

Exploring Visual Creativity and Its Dimensions in Students of Online Training Program

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Abstract

This study evaluated and compared the levels of artistic creativity among undergraduate university students enrolled in distance learning programs across five distinct programs at a local university. The assessment focused on four key components: Fluency, Flexibility, Originality, and Elaboration. The results revealed significant differences in creativity between the programs, with Social Work students demonstrating higher levels of creativity compared to those in Tourism, and Marketing students surpassing their counterparts in the Tourism program. However, no significant differences in creativity were observed among other program pairings. Notably, while all programs excelled in the aspect of “Elaboration”, “Fluency” displayed a lower performance in the swift generation of ideas. The findings underscored the potential influence of myths, beliefs, and dogmas on creativity, particularly among Theology students. Moreover, the visual expression styles employed by students in the Tourism program may not align with the kinesthetic nature of their career profiles. These findings emphasize the imperative for further research to explore these factors. In conclusion, this study highlights the significance of tailored approaches to nurture creativity within distinct undergraduate programs with distance learning components and the interplay of creative dimensions in professional preparation across various fields.

Keywords: Creativity, Undergraduate Programs, Artistic Assessment.

1 Introduction

Creativity is defined as a form of thinking that emerges in an individual in response to the perception of a problem and is composed of multiple elements, such as sensitivity, fluency, flexibility, elaboration, originality, and redefinition [1]. In this sense, an art subject (painting, music, theater, etc.) within a STEAM approach is essential for cultivating creativity in schools, and its development nurtures the total brain, which requires and demands continuous doses of creative stimulation [2]. In the university context, the Peruvian educational system has, by law, established the obligation to include general education courses in higher-level study programs [3]. Among these courses is Art, which aims to provide comprehensive education for future professionals. The precedents of highly creative students who have obtained exceptional scores in verbal expression tests often coincide with high performance in one or more forms of art and visual expression. This is evident in the awards students have received in disciplines such as music, art, theater, and other competitions [4]. Numerous studies have been conducted to analyze the validity of tests designed to assess creativity, including its key components: Fluency, Flexibility, Originality, and Elaboration.

1.1 Fluency

Fluency refers to the ability to generate numerous ideas, solutions, or creative expressions within a specific period of time. It enables the continuous production of multiple responses by utilizing cognitive resources during the planning, execution, and control of an activity and its outcomes [5]. Fluency involves imagination, free association of remembered elements, the flow of relationships, convergent production, associations, and the establishment of multiple connections. In an educational context, fluency is evident not only in problem-solving but also in artistic expression, creative communication, and the generation of new perspectives, emphasizing its importance in education [5]. In the artistic domain, fluency in drawing and painting refers to the ability to express oneself continuously and effortlessly, promoting free expression, the use of diverse techniques and media, and the exploration of ideas and styles. Fluency is associated with the quantity of responses, while quality is linked to the uniqueness of the responses [6]. In creative spaces, fluency implies not only the abundant generation of ideas but also the ability to develop and connect them meaningfully. According to Amabile, [7] fluency refers to the ability to generate a large number of ideas or solutions, highlighting its importance in continuous and unrestricted creative production. Fluency should be understood as the total or productive quantity of ideas, products, or figures [8]. Additionally, Csikszentmihalyi [9] argues that fluency is intrinsically linked to the state of flow, where individuals become immersed in the creative activity without conscious effort, promoting the free exploration of ideas and experimentation without fear of failure. In educational and artistic contexts, fluency not only facilitates the resolution of complex problems but also supports genuine artistic expression and creative communication [10]. In the realm of visual arts, fluency in drawing and painting allows artists to express themselves spontaneously and without inhibition, fostering the exploration of innovative techniques and the creation of unique works that capture diverse perspectives and emotions [11].

1.2 Flexibility

Flexibility is synonymous with generating a large number of categorically different ideas [12]. Flexibility in creativity is important not only in the artistic domain but also in other areas of creative expression, such as science [13]. It allows artists to explore new ideas, approaches, and techniques. Cognitive flexibility, for instance, is the ability to adapt and shift mental focus, enabling individuals to see things from different perspectives and find creative solutions to challenges [14]. This skill of shifting focus challenges conventions and explores new forms of expression, which is linked to a greater number of responses [15]. Flexibility in the creative process leads individuals to experiment with a wide variety of materials and techniques to create their work [16]. It aids in creatively solving complex problems and is associated with divergent thinking, working memory, and mental speed [17]. Flexibility is a key element in the creative process, allowing adaptation to new ideas and perspectives and fostering a willingness to experiment and try new things. According to Guilford, [18] flexibility refers to the handling of varied categories of responses to a situation, which is closely linked to creativity because if one is creative, one must also be flexible. Cognitive flexibility is the ability to invent something new, relate something known in an innovative way, or deviate from habitual thought patterns and behaviors. This requires a flexible mindset that allows for generating ideas not directly related to the main topic, also known as lateral thinking [19]. The importance of flexibility in everyday creativity, management, and educational activities is evident. Mental flexibility involves adapting to new approaches and being open to exploring different angles, deviating from common sense a fundamental characteristic for the development of the creative process.

