ICTs and Media Arts: The new digital age in the inclusive school

Las TIC y Artes mediales: La nueva era digital en la escuela inclusiva

Abstract

The paper corresponds an educational experience about the impact of the pedagogical practices of digital media in the classroom. In this main objective is to understand the relation between the complementary subject (Art Education and Technology Education) and the interdisciplinary methodology. As well as a new methodology for technological education in media arts. In this context of the inclusive school, the role of educational innovation assumes great importance, however, in order to improve and merge with a modernized model between teaching duo, digital content and inclusive students in the virtual classroom. As the results of the activities carried out in the different workshops of: Stop Motion Animation for primary education, and Video Art for secondary education. In both workshops, those that correspond to the simple of the plan of complementary subject in different artistic-technological activities, depending on the level of schooling. Therefore, a true educational change for the whole of society and the inclusive school. One of the great challenges of the future in the educational task in the classroom, which contributes to satisfy the needs of new educational opportunities both the professionals and the teaching leadership, sharing and promoting with collaborative work towards a new alternative method of strategic learning and the participation of students within the virtual classroom.

Keywords: Media Arts, Digital technology, Teaching process, Learning, ICT and Education.

Resumen

El presente artículo corresponde una experiencia educativa sobre el impacto de las prácticas pedagógicas de los medios digitales en el aula. En este objetivo principal es comprender la relación entre la asignatura complementaria (Educación Artística y Educación Tecnología) y la metodología interdisciplinaria. Así como una nueva metodología para la educación tecnológica en artes medias. En este contexto de la escuela inclusiva, el rol de la innovación educativa adquiere gran importancia, sin embargo, para mejorar y fusionar con un modelo modernizado entre dupla docente, contenidos digitales y estudiantes inclusivos en el aula virtual. Como los resultados de las actividades realizadas en los distintos talleres de: Animación Stop Motion para la educación primaria, y Video Arte para la educación secundaria. En ambos talleres, esos que corresponden a la muestra del
1. Introduction

The new proposal for the integration of ICT and the art of new media towards inclusive school, respect and attention to diversity in school education. Now think about the future of technology, school, art and inclusion. Therefore, it is necessary to mix the complementary subject (Art Education and Technology Education). In a way it will be difficult to carry out a teaching-learning task in the inclusive school. What is the reason for teaching a complex task of the didactic tools in ICT through art education? How is the interdisciplinary curriculum and teaching based on ICT in the world of the arts properly planned? Where does technology come through media arts? What is it about educational technology in art and its diversity in the virtual classroom? How can I achieve and teach its users as students at the level of strategic learning? To define the two types of media arts and inclusive school.

1.1. Brief definition of inclusive school

Inclusive school is one of the problems that encounters greater difficulties, mainly those opposed by human nature. However, the agents of socialization correspond to the family, the community and diversity. In this sense, as Mogollón and Falla (2014, p.93) indicates when talking about what he calls:

The movement of inclusion has emerged strongly in recent years to address the high rates of exclusion, discrimination and inequality mainly present in the world’s education systems. Although it is often confused with the concept of integration, or be considered as synonyms, inclusion has a broader focus in several ways, considering it a challenge for the entire education system, especially for special education.

On the other hand, not only that the segregation of students through a special educational system, but rather the human existence. Therefore, human needs develop and increase in civilization, generally linked to social relationships to meet their results, their particularities and special indications, such as physiological, therapeutic, psychologies, educational interventions, etc. As well as the disability is faced in various situations with obstacles to obtain more security and self-confidence. They usually have difficulty making certain decisions that involve changes in personality and behavior, depending on the social skills that are recognized by their environment. In this sense, the inclusive school, allows to improve the degree of acceptance and respect for cultural diversity. As well as migration and indigenous peoples. One of the aspects that a climate must have to even to improve the social relations in the classroom. From this perspective, it is essential to recognize the importance of education as a process that enables the right to participation and integral development (García-Yepes, 2017, p. 189). This also means to understand that all (or some) school does not help to educate with different values, customs, diverse knowledge of interculturality - of course, multiculturalism - and of gender through the educational center. Also, according to García-Yepes (2017, pp. 189-190) which states:

From this perspective, promoting knowledge and understanding of cultural diversity in the
educational field allows improving the integration processes of children with each other. In that sense, these strategies strengthen social coexistence as it recognizes inclusion as a process that depends on children [girls, young people] and communities.

