

Article

Implementation of First-Year Aesthetic Education Program in University

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Abstract: We analyzed the first-year program in college aesthetic education that is promoted by the Ministry of Education in Taiwan. Students need to take 11 general courses related to aesthetics in the four majors in art. Using a Student Aesthetic Literacy Questionnaire, we analyzed the aesthetic literacy of 608 students using the Levene test, the Shapiro-Wilk test, the Kruskal-Wallis test, and the Dunn test. The results were analyzed to understand whether the students had different aesthetic literacy and performances by gender, grade, and college. At the same time, the correlation between the number of aesthetic-related courses taken, the number of times for aesthetic-related activities, and their self-aesthetic literacy was investigated. Female students were better at Visual Art Expression and Appreciation Skills than male students. To continue to promote aesthetic education programs, it is demanded to offer more diversified related courses and activities than at present. It is also necessary to conduct more targeted questionnaire surveys for future development.

Keywords: Aesthetic education, Art knowledge, Attitude towards art, Music and performing arts appreciation, Visual art appreciation

1. Introduction

The Department of Economic and Social Affairs of the United Nations proposed the idea of Sustainable Development and published Arts Education for a Sustainable Future with the serial number SDGSAction 43689. They declared that art, in addition to focusing on the four goals 4, 5, 13, and 15 of the United Nations Sustainable Development Goals (SDGs), demands research and media interventions (United Nations, 2020). The Ministry of Education in Taiwan has launched a five-year mid- to long-term plan for aesthetic education, also known as the "Aesthetics and Design Curriculum Innovation Plan", since 2016. It is in the third phase in 2024. In the first phase, the plan aimed to cultivate teachers for basic education to promote aesthetic courses. In the second phase, it was stated that "Aesthetics is life-rooted from childhood, cross-domain innovation, international connections" for diversified humanistic education and accumulated and sustainable teacher guidance. Aesthetic principles were formulated in design, innovation, and cross-domain cooperation. Although in higher education, art education is not standardized, it is essential to promote the development of aesthetic education as a national basic education as contemporary cultural aesthetics and cross-disciplinary art forms become more important than before (Huang, 2012).

We investigated the aesthetic literacy of college students in the first-year aesthetic education program implemented at a university to explore how students from different colleges evaluate their self-aesthetic literacy in aesthetic-related courses. We researched "art knowledge", "visual art expression and appreciation skills", "music and performing arts expression and appreciation skills", and "attitude towards art" for the analysis. A Student Aesthetic Literacy Questionnaire (SALQ) was used to examine students' performance in aesthetic literacy. SALQ consists of two parts, one is the basic questions, and the other is the ALS. It includes items for four aspects: "art knowledge", "visual art expression and appreciation skills", "music and performing arts expression and appreciation skills" and "attitude towards art". 608 students who took aesthetic-related courses were recruited in the survey. Gender, grades, colleges, number of aesthetic-related courses, and participation in aesthetic-related activities were considered in the analysis of their aesthetic literacy. The 11 aesthetic literacy courses were offered in an 18-week semester in four majors: literature, film, music, and arts. There were three courses in the literature category: Animation and Manga Literature, Readings of the Chinese Classics, and Character's Narrative and Composition of Script. In the film category, Music and Dramatics,

Movie and Visual Arts, and Hakka Literature and Movies were taught. In the music category, String Music Appreciation and Romantic Period Music Appreciation were offered. Finally, in the art category, Environmental Art, Living Arts and Crafts Aesthetics, and An Introductory to Aesthetics were included. The result of this study provides an important basis for developing the curriculum of aesthetics education in the future.

2. Literature Review

SDGs were promulgated as Action 43689 (#SDGAction 43689) on October 1, 2020, until July 1, 2025 (United Nations, 2020), stating that "Arts Education creates a sustainable future" (Arts Education for a sustainable future). It states that art education helps achieve multiple sustainable development goals, such as quality education and lifelong learning (SDG4), achieving gender equality and empowering women and children (SDG5), combating climate change (SDG13), and promoting the sustainable use of terrestrial ecosystems (SDG15). Driven by this initiative, "arts education" with the goal of quality education becomes important for the sustainable development of the world. "Aesthetic Education" is synonymous and echoes with arts education beyond academic knowledge and skill transfer (Tao & Tao, 2024).