1.3 Originality

The pursuit of originality is one of the most significant aspects of creativity because it "does not imitate others" and is contrary to the usual [20]. Originality is closely related to creativity, as it involves producing something in a novel manner characterized by disruption, divergence, and differentiation. However, although creativity is vital in art, not all creative work is necessarily original. Artists can make creative contributions in various fields without creating something entirely new [21]. Evaluating originality in a painting or visual expression is a subjective process. In a work of art, it depends on several factors such as the artist's personal style, experimentation with techniques and materials, the novelty of the concept, and how formal elements like composition, color, and technique are handled [22]. Divergent thinking, which leads to solutions that are unique and original, has been associated with creativity [23]. In the realm of visual arts, originality goes beyond technical skill and focuses on the artist's ability to express ideas and emotions uniquely and personally. Originality in art involves creating works that are not only visually impactful but also convey deep meanings and provoke new interpretations and reflections from the viewer [24].

In the educational field and visual artistic expressions, originality is essential for creativity, as it involves the ability to generate ideas or productions that are unique and distinctive in their context. Originality manifests when individuals can offer new and unconventional perspectives that challenge established norms, contributing to innovation and progress in learning and artistic creation [25]. Students should demonstrate original creative behaviors that allow them to be creative in everyday life and the academic context [11]. Originality is sought through a series of design strategies to challenge norms, ranging from radical designs intended to explore the new and diverse, to discussions that motivate the creative process [26].

1.4 Elaboration

The construct refers to an individual's ability to develop and refine an original idea or production, achieving levels of complexity and detail [27]. The dimension of "elaboration" in creativity pertains to the ability to add details, fill gaps, and expand initial ideas or concepts [4]. In the context of visual creativity, "elaboration" involves the process by which artists or designers develop and enrich their visual ideas with detail and depth. This concept is fundamental to understanding how initial visions are transformed into complex and meaningful works of art. It encompasses not only expression but also the appreciation of the artwork, which often appears "perfect," polished, or well-finished, evoking an emotional or aesthetic satisfaction in the viewer. According to Guilford, [18] elaboration is one of the key dimensions of creativity, alongside fluency of thought and flexibility. This dimension refers to the ability to generate and develop ideas from already known information, which is essential for visual creativity and creativity in any field. Elaboration involves expanding and detailing ideas, adding more elements and complexity to an initial visual concept. It seeks to develop a basic idea into a more comprehensive and detailed proposal, connecting elements in novel ways. The combination of different visual components is displayed uniquely and originally, perfecting a visual idea through multiple iterations and optimizing the details of a creative proposal. Considering the theoretical background described above, this study poses the following general research question: Are there significant differences in the level of visual creativity among students from different undergraduate programs?

The general objective is to compare the level of achievement in visual creativity among four groups of undergraduate students from different professional programs at a private university offering distance education.

The specific objectives of the study are:

1. To compare the levels of creative fluency among students from different undergraduate programs (Education, Marketing, Theology, Social Work, and Tourism), identifying the factors that contribute to these variations.
2. To determine the differences in creative flexibility among students from various undergraduate programs (Education, Marketing, Theology, Social Work, and Tourism), and explore how these differences relate to the specific characteristics of each discipline.
3. To analyze the variations in creative originality among students from different undergraduate programs (Education, Marketing, Theology, Social Work, and Tourism), and examine how the particular characteristics of each program influence these levels of originality.
4. To compare the differences in the capacity for creative elaboration among students from different undergraduate programs (Education, Marketing, Theology, Social Work, and Tourism), and determine the contextual factors that might be associated with these variations.

2 Method

The study adopts a non-experimental quantitative approach to analyze mean differences and compare levels of achievement in visual creativity, considering four main components: Fluency, Flexibility, Originality, and Elaboration. These aspects were developed within the context of the 'Art Workshop' course.

