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Art Project Based Learning (A-PBL) and Universal Design for Learning (UDL): Qualitative Evaluation of a Pedagogical Intervention Programme in Initial Teacher Training

Aprendizaje Basado en Proyectos Artísticos (ABP-A) y Diseño Universal para el Aprendizaje (DUA): evaluación cualitativa de un programa de intervención pedagógica en la formación inicial de docents

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Abstract

Diversity in learning requires didactic interventions aimed at ensuring a type of educational equity that successfully integrates cognitive and emotional processes. Therefore, initial teacher training programs must address pedagogical intervention programs that respond to these new training needs. In this regard, the educational research presented in this paper employs the principles of a case study methodology to provide a qualitative evaluation of the contributions of Art Project Based Learning (A-PBL) in response to a shift in educational perspective grounded in the principles of Universal Design for Learning (UDL). Obtained results demonstrate how the active, collaborative methodology adopted in the project provided a space for participation for all students, improving teacher training in the context of an inclusive art pedagogy.

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Furthermore, the potential of this method to respond to the demands of a renewed and contemporary Art Education was highlighted. The article concludes by pointing out how the principles of A-PBL position our discipline within a pedagogical framework that, apart from merely transforming materials through manipulation, addresses differences in how each student perceives and understands information.

Key words: Project-Based Learning (PBL); Universal Design for Learning (UDL); art education; emotions; active methodology.

Resumen

La diversidad en el aprendizaje requiere de intervenciones didácticas orientadas a garantizar una equidad educativa que debe concitar con éxito lo cognitivo con lo emocional. Es por ello por lo que desde la formación inicial de docentes se han de plantear programas de intervención pedagógica que den respuesta a estas nuevas necesidades formativas. En este sentido, la investigación educativa que presenta este artículo se sirve de los principios del estudio de caso para dar respuesta a una evaluación cualitativa de los aportes del Aprendizaje Basado en Proyectos Artísticos (ABP-A) ante un cambio de perspectiva formativa que parte de los principios del Diseño Universal para el Aprendizaje (DUA). Los resultados obtenidos evidenciaron cómo la metodología activa de naturaleza colaborativa que se adoptó en el proyecto supuso un espacio de participación para todo el alumnado que mejoró la formación de docentes en el contexto de una pedagogía del arte inclusiva. Se puso de manifiesto, además, el potencial del método para dar respuesta a las exigencias de una Educación Artística renovada y contemporánea. Se concluye señalando cómo los principios del ABP-A sitúan nuestra disciplina en un marco pedagógico que, alejado de la exclusiva transformación de materiales a través de la manipulación, atiende las diferencias en la forma en que cada estudiante percibe y comprende la información.

Palabras clave: Aprendizaje Basado en Proyectos (ABP); Diseño Universal para el Aprendizaje (DUA); Educación Artística; emociones; metodologías activas.

Introduction and objective

In contemporary classrooms there are complex situations that require an educational practice based on the principles of equity and equal opportunities. The didactic approaches of the different areas of knowledge that give shape to formal education must therefore be renewed in order to adapt to a transforming educational reality in accordance with the social nature of an already advanced 21st century. For this reason, teachers must be trained who are committed to a new concept of school which, far removed from the pedagogy of the past, attends to the needs of inclusion in learning in which many social and emotional aspects have a decisive influence. In *Organic Law 3/2020, of 29 December, which modifies Organic Law 2/2006, of 3 May, on Education (LOMLOE)*, this teaching task is specified through the principles of Universal Design for Learning (UDL), adopting the particularities of an education that has heterogeneity in the classroom as a

fundamental principle.

Although we are dealing with a concept that is presented as novel in the way of dealing with teaching and learning processes, SAD corresponds to an educational approach that has its origins in the 1990s. In 2008, it appeared in the *Higher Education Opportunity Act* of the United States as a pedagogical framework that, based on advances in neuroscience, opted for flexibility in learning and the elimination of barriers (Alba, 2019; Elizondo, 2020; Fernández, 2018). The change of perspective proposed by this model can have an impact on all types of methodologies in the interests of promoting spaces for participation which, unsurprisingly, focus on responding to the academic, social and personal needs of students under the concept of full inclusion (Alba, 2022). In this way, the aim is to provide classrooms with "multiple means of representation, action and expression and forms of involvement in the information presented" (Márquez and García, 2022, p. 111). Therefore, the potential of this model to contribute to responding to Sustainable Development Goal 4 of the 2030 Agenda is highlighted, as it guarantees inclusive education that responds to the different abilities, learning preferences, interests and motivations, cultures, languages, socioeconomic status, sexual identities or family structures present in educational contexts (Alba, 2019).

On another note, it should be pointed out that SAD requires a multimodality of teaching environments, as it is configured in three principles aligned with the neural networks of learning: the why, the what and the how. Each of these is divided into three guidelines that help to design flexible methods and take advantage of opportunities for the cognitive development of all learners (Adom, 2022; Márquez and García, 2022). In addition, in teacher education, SAD also involves the creation of inclusive learning environments. Some research predicts teacher performance based on variables such as learning, self-efficacy to implement inclusion and self-regulation, and motivation to teach (Griful-Freixenet et al., 2021).