As well as the inclusive treatment of diversity and institutional strengthening at school level, depending on their level of learning and the needs of students in the field of the new generation of social change. The notion of inclusive education underlies the ideal of fostering and developing cohesion and a sense of belonging, the ideal of creating learning communities that share respect and acceptance of diversity (Amaya et al., 2010, p. 115).

Finally, under the term global education of “multiculturalism”, which consists of a more homogeneous culture such as tolerance through different socialization, and educational practice in different values (minority cultures, racism, xenophobia, gender, peoples originating, disability, etc.) to promote diversity and educational plurality.

1.2. Brief introduction of new media art

In order to briefly introduce the art of new media -literally of media arts- there is an approximation of the language of the new media through the image in the digital age. From this section, although there are many different types of new media art: digital art, electronic art, multimedia art, interactive art and network art, of course, the philosophy of media arts or digital aesthetics. To define this term:

The art [of new media in the digital age] is an art belonging to multimedia, which deals with data coming from the field of sound, text, fixed images and also in movement. What characterizes it is not, therefore, the mixture of genres (styles) but the creation and constitution of a language of its own. What is of interests is the expressive possibilities of its differences. For example, a classic work of literature recorded on a record remains a classic work. If the digital is capable of projecting images of dancers, digital art only begins when these images become components of the dancer’s or actor’s body. This art does not consist in complementing already classical practices, but in proposing unprecedented expressive and semiotic situations. If it can be put at the service of other types of art, such uses do not constitute, therefore, a digital art. In the same way that digital can, from now on, complement all aspects of human activities, it can also be an instrument and a particular artistic domain (Riboulet, 2013, p.139).

Thus, new technologies and the relationship of art with computers, artist, designer, animator and programmer as well as film theory, art history and literary theory to contribute an artistic medium (in painting, photography, cinema, television, animation, cyberspace, computer, hypermedia, videogames, composition, telepresence, videoconferencing, sounds, etc.). Art has always been closely linked to technology, and new media focused on various creative instruments, in order to provide for the arrival of the Internet. Finally, all schools for artistic education that allow them to evolve and adapt to a new social-technological reality for users, especially students who are inclusive of different (inter) cultural and strategic skills of their own computers/devices.

2. New proposal of interdisciplinary methodology

The interdisciplinary methodology consists of an innovative proposal to favor the different factors of teaching and learning through ICT and media arts. This methodological proposal will depend on the level of schooling to be able to develop creativity and focused learning on the part of students -such as digital literacy directed exclusively to users- in the virtual classroom.

From innovative initiatives in teaching and strategic learning to the subject of artistic education and technological education. And this
section is divided into two parts: pedagogical interaction (or pedagogical triangle), and new way of teaching the interdisciplinary subject.

2.1. Pedagogical interaction (or pedagogical triangle)

To introduce the interdisciplinary methodology proposal that states:

Starting from the design of well-planned activities, considered as learning strategies, which are composed of skill + content + method + attitude? we must design how to apply such strategies in the classroom so that the student can develop skills, attitudes and learn content. Normally, the teacher knows what to do, he can know it in theory, but there is a great distance between theory and practice; The big question is: how to do what needs to be done? We thus enter the domain of educational intervention methods, that is, methodology, methodological techniques and strategies (Latorre and Seco del Pozo, 2013, p.9).

The pedagogical interaction (or pedagogical triangle) is related to the three dialectical axes (teacher-student-content) to intervene in educational decision making, both theory and practice from the perspective-methodological strategy. The comparison of two models of pedagogical interaction of the interdisciplinary methodology (Figure 1). As well as the original model of Latorre and Seco del Pozo (2013), it is related to the three current axes within the traditional classroom. On the other hand, the modernized model updates these new axes continuously. This new model is related to digital content for the complementary subject of Media Arts, together with a teaching duo (or teaching accompaniment) to work collaboratively and combine the two mentioned areas, as well as artistic education and technology education. The acquisition of those strategic and creative skills. This will depend on the complexity of the didactic-technological resources and attention to diversity to favor the learning of the inclusive students.

Figure 1. Comparison of pedagogical interaction models (or pedagogical triangle)

Source: own elaboration
Also, this dimension explains the digital content, first, each procedure of educational technology incorporating it with the subject of plastic arts or graphic arts. And, secondly, each student gets a favorable result or absence of creative motivation. In this sense, the new challenge of ICT as the development and optimization of educational software for learning, which includes the joint activity through the modernized model within the virtual classroom.