By broadening the curriculum of aesthetic education, it is possible to cultivate future talents with global citizenship and abilities in many aspects such as emotional development, social ability, aesthetic insight, creativity, and cross-cultural ability (Laurie et al., 2016). The intercultural ability of the talents with global citizenship through aesthetic education is the most important goal to achieve. Out of tradition and national boundaries, multiculturalism can be understood as respect and appreciation (Yang, 2022). From this point of view, aesthetic education aims to enhance the creativity of students. In addition to improving students' cross-field aesthetic capability, courses and activities related to aesthetic education in higher education are developed to increase students' multi-faceted performance through the investigation and analysis of aesthetic literacy.

Aesthetic experiences enable students to become creative, transformational thinkers (Hung, 2005). Interest and knowledge in art are the most important expertise. Thus, various instruments have been developed to measure them (Specker, et. al., 2020). Many aesthetic-related theories mentioned that interest and knowledge are the key factors that influence people's art evaluation (Leder, et al., 2014). Testing a person's level of aesthetic literacy has rarely been seen as separated from the concepts of artistic interest and artistic knowledge (Chatterjee, et al., 2010). By investigating personal artistic interests such as the number of concerts attended, and artistic knowledge, such as the number of art education courses, individuals' art judgments can be understood (Chamorro-Premuzic, & Furnham, 2005).

In addition to the knowledge and interest in art, aesthetic education courses and ALSs are designed for the development of more diversified aspects. Such aspects include artistic expression and appreciation skills, and attitudes towards art and integrate aesthetic literacy into different fields of studies. From tourism to commercial design, an understanding of aesthetics is valuable (Weaver, 2009). It needs interdisciplinary learning to connect aesthetics to other disciplines. For example, the historical background of art or the scientific principles behind design are needed for college students to integrate their knowledge into various educational courses (Kárpáti & Abonyi, 1987). The connotation of aesthetic literacy includes everything from internal knowledge to external performance. The four dimensions of knowledge, skills, attitudes, and habits in art are applied to those who are generally 20 years old or above (Wu, 2017).

3. Research Methods

3.1. Materials

In response to the college aesthetic education program of the Ministry of Education in Taiwan, universities have planned to cultivate students' aesthetic perception and aesthetic ability. As a result, 11 general courses related to aesthetics are included in the general courses as one-semester courses.

In this study, 608 students from 8 different universities in the courses were invited to understand their performance in the courses. SALQ was used for the survey for them. Figure 1 and table 1 shows the four major art categories included in the aesthetic education program. The objectives of the 11 courses are displayed as well.

