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Research Article

Improvement of creativity with the application of specific methodology in the process of learning and teaching Graphic Design and Visual Arts

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Abstract

Different theorists, artistic movements, and Art Education and Design schools have developed teaching methods to generate practical and aesthetic design processes. But it is an educational area where to establish more teaching methods and assessment instruments. Today Synthesis, Geometrization and Abstraction are automatisms that are unconsciously integrated into the artistic activity. They have been strategies used in different artistic moments.

Creativity is also an essential skill in these teaching and learning areas; the creativity process linked to innovation and originality and the ability to solve problems. The teaching of creativity in the educational field and the Art Education and Social Sciences is an objective for many design schools. The recent review of the research shows a special interest in methodology in the teaching of Graphic Design. One trend is the search for more reflection and criticism during the processes.

This paper presents an analysis based on a qualitative study of higher education students focusing on improving creativity using a specific methodology called Asinge. It is proposed a methodology that uses abstraction, synthesis and geometry like visual strategies and tools. Based on the literature review about this tool and particularly design methods. A three-year programme of design activities was set up. Some of these focused on developing abstraction, synthesis and geometry. Subsequently, the student's portfolio was reviewed. The best results were found in Geometrization. Finally, we discuss how this methodology can be used to enhance the creativity of design students.

Keywords: visual education, educational methodology, graphic design, creativity, higher education.

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Introduction

As Moszkowicz [1] explains, the book Writing Lessons: Modern Design Theory by Ellen Lupton describes Gestalt theories' relationship and their application in Graphic Design. Mainly it would influence the teachings of the Bauhaus School from 1920 onwards. Subsequently, the studies of

Rudolf Arnheim. The abstraction, synthesis and geometrisation of images are standard work processes in artistic creation and Graphic Design. The representations of the first cultures were symbols and synthetic creations, in many cases, geometric. Throughout history, styles have changed, but abstraction has been legitimised in the latter part of the 20th century, and geometrical models have acquired a higher position.

It is crucial to remember that the artists of the first avant-garde movements of the 20th century, such as Piet Mondrian, Wassily Kandinsky, Alexander Rodchenko or Theo van Doesburg also maintained these guidelines. At present, these automatisms are unconsciously integrated into the artistic activity. Eisner [8,9] and Ducum [7], researchers of Image and representatives of some Art Education paradigms, have delved into these and other issues related to the image. They have determined which are the main elements of the image and the processes of perception and creation. Together [6,3], they consider that they are: point, line, colour, tone, texture, pattern, shape and space.

The theoretical contributions of Munari [23], the volumes on teaching design at the Bauhaus School [18], or later, the one on Basel and Palermo explain some possibilities in didactics. Today, in Art and Design, practical training exercises are carried out to generate images with these characteristics. In addition to the practical activities, terms such as icon, iconic, iconicity, abstraction, abstract expressionism are introduced. Bassat [4] and Morales [22] believe that the intrinsic relationship between Graphic Design and Advertising forces this. Some researchers like Klimenko [16] explain that it is crucial to understand that creativity is a social good and will always be key to a society's success.

It has also researched possible assessment procedures to facilitate the evaluation of creative capacity objectively. He proposes to give more importance to systematised reflection and to propose an evaluation procedure developed in stages. Along the same lines, Motley [19], stresses the power of reflection in learning about graphic design. In particular, the use of criticism in its pedagogy. Gachago, Morris and Simon [13]. Their research with Graphic Design students found that decision-making skills and confidence in participating in group discussions improve with practice.

Continuing with the interest in creativity, Giloi & Du Toit [14] think it is necessary to create solid evaluation methodologies in Graphic Design studios, which generate a profound learning experience. The creative process is evaluated in addition to the final graphic product. Salehudin [26], found in a study with 144 students that the creative learning outcomes in the groups of students assisted by Instagram are better than in those who do not use this social network.