On the other hand, it can be seen that, given the guidelines provided by the SAD, the most current trends in education have focused on active methodologies. Due to their pedagogical characteristics, these emphasise the process and give the student the leading role in their education in order to align the three basic neuronal principles of an inclusive design referred to above: the why, the what and the how (Márquez and García, 2022). Methodological approaches and strategies that favour inclusion have included both Project Based Learning (PBL) and Cooperative Learning (CL) (Beneke et al., 2018; Márquez and García, 2022; Zabala, 2015).

In the first case, referring to PBL, it should be noted that its origins date back to the first decades of the 20th century. It was then that William Heard Kilpatrick established a connection between the method and the contributions of the pedagogue and psychologist John Dewey, the New School and progressive American education. The model experienced a notable advance with theories that became benchmarks for PBL, such as David Kolb's experiential learning (Caeiro-Rodríguez, 2018; Vergara, 2016). In recent years, project-based learning has been the subject of attention in different types of work that have highlighted the benefits

of a method anchored to a current and renewed pedagogical concept (Fajardo & Gil, 2019; García & Basilotta, 2017; Morales Bueno, 2018; Salido-López, 2020; Turk & Berman, 2018).

The second case, that of CA, is a methodological alternative to the traditional individualistic, uncreative and less reflective models. The basic concepts of CA emerged in the late 1970s among three groups of American and one Israeli educators. The essence of the model is the acquisition of knowledge and skills at the individual level from cooperative experience, characterised by the exchange of information, questioning, mutual stimulation and awareness of responsibility for learning outcomes at the group level. In this sense, learning situations are created in which students have reciprocal opportunities to learn from and with each other (Boud et al., 2014; Izquierdo et al., 2019; Volkova et al., 2020). This methodology thus allows for shared learning experiences while fostering emotional work and interdependent cultural growth.

From the perspective of both methodological approaches, it is interesting to highlight the formative potential of PBL that does not obviate the essence of CA, as it involves increasing motivation, self-esteem, higher-order skills and critical thinking (Constantinou and Nicolaou, 2018; Kokotsaki et al., 2016; Salido-López, 2021; Vergara, 2016). The approach of these active methodologies in the context of SAD also requires a corpus of inclusive activities to encourage the participation and progress of all students (Márquez and García, 2022). The possibilities of cooperative educational activities in small groups to achieve a common goal should also be highlighted, i.e. it is an option for organising a more effective learning process for each student (Volkova et al., 2020).

Faced with a changing reality in the way of teaching and learning, it is necessary to address a necessary pedagogical renewal from the initial training of teachers. Specifically, the pedagogical intervention programme that is the focus of this educational research aims to respond to the now explicit demands of the new legal framework for educational inclusion based on the principles of the SAD (Organic Law 3/2020, of 29 December, which amends Organic Law 2/2006, of 3 May, on Education; Cortés et al., 2022). In our case, this general objective is linked to the transformative possibilities of Arts Education. By its very nature, the area is the source of experiences and experiences that become a key instrument for full cognitive, social and emotional development. This role of art and its languages stands out especially when working on the basis of the principles of PBL-A, which is nourished by CA and organised around three clearly differentiated phases: research, production and presentation of results to the community (Salido-López, 2020). This new approach to teaching methodologies promotes an approach to the artistic artefact from cognitive approaches that, together with knowledge of the genesis of the work, is supported by an important practical and creative component. In this process of cultural development and artistic education, a clear connection between PBL-A and the requirements of an inclusive education that takes into account the different levels of learning must be taken into account. This is evident from the scientific literature of the last few decades, which reports

interesting experiences ranging from the early stages of education to teacher training processes and does not exclude contexts for non-formal education (Marín-Cepeda et al., 2017; Ramos, 2020a, 2020b; Salido-López, 2024; Pablos and Fontal, 2018; Springinzeisz and García-Ceballos, 2023; Springinzeisz and Cobos, 2024). Initial teacher education, then, must be the driving force behind a revival of the arts and their pedagogy that guarantees a meaningful, inclusive and close artistic-pedagogical practice, located in the context of the key competences mentioned in the *Council Recommendation of 22 May 2018 on key competences for lifelong learning* (Acaso and Megías, 2017; European Commission, 2018; Huerta, 2022; Huerta and Domínguez, 2020; Marín et al, 2020; Pimentel et al., 2021; Salido-López, 2017, 2021).

Universal Design for Learning (UDL) and Art Project Based Learning (APL-A): qualitative evaluation of an intervention programme with teacher trainees

Research questions and specific objectives

The proposed research is based on the need to reflect on the link between the principles of SAD and PBL-A from initial teacher training and in a context of renewal in art pedagogy. In this sense, the following research questions (RQ) have been formulated:

RQ1: Are trainee teachers aware of the demands of a renewed Arts Education placed in the context of key competences?