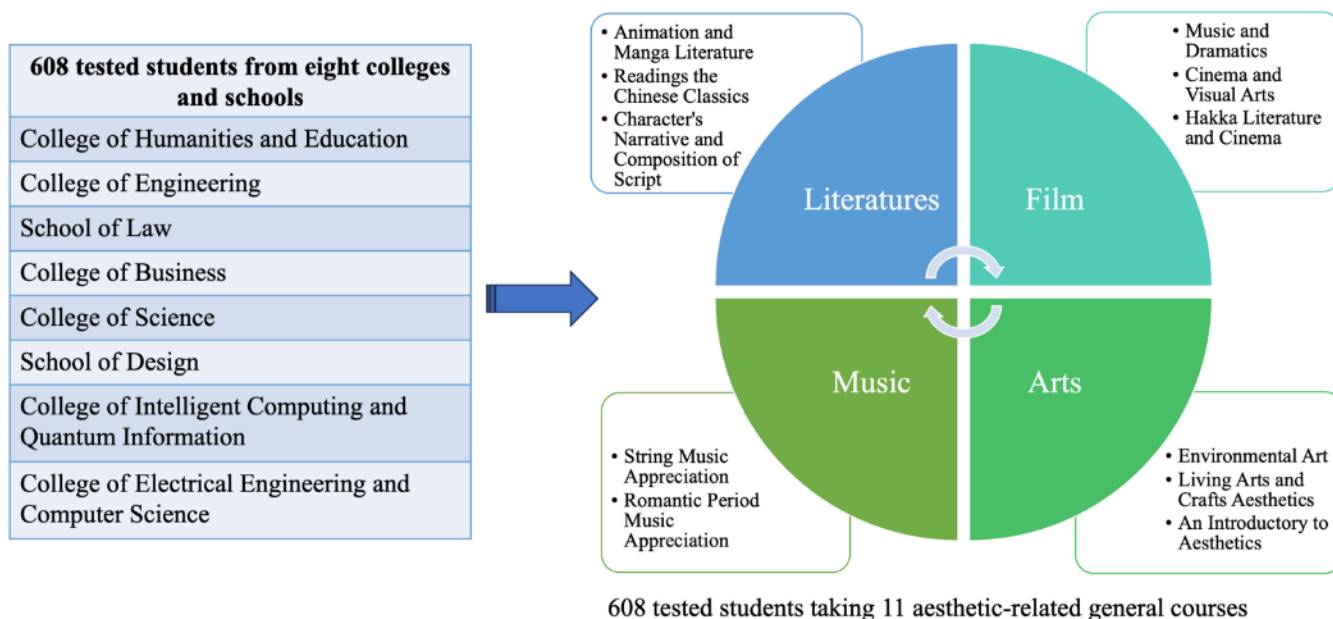



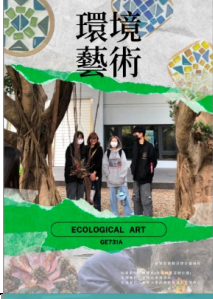






Fig. 1. Aesthetic-related courses of participants in this study.

Table 1. Four Major art categories and 11 aesthetic-related general courses.

| Four Categories | Courses | Objectives | Highlights |
|-----------------|---|---|------------|
| | Animation and Manga Literature | <ol style="list-style-type: none"> 1. Observe the transition of picturesque information. Realize the text of comics, animation, and games. 2. Comprehend the method of narrative creation. Appreciate the aesthetics of ACG works. 3. Discuss the applications of multiple contents. | |
| Literature | Reading the Chinese Classics | <ol style="list-style-type: none"> 1. Understand the meaning, formation, and development of the Chinese classic works of literature. 2. Emphasizes the theory and basic concept of the Chinese classic works of literature. 3. Understand the spirit of the Chinese classic works of literature by reading and discussing. | |
| | Character's Narrative and Composition of Script | <ol style="list-style-type: none"> 1. Comprehend the communication method and the content tactic by the character's narrative. 2. Practice making stories and fictitious characters systematically by design cognition. 3. Combine the SDGs to find the access roads for introspection by writing a play. | |

| | | | |
|--------------------------------------|---|---|---|
| <p>Music and Dramatics</p> | <p>To continue Professor Yu Guangzhong’s teaching tradition to stress musical elements in poetry, drama, and literary pieces, this course explores music, film, drama, literature, mass media, and culture. The tradition of mixing poetry, music, and drama performance is both ever-lasting and globalized.</p> |  | |
| <p>Film</p> | <p>Cinema and Visual Arts</p> | <p>This course helps learners deepen their understanding of Taiwanese Chinese films and audio-visual arts through film works and mass media.</p> |  |
| <p>Hakka Literature and Cinema</p> | <p>This class analyzes Taiwan’s contemporary collections and current application of Hakka literary classics, discusses Hakka history, and decodes cinematic archetypes that derive from characters and folk stories.</p> |  | |
| <p>Environmental Art</p> | <ol style="list-style-type: none"> 1. Know the history and examples of Environmental Art. 2. Observe in depth the natural environment and consider one’s relationship with it. 3. Create environmental art. 4. Explore the interrelationships between art, environmental sustainability, and everyday life. |  | |
| <p>Arts</p> | <p>Living Arts and Crafts Aesthetics</p> | <p>This course intends to use a method of matching history explanations and picture and image introductions, based on aesthetics, to enhance students' understanding of the characteristics and connotations of crafts in life.</p> |  |
| <p>An Introduction to Aesthetics</p> | <p>The goal of this course is to introduce several representative aestheticians to understand the concept of Beauty in the time of ancient Greece and Roman philosophers concerning the features and connotations of aesthetics in the eighteenth century.</p> |  | |