Next, the models through the interdisciplinary methodology (Figure 2), are compared with the three axes, depending on the two models related to teaching (teacher-content axis), learning (student-content axis) and training-learning (teacher-student axis). Therefore, the original model remains relevant. However, most of the changes in the interdisciplinary methodology, despite the difference in the modernized model, are included with the interdisciplinary teaching for the complementary subject of technology-artistic education (dual-teacher axis-digital content), then learning strategic (inclusive student-axis-digital content), and finally, media arts activities (dual axis teacher-students).

Figure 2. Comparison of the 3-axis models

**Original Model**
By Latorre and Seco del Pozo (2013)

- TEACHER AXIS – CONTENT ➔ TEACHINT
- STUDENT AXIS – CONTENT ➔ LEARNING
- TEACHER AXIS – STUDENT ➔ TRAINING - LEARNING

**Modernized Model**
By Bernaschina (2018)

- TEACHING DUO AXIS – DIGITAL CONTENT ➔ INTERDISCIPLINARY TEACHING
  (Complementary subject in Technological Education – Artistic education)
- INCLUSIVE STUDENTS AXIS – DIGITAL CONTENT ➔ STRATEGIC LEARNING
- TEACHING DUO AXIS – INCLUSIVE STUDENTS ➔ ACTIVITIES
  OF MEDIART

Source: own elaboration

To summarize both models: according to the two figures, it can be observed, then, that the interdisciplinary methodology is not always that students have greater confidence in the technological education system. However, this new pedagogical method is considered to be an exchange with the ideas that favor the development of creative skills and independent thoughts, in order to achieve the understanding and support of the inclusive school and of the students’ previous ideas through ICT in the Media Arts. Therefore, we can say that inclusive educational practices with ICT allow us to include softwares as the technological didactic resource (computer, laptop, cell phone, tablet, camera, etc.), to ensure a greater interdisciplinary activity that allows us to offer the functioning of meaningful learning (from the American psychologist, David Ausubel) and collaborative learning (or the educational interaction, better known from...
the ZDP - Zone of proximal or proximal development. ZDP is a concept created by the Russian psychologist, Lev Vygotsky- to solve a problem of creativity, and share the social relations of users (inclusive students) through ICT in media arts. It also shows that students at different levels of schooling would not be able to work with digital media in the area of media arts, but also improve interdisciplinary teaching, both artistic education and technology education, assuming the incorporation of ICT to the complementary subjects to create a role of students on the technological skills and their flexible learning regardless of the quality of work(Daniels, 2003; Latorre y Seco del Pozo, 2013; Torres, 2006; Vygotsky, 1995, 2009, 2013; Wertsch, 1988).

2.2. New way of teaching the interdisciplinary subject

To demonstrate this interdisciplinary methodology of teaching and learning of ICT and art of new media in the inclusive school. From this perspective of interdisciplinary methodology, it is considered necessary to offer guidelines for Primary Education, especially aimed at students in the educational context of the new technologies of early care software programs. For Aranda (2005), as well as the program of social-motor skills is important to stimulate self-awareness, and of the environment in a direct way in the success or failure of learning and in school performance using ICT of art. It is impossible to teach the youngest students through the development of ICT. Although, as we have already explained the modernized model to create the new changes in ICT education in art. For Latorre and Seco del Pozo (2013), the methodology is or is equivalent to a method, therefore, a path oriented towards the goal corresponds. There is another term about the school learning method. In this sense, the authors who point out:

The learning method is the path the student follows to develop more or less general skills, learning content. A method is a way of doing.

Each student, with their individual differences, has a peculiar style of learning, that is, a concrete way to travel the path of learning (Latorre and Seco del Pozo, 2013, p.13).

Additionally, to refer to the method of learning through ICT:

El método de aprendizaje is specified through methodological techniques, depending on the skills one wants to develop when applying it to a specific content, the characteristics of the student, their level of psychological development, the contents of the area in question, of the possible mediation of the teacher, etc. Thus, we can say, that methodological technique is the concrete way in which each student goes through the chosen path, according to their characteristics, content, mediation of the teacher, etc. The methodological technique is chosen by the teacher based on the reality of the students and the pursued goals (Latorre and Seco del Pozo, 2013, p.13).

Therefore, the learning method consists of the relationship of the three axes of the interdisciplinary methodology through a modernized model:

Every learning method consists of: substantiated skill (the for what) + the content (what) + the connector (by means of, though, in ...) + how (the method itself) (Latorre and Seco del Pozo, 2013, p. 13). Thus, a new way of teaching of the interdisciplinary subject. Also, to the extent to the incorporation of new media in inclusive education. Within the development of this complementary subject on ICT and the art of new media, facilitating it with technological means at the level of strategic learning for students, depending on their digital skills. Hence the importance of what we might call an education for new media [...] or multimedia education (Gutiérrez, 1997, p.10). These educational activities are designed to facilitate and guide the passage of the materiality of “graphical user interface” (Manovich, 2005).
This fact makes it necessary to reconsider the supposed transformative and innovative effect of school educational practices which, as we have already mentioned, is sometimes attributed automatically to the incorporation of ICTs in education (Coll, Maur and Onrubia, 2008, p. 83).

