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Analysis of variance on aesthetic literacy, self-efficacy and learning performance: Demographic standpoints

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Abstract

In order to deeply understand the demographic impacts on beautification students aesthetic literacy, self-efficacy, and learning performance, the study employed one-way ANOVA (Analysis of Variance) to understand the demographics (age, grade, school location, part-time job experience, and monthly allowances) of the participants so

that we can understand if there exists significant difference on vocational beautification students' cognition upon aesthetic literacy, self-efficacy and learning performance. The results indicated that there presented no significant difference in terms of the participants' demographics on aesthetic literacy, self-efficacy, and learning performance.

Keywords: Aesthetic literacy, Learning performance, Self-efficacy

1. Introduction

The study employed one-way ANOVA (Analysis of Variance) to understand the demographics (age, grade, school location, part-time job experience, and monthly allowances) of the participants, so that we can understand if there exists significant difference on vocational beautification students' cognition upon aesthetic literacy, self-efficacy and learning performance. If the results are significant, then the study goes further to adopt post hoc analysis to understand where the significance exists.

2. Analysis of ANOVA

2.1 Aesthetic literacy ANOVA

In the demographic construct: group 1 represents the ones aged or under 16; group 2 is the ones aged between 16 and 18; group 3 means the ones aged above 18 years old. Based on Table 1, there exists no significant difference ($p > 0.05$) on aesthetic literacy among the groups like middle grade, school location, part-time job experience, and monthly allowances. However, there is significant difference in the age item ($F = 3.429$; $p < 0.05$), which indicated that the difference among the beautification background students is significant. Then the study adopted Duncan post hoc analysis to understand and find out where the significance exists. For example: if there is comma between any two group numbers, there is significant difference between the two groups.

Based on the above, the significant difference only exists in the age group. It is analogized that those who aged above 18 years old experiences that they will go into the practical layer of the aesthetic industry. Doubtlessly, aesthetic literacy is of peak importance and the experiential extension of aesthetic enriched the sensitivity of aesthetic and empowered the connection of aesthetic experiences. The results are in light with the prior research (Chiu, 2016) ^[1], which reported that the aesthetic class learning and daily life aesthetic would have impacts on student aesthetic experience. Education Ministry claimed that aesthetic education is the core of all education (Education Ministry, 2013) ^[2]. The study found that there is no significant difference among beautification department students upon their grade. It is obvious that the change of the whole aesthetic education execution is slow. Therefore, it is not easy to integrate and reflect the present situation right away. In addition, in terms of school location, there is no significant difference in the present aesthetic literacy situation. Accordingly, the aesthetic education classes have practically reached the level of equal quality. Meanwhile, the modern urban development makes the education of city and country approach to be almost the same. It would be the critical factor for the beautification students not to present significant difference in terms of school location.

As to the part-time job experience, the results indicated no significant difference; no matter they are with no/related part-time job experience. It is referred that the beautification students' part-time job experience are stressed on their personal expenditure, which is generally focused on financial function. The long-term career development is then inevitably neglected. Though the related part-time job experience could enrich student's personal learning experience, the jobs of beautification and

hairdressing fields are mostly lower level; it is difficult for the participants to transform their job experiences to be the practical aesthetic performing ability. On the other side, there is no significant difference between monthly allowances and aesthetic literacy performance. The researchers argued that aesthetic learning stresses on individual sense upon aesthetic, it is spontaneous desire, which should be melted into students' manner of conversation, learning environment, learning attitude, and

the related details. The originality of aesthetic recognition is learnable without spending money and gradually cultivates individual aesthetic literacy through successive action in the real aesthetic situation. The results indicated that the amount of beautification students' monthly allowances is not the obstacle to increase the related aesthetic literacy and will not impact on the difference either. The one-way ANOVA on aesthetic literacy is presented as Table 1.

Table 1: Results of one-way ANOVA - Aesthetic literacy

(n=466)							
Demographics	Groups	Frequency	Mean	SD	F Value	Significance	Post Hoc test: Duncan
Age	1. 16 or under	92	4.40	0.41	3.429	0.033*	(12, 3)
	2. 16~18	266	4.41	0.42			
	3. Above 18	108	4.53	0.43			
	Total	466	4.44	0.42			
Grade	1. Grade 1	75	4.39	0.40	0.951	0.387	N
	2. Grade 2	101	4.42	0.39			
	3. Grade 3	290	4.46	0.44			
	Total	466	4.44	0.42			
School location	1. North	54	4.43	0.45	1.203	0.308	N
	2. Middle	240	4.43	0.46			
	3. South	113	4.49	0.39			
	4. East	59	4.36	0.27			
Total	466	4.44	0.428				
Part-time job experience	1. Aesthetic-related industries	156	4.42	0.41	1.620	0.199	N
	2. None	224	4.42	0.42			
	3. Other industries	86	4.51	0.452			
	Total	466	4.44	0.428			
Monthly allowances	1. Less than NT\$3000	254	4.39	0.40	2.345	0.072	N
	2. NT\$3001~NT\$5000	121	4.47	0.46			
	3. NT\$5001~NT\$8000	49	4.54	0.45			
	4. Above than NT\$8001	42	4.49	0.38			
Total	466	4.44	0.42				