2.1 Participants

The total population of students enrolled in online and distance education programs is 420. For this research, a convenience sampling approach was employed, selecting course sections with a similar number of students in each sample. Five groups of students from various professional graduate programs were chosen, with the following distribution: Theology: 35 students (14.2%); Marketing and Business Management: 50 students (20.2%); Tourism and Gastronomy: 48 students (19.4%); Secondary Education: 54 students (21.9%); Social Work: 60 students (24.3%), totaling 247 students.

2.2 Instrument

The data collection instrument was based on the Test for Creative Expression (TAEC) [28], which evaluates non-verbal graphic creativity. From this test, four fundamental dimensions of creativity were assessed: fluency, flexibility, originality, and elaboration. To complement the evaluation process, an observation sheet was developed (Figure 1).

The rubric was designed following established evaluation models for artistic expressions, incorporating factors from previous studies, such as those by Soto Calzado [29], which emphasize the “theme” and the “physical presentation” factor, the latter corresponding to the assessment of “elaboration” in a creative proposal.

Overall, the rubric assesses four dimensions of visual creativity using a five-level achievement scale: very high (5), high (4), medium (3), low (2), and very low (1). This scale was applied to evaluate artistic works, including collage, drawing, and painting, as produced by students in the workshop. The instrument was validated by two subject matter experts, and its reliability was assessed using McDonald’s statistic, yielding a result of 0.845, which is considered a reasonable indicator of reliability.

EVALUATION RUBRIC FOR ARTISTIC EXPRESSIONS IN VISUAL ARTS.

Name:

Undergraduate program:

Date:

CRITERION	5	4	3	2	1
FLUENCY	Presents 5 or more sketches. Demonstrates meticulous planning and innovative content.	Presents at least 4 sketches. Effective planning and cohesion. Elements are seamlessly integrated.	Presents 3 sketches. Sufficient fluency and observable preparation. Sketches contribute to final composition.	Less than 3 sketches. Limited planning. Quality is impacted by inadequate preparation.	No sketches presented. Lacks fluency and evidence of planning or development.
FLEXIBILITY	Exceptional. Creative and novel exploration of elements. Seamless adaptation and variation in compositions.	Solid effort to adapt elements. Noticeable variations and embellishments in the work.	Adequate flexibility. Some original ideas and approaches. Potential for improvement in innovation.	Shows rigidity. Limited variations and adaptations. Lacks experimental approaches.	No flexibility. Work is conventional, with no innovative elements.
ORIGINALITY	Exceptional originality. Innovative and profound interpretation of the theme, with unique elements and techniques.	High originality. Creative approach to the theme, with distinctive elements and techniques.	Moderate originality. Some creative interpretation of the theme, with a few unique elements or techniques.	Limited originality. Conventional approach, with minimal unique elements or techniques.	Lacks originality. Very conventional, without a creative or unique interpretation of the theme.
ELABORATION	Meticulous attention to detail and precise execution. Seamlessly integrated elements, creating a cohesive artwork.	Consciously organized. Detailed elements with some room for improvement.	Reasonably executed with some areas for improvement in detail and accuracy.	Inadequate coherence. Some indicators of carelessness in execution.	Insufficient elaboration. Elements appear messy and rushed, lacking detail.

Note: This rubric is used to evaluate various forms of artistic expression such as Collage, Drawing, Painting, etc.

Figure 1: Evaluation Rubric for artistic Expressions in Visual Arts

2.3 Procedure

During a period of 10 weeks, a collection of visual artworks developed and presented by students over an academic quarter was compiled. The sessions involved experiences of artistic expression using three artistic techniques documented in a portfolio or logbook of A3 paper sheets, with dimensions of 11.7 x 16.5 inches. The technical requirement was set at an intermediate level of difficulty. These works were assessed using a twenty-point scoring system, commonly used in the university setting, where values are assigned as follows: from 1 to 10 is considered very low, from 11 to 14 is rated as medium or in progress, from 15 to 17 is considered a high or desired level, and from 18 to 20 is rated as very high or outstanding. The evaluation of the artistic works was carried out by two expert teachers in art and creativity, using an assessment instrument adapted and specifically designed for this purpose. For the development of fluency, students were tasked with proposing 5 or more sketches exploring one of the seven deadly sins (wrath, envy, lust, greed, gluttony, sloth, and vanity). This exercise encouraged rapid and abundant idea generation, allowing students to experiment with various compositions and approaches without fear of making mistakes.