3. Proposal on the complementary course plan

Before beginning the theory and curricular design for media arts education. The first thing to know is the definition of the methodological strategy on interdisciplinarity, and then, a sample of the planning carried out in two workshops for primary and secondary education. As well as the main results obtained through the modernized model. However, to exemplify this proposal on the complementary subject plan. To include a fundamental term:

Interdisciplinarity is the cooperation between two or more disciplines, without the fragmentation of the disciplinary, to address a topic, object or problem through their specific methods, so that they enrich each other and develop more complex and deep knowledge (CNCA, 2015, p.17).

There are also curricular aspects on digital content to collaboratively adjust the two or more areas of teaching work. As well as the teaching duo that works in the different treatments of the transversal themes from the ICT and the art of the new media. According to Torres (2006), interdisciplinarity allows a later generation on the curricular proposals, and to eliminate the existing barriers between the school and its environment. And on the other hand, seeks to recognize in educational processes, where technology is necessary for comprehensive development.

Next, for example, is the proposal of digital contents in different levels of schooling (Chart 1.1 and 1.2). In the first step, planning is practically impossible to establish the link with mandatory educational programs by the Ministry of Education in each country of origin. In general, the technological tools are accompanied by the proposals of the complementary subject as such, the most global and precise interdisciplinary teaching. When using them for the implementation of educational work in ICT, and the development of recreational activities for all users, specifying it with the incorporation of tools, resources and software applications, that the development of teaching and learning can always use their proposals to facilitate a (multi) cultural diversity. And the second step: each student, making the educational practice as a personalized process, adjusting their problem and their need to technologically and artistically develop the activity.

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Primary education</th>
<th>Secondary Education</th>
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<tbody>
<tr>
<td>Workshop Name</td>
<td>Stop Motion Animation</td>
<td>Video Art</td>
</tr>
<tr>
<td><strong>Objetives</strong></td>
<td><strong>General objectives:</strong></td>
<td><strong>General objectives:</strong></td>
</tr>
<tr>
<td></td>
<td>Hold a stop motion animation workshop that enhances the artistic-institutional educational development.</td>
<td>Conduct a video art workshop that enhances the artistic-institutional educational development.</td>
</tr>
<tr>
<td></td>
<td><strong>Specific objectives:</strong></td>
<td><strong>Specific objectives:</strong></td>
</tr>
<tr>
<td></td>
<td>• Make an animated short film in all its stages.</td>
<td>• Make a short film of video art in individual/group work.</td>
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<tr>
<td></td>
<td>• Analyze animation movies</td>
<td>• To know the basic tools for video editing.</td>
</tr>
<tr>
<td></td>
<td>• Create characters, models and animation scenarios.</td>
<td>• Elaborate a Storyboard.</td>
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<td></td>
<td>• Screen the work done</td>
<td>• Screen the work done.</td>
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In most cases, however, the efforts aimed at developing the planning of ICT uses that consider both the characteristics of technological tools and the dimensions of educational practices. As well as the engine of social development through the media, that is, the new visions of social reality in the inclusive school (Coll, Maur and Onrubia, 2008, Ruiz, 2015).

On the other hand, it is understood that the use of planning through ICT (Chart 2) to generate the three types of evaluation learning techniques and strategies at different levels of schooling. Therefore, it refers to the complemen-
tary subject plan that allows users to perform different activities, depending on the leveling of schooling. We can create and analyze that all school activity consists of the three types of assessment along with the techniques and learning strategies.

Chart 2. The 3 types of assessment learning techniques and strategies at different levels of schooling by Bernaschina (2018)

<table>
<thead>
<tr>
<th>Diagnostic (or informal techniques)</th>
<th>Formative (or semiformal techniques)</th>
<th>Summative (or formal techniques)</th>
</tr>
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<tbody>
<tr>
<td>Diagnostic that determines prior knowledge of digital content.</td>
<td>Formative that observes and analyzes the strategic learning process.</td>
<td>Summative that values the expected results of ICT and media arts.</td>
</tr>
</tbody>
</table>

**Evaluation techniques**

- Observation of activities prepared by the inclusive students.
- Exploration through the questionnaires in Google form by the teaching duo.
- Conversations and dialogues

- Exercises and practices with software, depends on the use of digital content for users (inclusive students) to perform in the class.
- Review of the works and consultations inside and outside the class; Within the class corresponds the activities in the virtual classroom, and out of the class corresponds the consultations through the email for the inclusive students.