Note: * p<0.05; ** p<0.01; *** p<0.001; N means not significant

Table 2: Aesthetic Literacy Post Hoc test - Duncan

Duncan's test ^{a, b}			
Age	Frequency	Subset for alpha = 0.05	
		1	2
1. 16 years and under	92	4.4008	
2. 16~18 years	266	4.4119	
1. Above 18 years	108		4.5295
Significance		0.835	1.000

The displayed numbers are the means of the homogeneous subsets.
 a. Harmonic mean sample size = 125.585
 b. Group size is not equivalent. Harmonic mean of the sample size will be employed.
 Type I error is not assured.

2.2 Self-efficacy ANOVA

Based on Table 1, the results of grade, school location, part-time job experience, monthly allowances did not present significantly different (p> 0.05), but the result of age is significantly different (F= 5.297; p<0.01). This reflected that the performance of self-efficacy in different age level is significantly different. We then went further to explore where the differences exist through conducting Duncan's post hoc test and found that (12, 3) refers that there is significant difference between group 12 and group 3. Accordingly, all of the items in demographics, only "age" groups presented significant difference in self-efficacy. It is analogized that the beautification participants are in the

phase of approaching psychiatry and psychology development. They are facing the stage to make a decision between go to higher education and work place. They have to deal with diversified situation in the real world. Meanwhile, by way of the individual subjective judgment such as confliction learning, feedback, adaptation and shoulder the task, the participants would believe that the capability they had and achieve the increment of self-efficacy. The results are in light with that of Bandura (1977) [3] reported before: the turning experiences in adolescence bring about the growth of self-efficacy. There is competence demand in each developing phase and produces new challenge for the corresponding efficacy; moreover, the adolescent is a critical turning zone in the life course, there is also a vast amount of new challenge the participants have to face (Bandura, 1977) [3]. The results above revealed that in the grade sub-construct, there is no significant difference in self-efficacy. This indicated that various grade of beautification students' learning task including learners' confidence, anxiety, and the expected results about the finished products are very close. Therefore, there presented no significant difference in terms of participants' grade. On the other hand, there is no significant difference in terms of school location. The study inferred that the selected sampling schools employed similar instructional way to guide the students. Therefore, the participants presented

convergent performance in school location and reflected no significant difference in self-efficacy. As to the part-time job experience, there is also no significant difference in self-efficacy. The study reasoned that the aesthetic-related self-efficacy could have imperceptible influence on learners' experienced aesthetic things since they were young. Therefore, the short-term part-time job experience would not significantly impact on the participants' aesthetic self-efficacy performance. In addition, regarding monthly allowances, there is no significant difference in self-efficacy. Based on the Social Cognitive Theory presented by Bandura (1977) [3], self-efficacy could not only be learned through experience but also from substitute experience, comments from significant

others and the change of psychiatry condition or explain how to develop and change in the future. The difference of the above direction is of critical meaning for individuals to create stronger self-efficacy (Bandura, 1977) [3], which explains that each one has the potential to change; it is a natural process to increase self-efficacy and lift self-confidence to assist the youth to face difficulties. Therefore, even the participants were provided with abundant monthly allowances, it is neither related to describe the way individual create self-efficacy nor construct the substitutive experience (Bandura, 1977) [3]. Accordingly, the result that there exists no significant difference between monthly allowances and self-efficacy is natural. The one-way ANOVA results are reported as Table 3 and Table 4.

Table 3: Results of one-way ANOVA - Self-efficacy

(n=466)							
Demographics	Groups	Frequency	Mean	SD	F Value	Significance	Post Hoc test: Duncan
Age	1.16 or under	92	4.40	0.45	5.297	0.005**	(12, 3)
	2.16~18	266	4.39	0.45			
	3. Above 18	108	4.55	0.39			
	Total	466	4.43	0.44			
Grade	1. Grade 1	75	4.37	0.47	1.280	0.279	N
	2. Grade 2	101	4.40	0.36			
	3. Grade 3	290	4.45	0.46			
	Total	466	4.43	0.44			
School location	5. North	54	4.50	0.38	1.240	0.295	N
	6. Middle	240	4.41	0.50			
	7. South	113	4.46	0.38			
	8. East	59	4.36	0.29			
Total	466	4.43	0.44				
Part-time job experience	1. Aesthetic-related industries	156	4.41	0.41	0.721	0.487	N
	2. None	224	4.42	0.45			
	3. Other industries	86	4.48	0.47			
	Total	466	4.43	0.44			
Monthly allowances	1. Less than NT\$3000	254	4.38	0.47	2.143	0.094	N
	2. NT\$3001~NT\$5000	121	4.44	0.46			
	3. NT\$5001~NT\$8000	49	4.52	0.40			
	4. Above than NT\$8001	42	4.51	0.34			
Total	466	4.43	0.44				