| | | | |
|-------|------------------------------------|--|---|
| Music | String Music Appreciation | <ol style="list-style-type: none"> 1. Expanding understanding of string instruments, string music composers, string music virtuosos, and string music repertoire; 2. Developing knowledge of classical string music history and background; 3. Developing an appreciation of classical string music; 4. Advancing analytical ability of critics on well-known chamber music repertoire including trio, quartet, quintet. |  |
| | Romantic Period Music Appreciation | <ol style="list-style-type: none"> 1. Observing the history of Romantic music composers. 2. Listening to some phenomenon of Romantic music 3. Preparing your thoughts on Romantic music taste. 4. Sharing personal feelings about Romantic music. 5. Understanding each European country's music development. |  |

3.2. Procedure

SALQ consists of two parts. The first part comprises basic questions for gender, grade, college to which the student belongs, the number of aesthetic-related courses taken, and the number of aesthetic-related activities participated in. The second part includes the Aesthetic Literacy Scale (ALS) developed by Wu (2017) which contains 25 questions in five aspects. ALS has been standardized since its proposal. The result of SALQ was analyzed to explore the relationship between the number of courses, aesthetic literacy, and self-aesthetic literacy. The correlation between the number of aesthetic-related activities students participated in and students' self-aesthetic literacy was investigated, too.

3.3. Data Analysis

The average scores of the four aspects of aesthetic literacy were calculated. Then, the Shapiro-Wilk test was used to test the normal distribution, and the Kruskal-Wallis was used to test a significant level of aesthetic literacy by gender. The average performance in four aspects of aesthetic literacy was also explored. The Kruskal-Wallis test was used to determine differences in grade and college in aesthetic literacy. Because of the possible differences under the Kruskal-Wallis test, Dunn's test was used for post hoc testing. The Pearson product-difference correlation coefficient was used to compare the correlation between the number of aesthetic-related courses, aesthetic-related activities, and self-aesthetic literacy ability.

4. Results and Discussions

4.1 Gender Difference in Aesthetic Literacy

ALS used in this study comprises four aspects: "art knowledge", "visual art expression and appreciation skills", "music and performing arts expression and appreciation skills", and "attitude towards art". The participants performed better in the "visual art expression and appreciation skills" with an average score of 18.5461. In "attitude towards art", the standard deviation was lower, which showed that the student's performance was consistent (Table 2).

Table 2. Summary of average scores of different aspects of aesthetic literacy among participants.

| Aspects | N | Mean | SD | SE | 95% Conf. | Interval |
|--|-----|---------|--------|--------|-----------|----------|
| Art Knowledge | 608 | 14.8191 | 3.409 | 0.1383 | 14.5476, | 15.0906 |
| Visual Art Expression and Appreciation Skills | 608 | 18.5461 | 4.0334 | 0.1636 | 18.2248, | 18.8673 |
| Music and Performing Arts Expression and Appreciation Skills | 608 | 18.2599 | 4.6191 | 0.1873 | 17.892, | 18.6278 |
| Attitude Towards Art | 608 | 16.7385 | 3.2561 | 0.1321 | 16.4792, | 16.9978 |

The participants included 267 males and 341 females. In "aesthetic literacy", the Levene test variation showed a significance with $L(608) = 4.1749$ and $p = 0.0415 < 0.05$. In the Shapiro-Wilk test, the male and female participants were normally distributed ($S-W(267) = 0.9593$, $p = 0.0000*** < 0.05$ for the males and $S-W(341) = 0.9803$, $p = 0.0001 < 0.05$ for the females). The Kruskal-Wallis test result showed a significant level of aesthetic literacy for the male and female participants. There was a significant difference in the performance of aesthetic literacy by gender (Table 3).