2.3.1 Drawing

Flexibility was cultivated by encouraging students to use different styles and techniques in their sketches. They were encouraged to experiment with colored pencils, markers, or pens, and to employ various shading, textures, and lines. They were also asked to create a contour drawing first and a value drawing afterwards, adjusting their initial approach to include new ideas or discoveries during the drawing process. To enhance originality, students were incentivized to develop unique and personal ideas in representing their chosen deadly sin. They were asked to integrate elements from their environment, personal experiences, or imaginations into their drawings. Additionally, they were encouraged to create unusual or unconventional interpretations of the deadly sin to highlight their individuality and creativity. Elaboration focused on the detailed and meticulous development of the selected sketches to be executed as final artworks. Students worked on adding precise details and refining their drawings, using advanced shading and volume techniques to add depth and realism to their works. They were taught to refine their initial ideas and to work on the technical quality of their drawings, ensuring a striking and well-structured representation of the chosen deadly sin.

2.3.2 Collage

To develop fluency, students created multiple initial collages using paper, photographs, images, and found materials to interpret and recreate a painting by a master from art history. For the thematic development, they were tasked with creating at least five different compositions, exploring various ways to reinterpret the chosen artwork through rapid and diverse combinations of materials and concepts. Flexibility encouraged students to explore different approaches to the theme and experiment with diverse materials and techniques for their collages. They were motivated to experiment with different types of paper, textures, and found objects such as fabrics, buttons, and everyday item fragments. This practice allowed them to adapt and modify their compositions in response to new ideas or challenges encountered during the creative process. To enhance originality, students were incentivized to develop unique and personal ideas in the reinterpretation of the chosen artwork. They were asked to integrate symbolic or metaphorical elements that held special meaning for them, or to reinterpret the artwork in a novel and creative way. Incorporating unconventional images and elements was promoted to highlight each student's individuality. Elaboration focused on the detailed and meticulous development of the selected collages to be executed as final artworks. Students worked on adding precise details and refining their compositions, using advanced techniques of cutting, pasting, and layering to add depth and cohesion to their works. They were taught to refine their initial ideas and to work on the technical quality of their collages, ensuring visually impactful and well-structured presentations.

2.3.3 Painting

With the painting technique, the students worked on Analogous Color Harmony. Initially, students engaged in a preparatory exercise where they painted a color wheel with seven shades of value for each color. Subsequently, they were asked to create at least five initial proposals using a trio of analogous colors with acrylic pigments. The theme could be a self-portrait or a personally chosen subject. This exercise allowed students to generate a wide variety of ideas fluently and explore different combinations using a trio of analogous colors, along with the addition of white to lighten tones and black to darken forms. Rapid experimentation without fear of mistakes was encouraged, enabling students to develop their creativity freely and enhance their ability to generate multiple creative options. Flexibility was promoted by encouraging students to use

different techniques for applying acrylics and variations in the combination of analogous colors. Regarding the theme, they were encouraged to experiment with the use of symbols, metaphors, contrasts, and analogies to change their initial approach and adapt to new thematic ideas or discoveries that arose during the painting process. This also served to enhance originality, developing unique and personal ideas in the representation of their self-portrait or chosen theme. Elaboration focused on the detailed and meticulous development of the selected proposals to be executed as final artworks. Students worked on adding precise details and refining their compositions, using advanced techniques of acrylic blending and application to add depth and cohesion to their works. These works were evaluated using a rubric with a scoring system of twenty points, commonly used in academic settings. Scores were assigned as follows: from 1 to 10 considered very low, from 11 to 14 rated as medium or in progress, from 15 to 17 considered high or desirable, and from 18 to 20 rated as very high or outstanding. The evaluation of the artworks was conducted by two expert professors in art and creativity, using an assessment tool adapted and specifically designed for this purpose.

2.4 Data Analysis

The data was processed and analyzed through a descriptive analysis, presented in tables with measures of central tendency and standard deviation. A one-way analysis of variance (ANOVA) was employed to compare means and determine which of the student groups achieved a higher level of creativity in their work. The normality of the sample data was assessed using the Kolmogorov-Smirnov test. Based on the results, the non-parametric Welch test was applied. The significance level for the comparison was set at $p < 0.05$. Data analysis was conducted using the statistical software Jamovi 2.3.

2.5 Results

The demographic data of the students reveal a gender distribution of 56% females and 44% males. The average age is 34 years, ranging from a minimum age of 18 to a maximum age of 56. Table 1 presents the sample units corresponding to each group or field of study, along with the mean level of creative achievement of the students on a 20-point scale. Additionally, the standard deviation of these values is displayed.