In addition to other professional skills, Lou [17] has introduced innovations in teaching to stimulate students' creativity and imagination. He concludes that virtual reality stimulates student learning when realistic designs and illustrations are made. The digital field opens other work possibilities, such as using social networks. In the work of Salehudin, Hamid, Zakaria, Rorimpandey & Yunus [27], the possibilities of the Instagram social network in the teaching of Graphic Design have been studied. They carried out a quantitative analysis and obtained significant results that lead them to think that graphic design content can be taught through creative learning using Instagram.

Concerning the specific group of deaf people, Ibrahim, Alias & Nordin [15], have investigated the learning needs of deaf students. They have observed that they would need other learning types in the teaching of web design and design of multimedia applications. The authors created an educational programme that enhanced creativity, using print and video as learning media.

A specialist in teaching Graphic Design, Ellmers [10] has proven the value of reflective practices during the implementation of design projects. Ellmers [11], has observed that a mixed teaching model based on study and project resolution is used in university graphic design studies. However, from his perspective, too much importance is given to the project without paying attention to the process.
Currently, research is directed towards using computer programs for particular tasks about the teaching of design and geometry, as in Albert, Gomis, Valor y Valiente [1], which presented a methodology for the design and redesign of graphic patterns, which could also be applied to the design of tile and textile patterns.

Materials and Methods

The intrinsic nature of the subjects or the lack of methodological models means that in Art Education and the teaching of Graphic Design and the Visual Arts, defined methodological strategies and quantification instruments are not usually used. However, there are some traditional visual arts and design teaching strategies such as Abstraction, Synthesis, and Geometrization. The main objective will be to review the validity and usefulness of these strategies to creativity, a capacity especially valued in this type of teaching.

Participants.
Within the subjects "Design Project" to N= 45 students, between 18 and 36 years of age, were part of the study.
Students in grades 1 through 3 from Superior Art School of Design of the north of Spain, were invited to participate in the study. During three years15 students per year participated.

Instrument and Method.
To perform this study, a quantitative evaluation of the results was made according to the analysis instrument of Mose, Dalsgaard & Halskov [20]: Design Space (Framing, Divergence, Convergence), Conceptual Aspects (Combination, Metaphor, Analogy) and Concrete Aspects (Process, Structure, Materials and Tools).
For the first approach, the students' portfolios were reviewed. The initial diagnosis of the use of abstraction, synthesis, geometry in the first four works of each student was made.
A programme of design activities was established along with the courses and applied over three years in different academic courses. In eight of the activities, work was proposed with geometry, abstraction, synthesis; in eight other activities carried out during the course, this working methodology was not proposed. Reflection sessions were held in both cases. All projects have been evaluated with the instrument on whether they were creative. It was quantified the aspects with SPSS 25 programme. The total of the sample was formed by 720 works; in 360 the methodology Asinge was applied.

Results and Discussion

Results

The socio-demographic data shows that a total of 45 students were included in this study. The ratio of male to female students was different, 34% female and 11%. The mean age of subjects was 20 years. Age is in the usual range for university students, but gender is not always equally distributed. In these studies nowadays, there are usually more female than men, as is the case here.

In relation to previous training, 81% of the students have previous medium and higher studies. They are trained in vocational training, which means two years of studies before this academic degree. The students have had semi-professional graphic design experience in 49% of the cases (Table 1); this accounts for half of the student body.

Table 1: Description of the students.

Students %	Female	Men	SD	Previous Studies	P-Experience
	34	10,8	20.4	81	49

The initial diagnosis of Abstraction, Synthesis, and Geometry in the first four works showed that Abstraction was used in 12% of the cases, synthesis in 98% of the cases almost the entire sample. And Geometrization in 29%, around a third of the total.

Table 2: Initial diagnosis.

Initial diagnosis %	Abstraction	Synthesis	Geometry
	12	98	29

After doing the design projects and using the Asinge methodology, the results were varied. The lowest scores were found in Framing and Combination, both with 45% of cases, and the highest scores were found in Structure (78%), Analogy (75%) and Convergence (73%). Table 3 examines the creative results, not applying and using Asinge methodology. Results not using the methodology are grouped, and results after using the methodology are broken down into Abstraction, Synthesis and Geometrization.