Note: * p<0.05; **p<0.01; ***p<0.001; N means not significant

Table 4: Duncan Post Hoc analysis - Self-efficacy

Duncan test ^{a, b}			
Age	Frequency	alpha = 0.05 subsets	
		1	2
1.16-18	266	4.3879	
2.16 or under	92	4.3951	
3. Above 18 years old	108		4.5452
Significance		.895	1.000

The displayed numbers are the means of the homogeneous subsets.
 a. Harmonic mean sample size = 125.585
 b. Group size is not equivalent. Harmonic mean of the sample size will be employed.
 Type I error is not assured.

2.3 Learning performance ANOVA

Based on the results reported in Table 3, there is no significant difference in the demographics factors such as age, grade, school location, part-time job experience, and monthly allowances in learning performance (p>0.05). The results are discussed in details as follows:

Specifically, there presented no significant difference in learning performance in the participants age. It is referred that because the beautification student age difference is not big, this may imply that learners' learning cognition,

practical ability and developing condition of psychology, attitude, learning elasticity and induction learning are approaching the stage of accumulating learning performance. They are moving forward to the integration of practice and stable growth; age is therefore not to significantly impact on the results.

Meanwhile, there exists no significant difference in learning performance in terms of the grade. It is referred that the beautification participants were trained under similar practical training, so they carried out convergent professional performance and transferred ability. Therefore, there has no significant difference in learning performance in their grade.

As to school location, there existed no significant difference in the participants' learning performance. According to the researcher's observation, the participants were not picky about their part-time jobs. It is because they are going to service industry after graduation, so gaining the ability that is not obtained in the classroom is always encouraged. If the part-time job is not beneficial for the participants' professional growth or even has influence on their learning, then the part-time job is not necessary. Therefore, the part-time job experiences presented no significant difference is

understandable.

In terms of monthly allowances, there is no significant difference in the participants' learning performance. The growth of beautification student has to be achieved through self-perception. In addition, the involvement of the related aesthetic activity and learning experiences is the point to cultivate aesthetic literacy; it is also the learning base to

broaden aesthetic eyesight. However, the study analogized that the participants allocate their allowances into a certain proportion to do self-investment, so that they can hold and save learning capability and then accumulate their aesthetic competitiveness for the future. Therefore, the participants' learning performance would not be impacted by their monthly allowances. The results are reported as Table 5.

Table 5: Results of one-way ANOVA - Learning performance

(n=466)							
Demographics	Groups	Frequency	Mean	SD	F Value	Significance	Post Hoc test: Duncan
Age	1.16 or under	92	4.41	0.46	1.995	0.137	N
	2.16~18	266	4.41	0.45			
	3. Above 18	108	4.51	0.44			
	Total	466	4.43	0.45			
Grade	1. Grade 1	75	4.39	0.47	0.511	0.600	N
	2. Grade 2	101	4.45	0.37			
	3. Grade 3	290	4.44	0.47			
	Total	466	4.43	0.45			
School location	9. North	54	4.39	0.40	0.539	0.656	N
	10. Middle	240	4.43	0.51			
	11. South	113	4.48	0.40			
	12. East	59	4.41	0.29			
Total	466	4.43	0.45				
Part-time job experience	1. Aesthetic-related industries	156	4.42	0.42	0.137	0.872	N
	2. None	224	4.44	0.46			
	3. Other industries	86	4.45	0.48			
	Total	466	4.43	0.45			
Monthly allowances	1. Less than NT\$3000	254	4.39	0.45	2.519	0.057	N
	2. NT\$3001~NT\$5000	121	4.45	0.47			
	3. NT\$5001~NT\$8000	49	4.58	0.40			
	4. Above than NT\$8001	42	4.45	0.39			
Total	466	4.43	0.45				

Note: *p<0.05; **p<0.01; ***p<0.001; N means not significant

3. Conclusion

Based on the results stated above, there presented no significant difference in terms of the participants' background on aesthetic literacy, self-efficacy, and learning performance. This revealed that the invited participants performed insignificantly in their demographics on the above-stated issues. It is worthy for the future researchers to go further to explore the related factors that would have impacts on beautification students learning performance.

4. References

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