Table 3. Summary of Kruskal-Wallis test results of aesthetic literacy by gender.

| Item | | K-W value | | p-value | | | | | |
|--------------------|--------|-----------|---------|-----------------|----------|---------|--------|-----------|----------|
| Aesthetic Literacy | | 7.1904 | | 0.0073** < 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 95.0599 | 95.0 | 424.7032 | 20.6083 | 1.2612 | 92.5767, | 97.5431 |
| 2 | Female | 341 | 99.5748 | 100.0 | 298.3569 | 17.273 | 0.9354 | 97.7349, | 101.4147 |

The average performance of the female participants in "attitude toward art" and "habits of participating in art" was higher than that of the male participants. At the same time, the standard deviation of the female participants was lower than that of the male participants, and the performance in each aspect was consistent (Table 4).

Table 4. Summary of the Kruskal-Wallis Test test results of different aspects by gender.

| Aspect | | K-W value | | p-value | | | | | |
|--|--------|-----------|---------|-----------------|----------|---------|--------|-----------|----------|
| Art Knowledge | | 0.4764 | | 0.4901 > 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 95.0599 | 95.0 | 424.7032 | 20.6083 | 1.2612 | 92.5767, | 97.5431 |
| 2 | Female | 341 | 99.5748 | 100.0 | 298.3569 | 17.273 | 0.9354 | 97.7349, | 101.4147 |
| Aspect | | K-W value | | p-value | | | | | |
| Visual Art Expression and Appreciation Skills | | 3.2022 | | 0.0735 > 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 18.1835 | 18.0 | 18.0752 | 4.2515 | 0.2602 | 17.6712, | 18.6958 |
| 2 | Female | 341 | 18.8299 | 19.0 | 14.718 | 3.8364 | 0.2078 | 18.4213, | 19.2386 |
| Aspect | | K-W value | | p-value | | | | | |
| Music and Performing Arts Expression and Appreciation Skills | | 3.3559 | | 0.0670 > 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 17.8052 | 18.0 | 24.0973 | 4.9089 | 0.3004 | 17.2137, | 18.3967 |
| 2 | Female | 341 | 18.6158 | 19.0 | 18.949 | 4.353 | 0.2357 | 18.1522, | 19.0795 |
| Aspect | | K-W value | | p-value | | | | | |
| Attitude Towards Art | | 9.4478 | | 0.0021** < 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 16.2285 | 16.0 | 12.7032 | 3.5642 | 0.2181 | 15.799, | 16.6579 |
| 2 | Female | 341 | 17.1378 | 18.0 | 8.6251 | 2.9368 | 0.159 | 16.825, | 17.4507 |
| Aspect | | K-W value | | p-value | | | | | |
| Habits of participating in art | | 8.6537 | | 0.0033** < 0.05 | | | | | |
| # | Gender | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Male | 267 | 24.7715 | 25.0 | 43.207 | 6.5732 | 0.4023 | 23.9795, | 25.5636 |
| 2 | Female | 341 | 26.3548 | 26.0 | 32.6061 | 5.7102 | 0.3092 | 25.7466, | 26.9631 |

4.2 Aesthetic Literacy by Grade and Colleges

74 freshmen, 128 sophomores, 156 juniors, and 250 seniors participated in this study. In aesthetic literacy, there was no significant difference in the Levene test variation (L (74, 128, 156, 250) = 0.6635, p = 0.5747 > 0.05). At the same time, the Shapiro-Wilk test result showed S-W (74) = 0.9379, p = 0.0013** < 0.05 for the freshmen, S-W (128) = 0.9497, p = 0.0001*** < 0.05 for the sophomores, S-W (156) = 0.9814, p = 0.0337* < 0.05 for the juniors, and S-W (250) = 0.9708, p = 0.0001*** < 0.05 for the "seniors at a significant level of difference. There was no significant difference in aesthetic literacy between groups (K-W (74, 128, 156, 250) = 1.1272, p-value = 0.7705 > 0.05) (Table 5).

