enterprise	20	4.05	1.10	.25
	Student	38	3.68	1.21	.20
	Average	79	3.67	1.21	.14
PRDA	Teacher	21	3.62	1.20	.26
	Enterprise	20	4.35	.93	.21
	Student	38	4.37	1.05	.17
	Average	79	4.16	1.10	.12

TABLE. 3
THE RESULTS OF ONE WAY-ANOVA

PTR		Sum of Squares	df	Mean Square	F	Sig.
AAA	BG	1.92	2.00	0.96	1.63	0.20
	WG	44.91	76.00	0.59		
	T	46.84	78.00			
DC	BG	11.52	2.00	5.76	7.54	0.00
	WG	58.08	76.00	0.76		
	T	69.59	78.00			
TPSEA	BG	7.04	2.00	3.52	2.88	0.06
	WG	92.76	76.00	1.22		
	T	99.80	78.00			
TCTA	BG	8.66	2.00	4.33	3.33	0.04
	WG	98.81	76.00	1.30		
	T	107.47	78.00			
TAS	BG	3.28	2.00	1.64	1.68	0.19
	WG	74.24	76.00	0.98		
	T	77.52	78.00			
TCA	BG	0.76	2.00	0.38	0.49	0.62
	WG	58.74	76.00	0.77		
	T	59.49	78.00			
TSMA	BG	6.00	2.00	3.00	2.12	0.13
	WG	107.45	76.00	1.41		
	T	113.44	78.00			
PRDA	BG	8.52	2.00	4.26	3.75	0.03
	WG	86.34	76.00	1.14		
	T	94.86	78.00			

BG- Between Groups, WG-Within Groups, T- Total

TABLE 4
RESULTS OF SCHEFFE POST-HOC TEST

Dependent Variables	(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.
DC	T	E	.87*	.27	.01
		S	-.02	.24	1.00
	E	T	-.87*	.27	.01
		S	-.88*	.24	.00
	S	T	.02	.24	1.00
		E	.88*	.24	.00
TCTA	T	E	-.57	.36	.29
		S	-.80*	.31	.04
	E	T	.57	.36	.29
		S	-.23	.31	.76
	S	T	.80*	.31	.04
		E	.23	.31	.76
PRDA	T	E	-.73	.33	.10
		S	-.75*	.29	.04
	E	T	.73	.33	.10
		S	-.02	.29	1.00
	S	T	.75*	.29	.04
		E	.02	.29	1.00

Attitude of the three group also have significant difference (F=3.75, P=0.03) in product research and development ability. After Scheffe post-hoc test, the degree of attention of students is higher than teachers. There has not significant difference between enterprisers and students, or between enterprisers and teachers. The ranking of attention level is students, enterprisers, teachers (Mean of teacher is 3.62, Mean of Enterprise is 4.35, mean of student is 4.37). The attitude of enterprisers is also more similar with students.

C. Factors of the differences

According the difference found from One way-ANOVA, conducted another in-depth interview and research for the

teachers, students and enterpriser. It aimed to find out reasons behind and put forward suggestions for appropriate improvement.

In design capability, there are 2 main reasons that the teacher think design skills are important: (1) in the process of training design sills, students' creativity can be well exercised;(2) hoping that students can learn more systematically about design skill, because the design courses in this major are not systematic and comprehensive. There are 3 main reasons that the student think design skill are important: (1) they are not interested in Tea Science (they were transferred to this major), but it is good to learn one more skill; (2) wanting to develop into a design-related direction in the future, for example, taking an examination of graduate school or working; (3) learning simple design skills is of great help to engage in tea industry in the future. The reason that the enterpriser thinks the students master design skills is not particularly important is that specific design services are outsourced to design companies (such as tea packaging). However, they also believe that it is good for tea practitioners to have design aesthetics ability: (1) they can better express the design needs and culture of the company to designers; (2) have better perspective in the Construction of tea culture brand.

In tea cultivating techniques ability. the attention of the three groups is significantly lower than the other eight. The main reason is that, what the enterprisers want is not college students about the ability. Most enterprises employ special tea garden managers to plan it and hire some tea farmers to work for them. The needs of enterprise for students are more in tea sales, tea art, and other aspects. Although students and teachers have different opinion, the difference is not large (The P value is 0.4, which is a small gap from 0.5). Through interviews and researches with teachers and students, the reasons for the differences are mainly in that the student is not clear about Enterprisers' competence orientation.

In product research and development ability, students are also significantly higher than teachers. Through the research of teachers and students, it is found that the training of product research and development ability is mainly in the master's degree. It has higher requirements for students. It requires students to master most of the basic skills of tea to conduct research in their tutor's research expertise. Therefore, in the undergraduate stage, teachers will be more inclined to lay a good foundation about tea professional knowledge for students. However, students know little about the law of professional training and always hope to learn all the knowledge.

Therefore, in the Tea Science (creative design) professional ability training, the biggest difference among enterprisers, teachers and students exits in design skills. In the teaching, teachers should be able to teach the design skills based on personnel requirements, and lead students to reasonably understand the teaching purpose of this ability requirement. It is not to turn students into designers, but to improve students' creativity and aesthetic appreciation. Secondly, the ability of product research and development requires students to have more knowledge reserve. When teaching, teachers should sort out the learning requirements of each level for students. Finally, in the aspect of tea plant culturing and breeding, teachers should explain clearly to students that the actual needs of companies in professional introduction. It can avoid students to study blindly.

Conclusion

The study through expert interview and literature research, 9 personnel training requirements of Tea Science (creative design) had been summarized. Then used one way-ANOVA to seek the significant difference of them among teachers, students and enterpriser. At last, applied depth interview to find the reasons of the difference and then proposed the strategies for improvement. It hopes to provide some suggestions for the development of this major. At the same time, as an interdisciplinary with creative characteristics, design science often be introduced to other disciplines. It aims at improving the creative ability of students in their major. Especially design methods course, design thinking course and so on. However, it cannot be separated from the core value of its main discipline. Just like Tea Science (creative design). In conclusion, this study is also expected to provide some opinions and suggestions for integrating design to other disciplines.

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