Table 1: Level of Achievement - Group Descriptions

Variable	Undergraduate Programs	N	Mean	SD	SE
Creativity	Education	45	15.5	2.09	0.311
	Marketing	49	15.9	2.08	0.297
	Theology	33	14.6	2.72	0.474
	Social Work	41	16.5	1.55	0.242
	Tourism	25	13.8	2.60	0.520

We can see that, in general (Figure 2), the Social Work program has the highest average in terms of creative achievement, followed by the Marketing program, which suggests that students in these programs have, on average, higher levels of visual artistic creativity compared to students in the other two careers. Tourism has an average of 13.8 on the vigesimal scale, which is equivalent to a level of achievement in process.

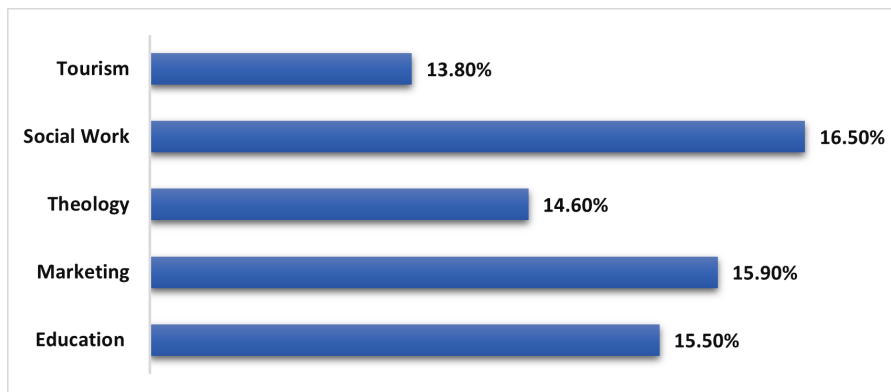


Figure 2: Level of Achievement in Visual Creativity

On the other hand, (Table 1) the Theology program has the lowest mean, indicating lower levels of artistic creativity compared to the other programs. In the Theology program, the standard deviation is relatively

high, indicating that scores vary considerably among the students. In contrast, in the Social Work program, the standard deviation is low, suggesting that scores are more consistent within this group.

Table 2: Level of Achievement - Group Descriptions

Dimensions	Undergraduate Programs	N	Mean	Standard Deviation
Elaboration	Education	45	16.0	2.52
	Marketing	49	15.4	3.77
	Theology	33	15.6	3.97
	Social Work	41	16.9	1.77
	Tourism	25	15.4	2.60
Originality	Education	45	16.4	2.86
	Marketing	49	16.6	2.74
	Theology	33	15.6	3.59
	Social Work	41	16.9	2.46
	Tourism	25	12.9	4.48
Flexibility	Education	45	15.1	3.30
	Marketing	49	14.0	2.69
	Theology	33	14.8	3.04
	Social Work	41	15.8	2.13
	Tourism	25	14.1	2.96
Fluency	Education	45	14.5	3.40
	Marketing	49	17.6	3.55
	Theology	33	12.4	5.00
	Social Work	41	16.5	2.67
	Tourism	25	12.9	3.97

In Table 2, it is observed that in the “Elaboration” dimension, the level of creativity is high in all academic programs. Social Work leads with an average score of 16.5, followed by Theology, Marketing, and Tourism with similar scores but variability in their results. This suggests that students in these programs present well-detailed artistic works. Regarding “Originality,” Social Work has the highest score (16.9), indicating a moderate level of originality. Tourism has the lowest score (12.9), showing lower average originality. Education, Marketing, and Theology have close scores. In “Flexibility,” Social Work leads with a moderately high average score (15.8), while Marketing has the lowest score (14.0). Education, Theology, and Tourism exhibit intermediate levels. In terms of “Fluency,” Theology and Tourism obtain lower scores, suggesting limitations in the fluid generation of ideas, whereas Marketing stands out with a high score (17.6).

Significant differences in visual creativity are found among academic programs. Social Work and Marketing appear to foster a higher level of creativity compared to Education, Theology, and Tourism. Furthermore, variability in creativity levels is observed within each program, indicating the need for specific approaches to stimulate creativity in each of these study aspects. The Levene test was applied to justify the use of Welch’s analysis of variance in the statistical processing.

Table 3: One-Way ANOVA (Welch’s)

Variable	F	df1	df2	p
Creativity	7.21	4	82.6	< .001

The results obtained are summarized in Table 3, which presents a comparative analysis of creativity levels among the different programs. As shown, the significance level α represents the probability of committing a Type I error and is commonly set at 0.05 (5%) as a default value in the educational context. The results of the Welch’s analysis of variance indicate that there is a significant difference in creativity among at least two groups of students from different undergraduate programs. Since the p-value is less than 0.001, we can conclude that these differences are not the result of chance and are statistically significant. This suggests that students from the five academic programs exhibit varying levels of development in terms of artistic and visual creativity. To gain a more detailed understanding of the specific differences between the programs, post hoc comparisons or additional tests were conducted in order to identify which groups differ from each other.