Table 3: The creative results not applying and using Asinge methodology (Abstraction, Synthesis and Geometrization) by the categories Design Space (Framing, Divergence, Convergence), Conceptual Aspects (Combination, Metaphor, Analogy) and Concrete Aspects (Process, Structure, Materials and Tools)

Creative Results %	Framing	Divergence	Convergence	Combination	Metaphor	Analogy	Process	Structure	M+T
Without Asinge	45	60	73	45	67	75	63	78	70
Asinge Abstraction	67	89	70	39	99	56	87	84	95
Asinge Synthesis	98	45	67	56	78	79	84	83	89
Asinge Geometrization	97	56	98	79	93	64	90	94	92

The Design Space dimension comprising Framing, Divergence and Convergence obtained high results. Applying Asinge, Framing increased by applying Synthesis (98%) and Geometrization (97%). Without using Asinge, the overall framing was 45%. Regarding Divergence, the values also improved working with Asinge, going from 60% overall to 89% in the Abstraction part, while Divergence decreased in both the Synthesis and Geometry exercises. On the other hand, in the Divergence mode, the results were better, especially in Geometrization with 98%.
Concerning the Conceptual Aspects (Combination, Metaphor, Analogy), the improvement of applying Asinge has been seen most clearly in Metaphor, with 99%, almost the entire sample of papers and 93% Geometrization. The values in Combination and Analogy were also higher using the method. The values were also higher when applying the method except in relation to Abstraction with Combination and Analogy.

Finally, in Concrete Aspects (Process, Structure, Material and Tools), a homogeneous improvement in all aspects was observed. Homogeneity stands out with an increase in all items (Abstraction 84%, Synthesis 83% and Geometrization 94%). The highest results are Materials and tools (Abstraction 95%, Synthesis 89% and Geometrization 92%). Process, Abstraction and Geometrization produced the highest results, with 87% and 90%. Framing, Metaphor and Structure have the best results consistently and improved after applying the methodology.

Discussion

In view of the need to determine methodologies to promote creativity, we used Asinge to test its usefulness in a population of young male and female Graphic Design students. After the research design, parameters to be assessed were determined, and a reliable instrument was chosen Design Space (Framing, Divergence, Convergence), Conceptual Aspects (Combination, Metaphor, Analogy) and Concrete Aspects (Process, Structure, Materials and Tools). The application of the methodology and its evaluation with the instrument shows an improvement of different categories. As explained above, it is considered necessary to establish methodologies that help in better teaching of Visual Arts and create and test solid assessment instruments in Graphic Design as explained by Giloi & Du Toit [14].

The results about creativity in Design Space, Conceptual Aspects and Concrete Aspects were very different. The high scores were with Geometrization in all the categories. Perhaps the ease

of representing images with geometric figures is the creative key. We have had the opportunity to explore visual elements, had learned their qualities and discussed them. In geometrical activities, when instructions are open properly, fads' influence, such as triangulation and the effect of networks, is evident rather than a creative personal criterion.

We share with Ellmers [10], an interest in "reflective teaching", specially for creative studies. The positive contribution of reflective and critical activities is defended by Bartholomew, Zhang, Garcia & Strimel [3] and other authors [10,11,13,19]. As they find an effect of feedback on projects and formative evaluation, Ellmers & Foley [12] believe that in design education, reflective activities improve the conditions for knowledge transfer and relate the results to design skills.

In addition, in this study, the students create the images, and we can learn and teach about them. We can teach visual elements in connection with techniques, design references and topics. The Conceptual Aspects have improved after applying Asinge, especially the Metaphor. In many artistic and Graphic Design proposals, we should not neglect the concept of design over the visual. Teaching is challenging to find a balance, so having a good command of the tools and materials is essential. In this way, the medium does not dominate the student and his creativity.