- Recognition of strategic skills by each user.
- Exploration of basic tools to improve and develop practices by users.
- Motivation and creativity (or creativity in school learning) for the development of individual/group techniques.

**Learning strategies (or evaluation instruments)**

An introductory practice in the complementary subjects to create a step of prior knowledge of digital content.

Exercises and practices carried out by users as part of the activities of the complementary subject of ICT and media arts. Also at the level of strategic learning for inclusive students both users and individual/group work in the virtual classroom. Likewise, the strategic learning activity is required with greater preparation towards the practice of freedom and creativity.

Purpose of the work during the school period to elaborate its sophisticated results as innovative concepts or new experiences by the inclusive students.

At this point, it is important to emphasize that, in the interdisciplinary methodology, the construction of knowledge in art is discussed to create an open space and creative dialogue, depending on the theme of exchange and cooperative learning for attention to diversity towards contemporary cultural and technological manifestations. However, they favor the interaction between the different elements through a modernized model of the educational process - primary and secondary education, with the aim of the human capacity to learn from their environment with support for the acquisition and development of procedures and strategies of learning...
4. Conclusions

Currently, in many cases due to ignorance or misapplication of the traditional methodology. For example, the original model of Latorre and Seco del Pozo (2013) for the realization of human inactivities, from the absence of the creation of processes, instruments, languages and methods, contributing with the two subjects to intervene new practices on attention to diversity.

Therefore, the interdisciplinary methodology strives with the advance of educational technology to simplify it with the two tools in development of ICT and the art of new media. However, for the future of this new model will be modernizing structured programs, depending on the needs of their potential and scope of artistic technology in order to reach social transformations and their own exchanges in inclusive communication, that is, to incorporate creative, social, (inter)cultural and strategic skills of their own computers/devices.

For example, throughout the history of ICT it has offered creative solutions to develop, innovate and acquire new tools of artistic expression. However, it will be difficult to respond with objects, almost any person could distinguish the artistic-cultural values through the artistic and symbolic imagination and the tradition of virtuous master artists such as Michelangelo, Raphael or Leonardo Da Vinci; its precursors movements of greater impact, such as Dadaism or Pop Art, and; In addition, the arrival of photography and film since the mid-twentieth century as the artists of Julia Margaret Cameron, Lewis Caroll, and others. From there, a great step was taken to build educational technology and artistic civilization, as well as to represent human nature in the creative process, both in the development of the personality and the aesthetic sense and in the artistic-technological activity to establish an enriching dialogue with the physical and social environment of the individual (Merodio de la Colina, 2001, Vygotsky, 2003, Technology and art: a combination to shape the future, 2012, Parejo, 2014).

At present there are several technological, social, artistic and educational foundations to understand the theoretical and practical dimension of the new paths of interculturality and inclusion in the educational context through the complementary subject. Thus, the contemporary cultural discussion on arts education and ICT, which usually plays a central role in the interdisciplinary methodology to favor, and appreciate the aesthetic values in its multiple dimensions in different works, and spheres of human activity and its relationship with the world of desired, proper and autonomous language in the way of experimentation with the use of new media in cultural diversity. It will be then, through inclusive education, that these bonds of union between different cultures will be created (Olhagaray Llanos, 2002, Fabelo Corzo, 2004, Solís, 2009, Muiños de Britos, 2011, Leiva, 2016, Típa, 2018). The educational technology can be dimensioned quite complex regarding the artistic procedures within the ICT about the artistic education:

However, the inclusive treatment of diversity brings benefits beyond the students themselves and the educational institution, becoming an important element in the development of a more just, tolerant and respectful society with diversity, without forgetting that the amplitude that has the term inclusion, framed within the discourse of human rights, goes much farther from the educational field (González Fernández, Medina Domínguez, and Domínguez Garrido, 2016, P. 135).

Thus, to adapt the modernized model on the pedagogical interaction that will be improved, especially in inclusive environments associated with the use of ICT in the school.

To reflect on a new look at pedagogical training from the use of ICT in the Media Arts.
Therefore, we need to provide society a real educational change towards the inclusive school. Given our tradition in the field of artistic education through new media, and of course, new multimedia technologies.

**Bibliographic references**