The results of the post hoc Games-Howell analysis in Table 4 compare creativity levels among undergraduate students from five different programs. Firstly, “Social Work” exhibits a significant difference in creativity achievement with a 2.67-point advantage compared to “Tourism.” Statistically significant differ-

Table 4: Level of Achievement - Group Descriptions

Careers	Values	Marketing	Theology	Social Work	Tourism
Education	Mean difference	-0.411	0.885	-0.965	1.705
	p-value	0.874	0.528	0.113	0.055
Marketing	Mean difference	-	1.296	-0.554	2.116**
	p-value	-	0.155	0.601	< .001
Theology	Mean difference	-	-	-1.849*	0.821
	p-value	-	-	0.009	0.770
Social Work	Mean difference	-	-	-	2.670***
	p-value	-	-	-	< .001

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

ences in creativity are observed between the “Marketing” and “Tourism” programs (2.11-point difference; $p < 0.009$). On the other hand, creativity in “Theology” shows a significant negative difference of -1.849 when compared to “Social Work” ($p < 0.009$). The level of creativity in “Education” is lower than that of “Social Work” but higher than “Tourism,” although these differences are not significant ($p < 0.055$).

Furthermore, with a p-value of 0.601, which is greater than 0.05, no significant differences in creativity were found between the “Marketing” and “Social Work” programs. Similarly, no significant differences were observed between “Education” and “Marketing” (0.874), and “Education” and “Theology” (0.528). No significant differences in creativity achievement were found in the “Tourism” program in comparison to the “Education” and “Theology” programs.

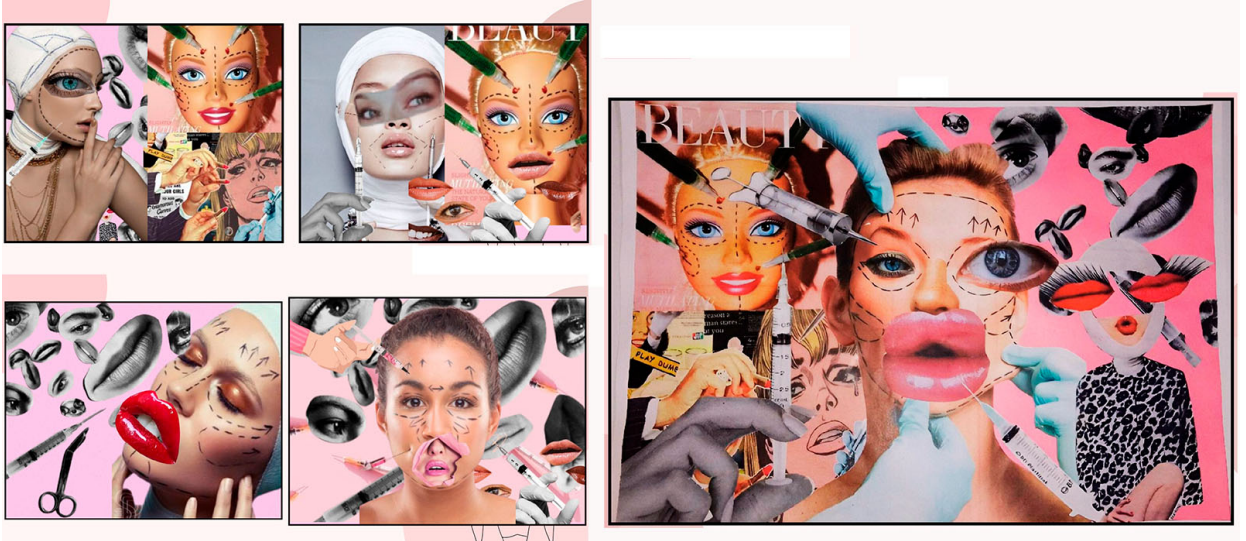


Figure 3: Fluency. Various proposals for the same theme of “vanity” using the collage technique

3 Discussion and Conclusions

The study revealed significant differences in artistic creativity among evaluated academic programs. Specifically, students in Social Work demonstrated higher levels of visual creativity compared to those in Tourism, while Marketing students exhibited significantly superior creativity levels compared to Tourism students. However, no significant differences in artistic creativity were found between Education and Marketing programs, Education and Theology, Education and Tourism, Marketing and Social Work, or between Tourism and Education or Theology. The study focused on determining levels of creative fluency among undergraduate students from different programs (Education, Marketing, Theology, Social Work, and Tourism), identifying factors contributing to these variations.