Table 5. Summary of Kruskal-Wallis test results of aesthetic literacy by grade.

| Item | | K-W value | | p-value | | | | | |
|--------------------|---------------------------------|-----------|---------|---------------|----------|---------|--------|-----------|----------|
| Aesthetic Literacy | | 1.1272 | | 0.7705 > 0.05 | | | | | |
| # | Grade | N | Mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | Freshman | 74 | 96.1622 | 99.0 | 366.9596 | 19.1562 | 2.2269 | 91.724, | 100.6003 |
| 2 | Sophomore | 128 | 97.4141 | 99.0 | 393.0949 | 19.8266 | 1.7524 | 93.9463, | 100.8818 |
| 3 | Junior | 156 | 97.0128 | 98.0 | 307.0192 | 17.522 | 1.4029 | 94.2416, | 99.7841 |
| 4 | Senior (including the above) | 250 | 98.468 | 98.5 | 372.5552 | 19.3017 | 1.2207 | 96.0637, | 100.8723 |

The participants included 53 from the School of Humanities and Education, 97 from the School of Engineering, 10 from the School of Law, 149 from the School of Business, 101 from the School of Science, 109 from the School of Design, 2 from School of Intelligent Computing and Quantum Information, and 87 from the School of Electrical Engineering and Information Science. In aesthetic literacy, there was no significant difference according to the Levene test result (L (53, 97, 10, 149, 101, 109, 2, 87) = 1.3115, p = 0.2421 > 0.05). The result of the Shapiro-Wilk test showed the normal distribution of each group of students. The Kruskal-Wallis test results indicated a substantial difference between the groups (K-W (53, 97, 10, 149, 101, 109, 2, 87) = 25.9863, p-value = 0.0005*** < 0.05). Thus, post-hoc comparisons were performed. The Dunn's method and mean analysis were used. The results showed a significant difference in aesthetic literacy between groups (Tables 6 and 7). The performance of the participants in the School of Design (mean = 104.211) was significantly better than that of the participants in the School of Engineering (mean = 95.0825), the School of Business (mean = 96.5906), the School of Science (mean = 94.2673) and the Electrical Engineering, and the School of Intelligent Computing and Quantum Information (mean = 95.0805). The participants in the School of Design performed better in "visual art performance and appreciation skills" (mean = 20.5688) with average scores in four aspects of aesthetic literacy (Table 8).

Table 6. Summary of Dunn test result in aesthetic literacy for participants from different colleges.

| p-value | School of Humanities and Education | School of Engineering | School of Law | School of Business | School of Science | School of Design | School of Intelligent Computing and Quantum Information | School of Electrical Engineering and Information Science |
|------------------------------------|------------------------------------|-----------------------|---------------|--------------------|-------------------|------------------|---|--|
| School of Humanities and Education | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| School of Engineering | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.007586** | 0.949353 | 1.00 |
| School of Law | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| School of Business | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.020026* | 1.00 | 1.00 |
| School of Science | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.006466** | 0.946377 | 1.00 |
| School of Design | 1.00 | 0.007586** | 1.00 | 0.020026* | 0.006466** | 1.00 | 1.00 | 0.020483* |
| School of Intelligent | 1.00 | 0.949353 | 1.00 | 1.00 | 0.946377 | 1.00 | 1.00 | 1.00 |

| | | | | | | | | | |
|--|------|------|------|------|------|-----------|------|------|--|
| Computing and Quantum Information | | | | | | | | | |
| School of Electrical Engineering and Information Science | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.020483* | 1.00 | 1.00 | |