We can explore visual elements, know their qualities, and discuss the Farming activities that obtained the lowest scores. High scores in Material and Tools do not display without Asinge, and the highest qualification is with abstraction activities. The category that has improved the most is framing, which increased scores when applying Synthesis and Geometrization. It is important to note that Geometrization seems to be the best strategy to improve all scores. It is not by chance that it is used in ancient civilisations' art expressions, in the visual avant-gardes of the early 20th century and at present.

Although these results are interesting, this study has limitations such as the number of participants in the sample, the possibility of carrying out the intervention by several groups of teachers in different schools, or further analysis of digital tools' influence on artistic proposals. Another shortcoming is using a single assessment instrument; perhaps it could have been combined with other qualitative methods that involve the students more, such as interviews and self-assessments. It would be interesting in the future to design an instrument linked explicitly to the didactic methodology and the characteristics of the students. Moreover, another way is to use evaluation through expert professionals and evaluation sessions to develop a learning model with university students, as some researchers have proposed [25].

Gachago, Morris and Simon [13], for their part, consider it worthwhile to promote discussion activities, voting in pairs. This could be another possibility when carrying out future studies that analyse the effects of methodologies in teaching artistic subjects such as Graphic Design and creativity using different methods.
Aspects relate to digital tools have been assessed in the Materials and tools section and traditional techniques. This would also be an issue to review in the future, as digitisation grows more every day.
Wang, Qin, Yan & Jiang [28] have created a programme based on reinforcement learning that includes a reward function that includes visual aesthetics and consistency. Perhaps the use of

specific software will help to develop creativity better. Although, fortunately in the field of design, the range of programmes and applications is vast. Also, about deaf and hard of hearing people, Ramadhani, Saide & Indrajit [24], highlight their design skills. Nonetheless, they have observed some drawbacks when learning, such as the limited communication between deaf students and their teachers.

However, it is vitally essential that teaching encourages creativity because it is an intrinsically creative activity that seeks to provide new answers. In times of crisis, creativity can help find new solutions, which is why it deserves a leading role in design education and other life fields.

Conclusions

In the teaching of Visual Arts and Design, there is a lack of systematisation and evaluation. This is an issue that different authors have pointed out. Abstraction, Synthesis and Geometrization are traditional strategies in Visual Arts and Design that have been used. Creating a methodological strategy centred on these and applying it has served to demonstrate its usefulness to creativity since the results in the different aspects demarcated by the instrument of Mose, Dalsgaard & Halskov [20] prove it.

Using social networks like Instagram is an open way of working for the future [27,26] also work with specific computer programs [13,14,19,26,28]. In the professional field, the artist and designer must have clear objectives when undertaking a project. It is important to take advantage of chance and coincidence. But technique and tools should not dominate the person. For this reason, it is necessary to plan methodological strategies. We share with Mose, Dalsgaard and Halskov [19], that the choice of methods intervenes in the results of design and that it would be interesting for designers to imagine design processes. It is also essential for teachers to create methodologies and check their Art Education and Graphic Design studies' effectiveness.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

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Highlights:

- Gestalt theories and Design: as Lupton's book Writing Lessons describes.
- This study analyses college students focused on a process named "Asinge."
- The key goal is to critically analyse these techniques in regards to innovation.

Summary:

The theories, trends, and different architecture schools have been used to promote different creative processes of education. It can significantly enhance instructional practices, and testing tools might turn out to be a busy day of artistic automatism, geometrisation, and automatism strategies that artists have found quite helpful. Creativity is needed in these subject areas as well. Many architecture schools aim to teach the arts and social sciences to be innovative. More recent analysis has shown an increased emphasis on instructional methods of Graphic Design. The search for more self-reflection and self-criticism in all phases This thesis employed the technique of Asinge to research how to boost student imagination; the strategy suggests three main features of the design: abstraction, integration, and visualisation According to the literature regarding this instrument, concept methods a three-year design plan was developed synthesis, review

Furthermore, his portfolio was analysed. Geometric showed the best results; at last, we explore ways to boost the imagination of architecture students

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