In terms of fluency (Figure 3), students showed lower performance due to a lack of willingness to explore the theme, which affected their ability to generate ideas. This supports the notion that fluency alone does not ensure originality. As noted in another study, “fluency, by itself, is not an adequate measure of creativity” [30].

One observed barrier in educational experience is that many students face obstacles and fears limiting their creative fluency. They often experience insecurity and doubts when proposing multiple idea options, reflected in their reluctance to create preliminary sketches, experimental attempts, or initial drawings. This difficulty in experimenting and embracing mistakes can significantly inhibit their creative development. Therefore, it is crucial to promote an educational environment that values and encourages free exploration and the acceptance of errors as integral parts of the creative process. There is evidence supporting that failure can positively contribute to creativity providing students with the necessary confidence to explore various possibilities and ultimately develop their capacity for divergent and fluent thinking [31].



Figure 4: Flexible mindset in the student to creatively adapt Botticelli's "The Birth of Venus"

In terms of flexibility, students generated diverse ideas, and we have observed findings similar to previous research suggesting a relationship between fluency and flexibility. Some studies have found that "fluency strongly predicts flexibility" [12]. This raises questions about the relationship between these two dimensions of creativity and suggests that cognitive experience may be an important factor in generating creative ideas. Our study found similar mean scores for fluency (14.78) and flexibility (14.74), which corroborates the relationship between these two distinct dimensions of creativity that uniquely contribute to the creative process. Flexibility involves not only the diversity of ideas but also adaptability to different contexts and creative scenarios [32] and is a key characteristic of divergent thinking [33]. Students demonstrated the ability to adapt to the proposed theme when tasked with recreating a painting by a master of Western art history (Figure 4). The importance of flexibility is underscored as a skill that can be developed and enhanced through practice and exposure to diverse cognitive experiences [34]. These studies suggest that, although fluency and flexibility are related, they are distinct dimensions of creativity that uniquely contribute to the creative process.

Students from the four professional programs show a high level (15.68) in the average performance assessment of the "Originality" dimension. This aligns with the significance of originality in visual creativity, coinciding with previous research highlighting "originality as one of the three fundamental pillars of creativity" [35]. Our study corroborates findings from other research where originality stands out compared to other dimensions of creativity in experimental training contexts [36]. Originality, along with fluency and flexibility, constitutes an essential component of effective creativity [32]. In the educational realm, not strictly within the field of visual artistic expressions, research has shown that fostering originality in students can have a positive impact on their academic performance and their ability to solve problems innovatively [37]. Originality is a skill that can be developed through specific pedagogical strategies, such as open-ended

instruction and project-based learning [38]. We have observed a positive response from students when they have presented original proposals based on focused themes such as one of the seven deadly sins, and likewise when they were asked to explore a free theme; for instance, the influence of social networks, gender violence, and other freely chosen topics. See Figure 5.