Note: * = $p < 0.05$, ** = $p < 0.001$, *** = $p < 0.0001$

Table 7. Summary of average scores of participants from different colleges in aesthetic literacy.

| No. | College | N | mean | Median | Variance | SD | SE | 95% Conf. | Interval |
|-----|--|-----|----------|--------|----------|---------|--------|-----------|----------|
| 1 | School of Humanities and Education | 53 | 100.4717 | 103.0 | 408.9463 | 20.2224 | 2.7778 | 94.8977, | 106.0457 |
| 2 | School of Engineering | 97 | 95.0825 | 95.0 | 357.7431 | 18.9141 | 1.9204 | 91.2704, | 98.8945 |
| 3 | School of Law | 10 | 99.7 | 92.0 | 421.5667 | 20.5321 | 6.4928 | 85.0122, | 114.3878 |
| 4 | School of Business | 149 | 96.5906 | 96.0 | 357.2975 | 18.9023 | 1.5485 | 93.5305, | 99.6507 |
| 5 | School of Sciences | 101 | 94.2673 | 95.0 | 374.5578 | 19.3535 | 1.9257 | 90.4467, | 98.0879 |
| 6 | School of Design | 109 | 104.211 | 105.0 | 323.0754 | 17.9743 | 1.7216 | 100.7984, | 107.6236 |
| 7 | School of Intelligent Computing and Quantum Information | 2 | 123.5 | 123.5 | 12.5 | 3.5355 | 2.5 | 91.7345, | 155.2655 |
| 8 | School of Electrical Engineering and Information Science | 87 | 95.0805 | 98.0 | 276.6795 | 16.6337 | 1.7833 | 91.5353, | 98.6256 |

Table 8. summary of average scores of four aspects of aesthetic literacy among the school of design.

| Aspects | N | mean | Median | Variance | SD | SE | 95% Conf. | Interval |
|--|-----|---------|--------|----------|--------|--------|-----------|----------|
| Art Knowledge | 109 | 15.1651 | 16.0 | 10.4169 | 3.2275 | 0.3091 | 14.5524, | 15.7779 |
| Visual Art Expression and Appreciation Skills | 109 | 20.5688 | 21.0 | 12.5253 | 3.5391 | 0.339 | 19.8969, | 21.2407 |
| Music and Performing Arts Expression and Appreciation Skills | 109 | 18.0183 | 18.0 | 23.296 | 4.8266 | 0.4623 | 17.102, | 18.9347 |
| Attitude Towards Art | 109 | 17.5688 | 19.0 | 9.8031 | 3.131 | 0.2999 | 16.9744, | 18.1632 |

4.3 Correlation between Aesthetic-related Courses and Activities

The number of participants' aesthetic-related courses was classified as 1–2, 3–4, 5–6, and 7–8. The Pearson correlation coefficient was used, and the correlation coefficient (r) = 0.1949 at p -value = 0.00*** < 0.05. The participants who joined in more aesthetic-related courses improved their self-aesthetic literacy (Table 9).

Table 9. Summary of pearson correlation coefficients in aesthetic literacy for participants by aesthetic-related courses.

| Item | r-value | p-value |
|-------------------------------------|---------|----------------|
| Number of Aesthetic-Related Courses | 0.1949 | 0.00*** < 0.05 |

| # | Courses | N | mean | Median | Variance | SD | SE | 95% Conf. | Interval |
|---|---------|-----|----------|--------|----------|---------|--------|-----------|----------|
| 1 | 1–2 | 488 | 95.7889 | 96.0 | 359.6124 | 18.9635 | 0.8584 | 94.1022, | 97.4756 |
| 2 | 3–4 | 104 | 104.2019 | 103.0 | 278.9006 | 16.7003 | 1.6376 | 100.9541, | 107.4497 |
| 3 | 5–6 | 11 | 108.0 | 119.0 | 393.8 | 19.8444 | 5.9833 | 94.6684, | 121.3316 |
| 4 | 7–8 | 5 | 113.2 | 113.0 | 282.2 | 16.7988 | 7.5127 | 92.3415, | 134.0585 |