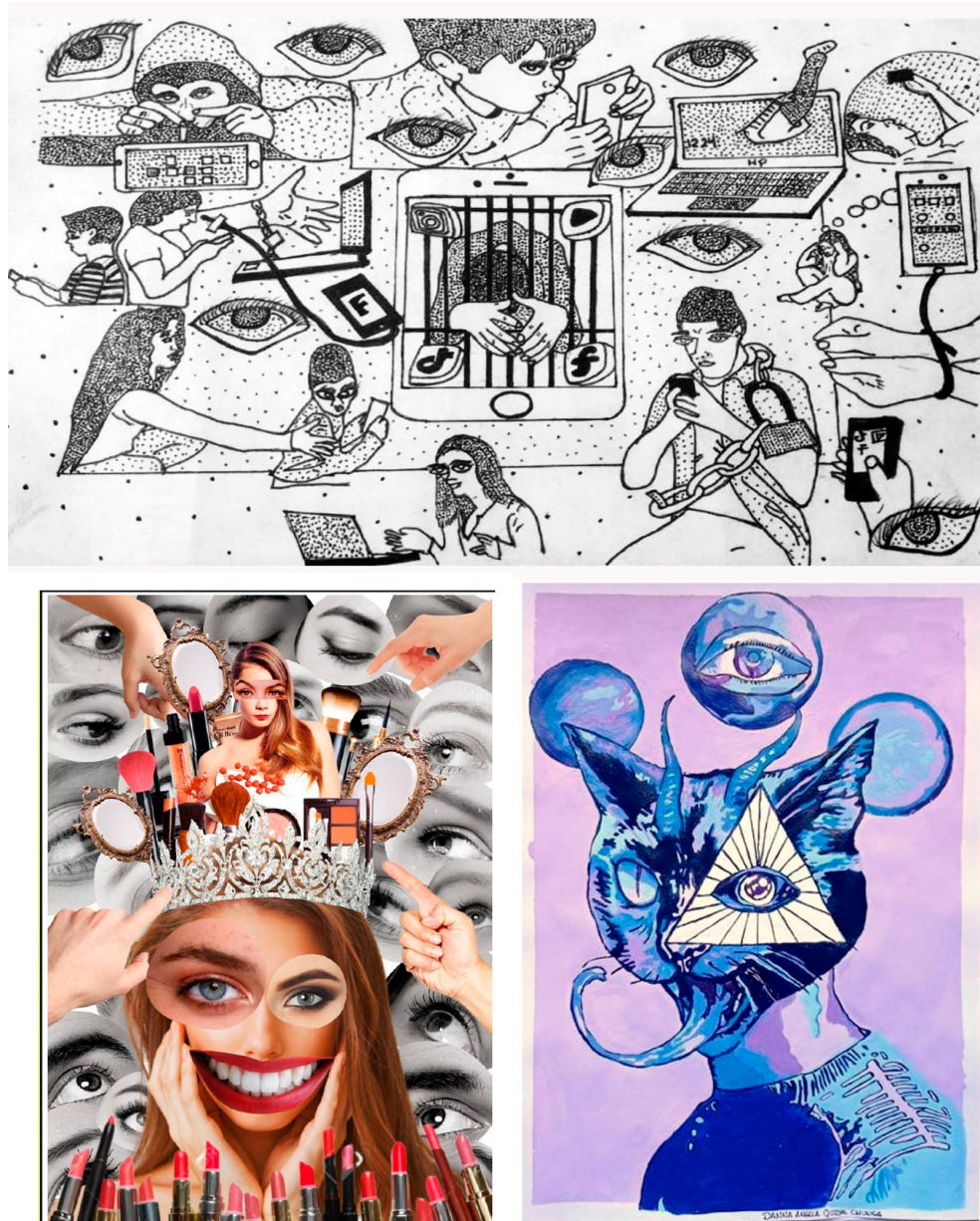


Figure 5: Elaboration by the students using Drawing (social networks), Collage (vanity), and Painting (free)

Cropley’s work [39] indicates that educational interventions focusing on originality tend to produce significant improvements in students’ creative thinking. This suggests that, while fluency and flexibility are important, originality plays a more prominent role in certain educational and professional contexts. In the “Elaboration” dimension, all groups received high scores, suggesting a relationship between cognitive skills and fluency, flexibility, originality, and elaboration. This supports the idea that “students with high cognitive abilities tend to score higher in terms of fluency, flexibility, originality, and elaboration” [40]. Although there are studies suggesting that elaboration in university students’ creativity is at a moderate level, other precedents suggest that fluency and originality scores are closely related, meaning that a greater number of responses can lead to more novel ideas [41]. However, when comparing fluency levels with elaboration, students dedicate much more time to the elaboration stage, which can be seen in the final product that demonstrates levels of detail and meticulousness in presentation.

Finally, we will examine the scores of students in a general education course called “Art Workshop” across five undergraduate programs offered by a local university, which focused on assessing levels of visual artistic

creativity. The results revealed significant differences in scores. Specifically, the Marketing, Social Work, Theology, and Education programs had average scores ranging from 14.6 to 16.5, indicating an expected or anticipated level of achievement. In contrast, the Tourism program obtained an average score of 13.8, which is considered lower and in developmental stages according to university assessment standards. The results do not provide a clear explanation for why students in certain majors, such as Tourism, do not reach the achievement levels observed compared to students in other disciplines. It is possible that visual expression styles may not be the most suitable for students in this specialty, as they are preparing for an environment where the primary focus is the physical demands of their future profession, which require more development of motor and kinesthetic skills over visual ones. This underscores the importance of future research in this field. Another finding suggests the need for further investigation to examine and explore the characteristics of creative development among students in the Theology program, who showed lower scores in all four dimensions of creativity. A future hypothesis could suggest that these results are related to certain myths, beliefs, and dogmas regarding the exploration of images that may not align with their religious beliefs, thus potentially limiting the artistic expression of visual creativity. The main limitation of the study is that it was purely descriptive-comparative and did not implement an experimental design that could contrast differences between pre- and post-treatment to identify and improve levels of visual artistic expression with creativity.

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