The correlation between the participants' number of aesthetic-related activities and their self-aesthetic literacy was analyzed. The number of participants' aesthetic-related activities was classified as 1–4, 5–8, 9–12, and 13 or more. The Pearson correlation coefficient was used. The correlation coefficient ($r = 0.1688$ at $p\text{-value} = 0.00 < 0.05$). The correlation between the number of aesthetic-related activities and self-aesthetic literacy showed statistical significance (Table 10).

Table 10. Summary of pearson correlation coefficients in aesthetic literacy in different aesthetic-related activities.

| Item | | r-value | p-value | | | | | | |
|--|------------------|---------|----------------|--------|----------|---------|--------|-----------|----------|
| Number of Aesthetic-Related Activities | | 0.1688 | 0.00*** < 0.05 | | | | | | |
| # | Activities | N | mean | Median | Variance | SD | SE | 95% Conf. | Interval |
| 1 | 1–4 | 484 | 95.936 | 96.0 | 368.0973 | 19.1859 | 0.8721 | 94.2224, | 97.6495 |
| 2 | 5–8 | 96 | 102.8646 | 104.0 | 283.4657 | 16.8364 | 1.7184 | 99.4532, | 106.276 |
| 3 | 9–12 | 17 | 110.9412 | 110.0 | 145.8088 | 12.0751 | 2.9286 | 104.7327, | 117.1496 |
| 4 | 13 times or more | 11 | 103.8182 | 103.0 | 295.9636 | 17.2036 | 5.1871 | 92.2607, | 115.3757 |

The results of the analysis in this study showed that the best performance of the participants was observed in visual art expression and appreciation skills (Table 2). In "visual art performance and appreciation skills", the participants performed better with an average of 18.5461 in the other aspects. In terms of "artistic attitude", the standard deviation (SD) was lower, indicating that participants' performance was similar. The participants in the School of Design showed the best performance. In addition, performance differences by gender were observed (Table 4). The average performance of the female participants in "attitude towards art" and "habits of participating in art" was higher than that of the male participants, and the female participants' performance was more consistent. The recognition of aesthetic perception and willingness of the female participants were more positive. Among the four aspects, the attitude towards art was the most consistent attributed to the success of promoting activities in recent years. Post Hoc test results showed that the participants from the School of Design performed better in aesthetic literacy than students and visual art expression and appreciation skills (Tables 6 and 7). Aesthetic literacy was largely affected by the participants' majors. The results also indicated that aesthetic-related courses improved self-aesthetic literacy. More participation in aesthetic-related activities increased self-aesthetic literacy, too.

5. Conclusion

Promoting aesthetic education in universities contributes to improving personal aesthetic literacy and creative ideas. In 11 aesthetic-related courses and related activities, college students improved skills related to self-aesthetic literacy. College students showed excellent performance and skills in visual arts with the courses and activities. In the future, it is demanded to provide more diversified courses and organize more aesthetic-related activities to continuously cultivate the aesthetic perception and ability of college students and cultivate more creative and aesthetically literate citizens of the country.

We researched the aesthetic education program of the university implemented by the Ministry of Education in Taiwan in the first year. The number of participants was 608, which accounted for 6% of the students in all universities in Taiwan. In addition to the limited number of students participating, the results of this study were based on students' self-perceptions. Thus, their aesthetic literacy may not be fully reflected. Therefore, the number of participants needs to be increased to examine students' aesthetic practices. More courses and activities related to aesthetics need to be offered in the future. In this way, it is possible to examine the achievement of aesthetic education and the improvement of students' self-aesthetic perception and abilities. Aesthetics includes many topics and involves a wide range of related courses. In addition to adding aesthetic-related courses and activities to improve students' aesthetic literacy, questionnaire content needs to include literary reading, film watching, and others.

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