RQ2: What relationship can be established between the principles of active methodologies (ABP) and the SAD in Art Education in the face of a change in the educational paradigm?

From a perspective that combines creation, research and teacher training, the following objectives (O) have been specified in relation to the research questions in order to obtain an integral vision of the phenomenon to be studied:

Assess the concept of Arts Education and the changes in the models of arts pedagogy with trainee teachers.

O2. Analyse new approaches in art pedagogy from ABP-A.

O3. Evaluate the confluences between the principles of SAD and PBL-A.

Methodology, sample and research design

The research methodology is based on the qualitative approach of the case study, an interpretative and versatile method. This system makes it possible to characterise the development and particularities of a case in which the subjects of the research have an outstanding relevance. In the process, attention is paid to the particular while trying to provide a sense of uniqueness to the case raised and the statements try to be validated for their coherence and usefulness (Ortega, 2005; Simons, 2011). The techniques and resources for data collection have been the

following: participant observation, stimulation of memory, visual recording of artistic production, and discussion groups and unstructured interviews around different thematic categories that link the research questions with the objectives (Table 1).

Table 1

Categories analysed, key contents and linkage to SOs and RQs

Categories analysed	Key contents	RQ	O
Conceptualisation of the area of Arts Education.	Aims of renewed Arts Education: new curricular perspectives in the context of key competences. Review of previous training orientations in Art Education.	1	1
PBL of an artistic nature (PBL-A).	Pedagogical and didactic approaches of a collaborative nature in Art Education.	2	2
Principles and dimensions of SAD in the framework of PBL-A.	Affective networks: the reason for learning. Knowledge networks: the what of learning. Strategic networks: the how of learning.	2	3

The convenience sample consisted of 118 students of Education at the University of Castilla-La Mancha aged between 21 and 39 from different parts of Spain. In all cases, there were formative experiences linked to the area of Art Education deriving from the compulsory stages of education. In addition, there was knowledge of the reality of our discipline in accordance with current educational laws due to the time spent in educational centres during the work experience period that forms part of the higher degrees involved in the research. The personal data of the participants in the case study were protected in order to comply with the ethical principle of confidentiality. Furthermore, it was reported that the results collected in the case study sessions were part of a research project. Finally, the rigour and ethical criteria that have marked the pedagogical intervention programme are highlighted (Noreña et al., 2012):

- *Validity*: correct interpretation of the results based on the theoretical and experiential background that supports qualitative research.

- *Transferability*: this is related to the transferability of the results to other contexts, as it must be taken into account that the phenomena studied are closely linked to the circumstances of the subjects participating in the research.
- *Credibility or truth value*: the relationship between the data obtained by the principal investigator and the reality as told by the participants' accounts through continuous and prolonged observation of the event under investigation.
- *Consistency or dependence*: despite the variability of data inherent in qualitative methods, relative stability in the information collected and analysed should be sought.
- *Relevance and appropriateness*: this involves verifying the achievement of the objectives set out in the project as a strategy for a better understanding of the phenomenon under study.
- *Theoretical-epistemological concordance*: coherence between the object of the research, the methodological approach and the theoretical presuppositions of reference.

The phases involved in the case study were as follows:

1. *Diagnostic phase*. Conceptualisation of the area of Arts Education in the context of the new curricular perspectives, approach to knowledge of the pedagogical bases of active methodologies, specifically ABP-A, and analysis of the DUA model. This initial phase allowed the main researcher to find out about the previous training of the sample in the pedagogical and didactic-disciplinary field of the arts, a key strategy for approaching a renewal of artistic teaching methodologies.
2. *Planning phase*. With the reference of previous knowledge about the key concepts of the research, cooperative projects of an artistic nature were designed under the premises of the SAD and in accordance with the following principles:
 - Cooperative pedagogical approach and focus on different levels of learning, varying the demand and resources to optimise the challenges.
 - Collaboration and communication in learning.

The projects were planned in work groups in order to respond to the cooperative work of the method and in all cases the principal researcher monitored and provided input. They focused on the study of avant-garde artists and aesthetics and were based on the prerequisites established by Salido-López (2020) for the PBL-A pedagogical model. The conceptual challenges presented to the participating group were related to the knowledge of the theme of the project from a research phase, as well as the main characteristics of the grapho-plastic techniques that made it possible to generate the final product and exhibition. In all cases, the diversity of learning and artistic skills was valued, another of the challenges faced by the 21st

century teacher in the face of a new curricular approach. Hence, the training process was characterised by a wide variety of materials, themes and technical procedures as a strategy to overcome barriers in artistic training and creation and to bring the chosen pedagogical model closer to the principles of the SAD (Figure 1).

3. *Execution phase.* Resolution of artistic projects according to three key moments:
 - Research: each working group carried out a collaborative research project on the chosen theme which, as has been shown above, revolved around the study and analysis of avant-garde aesthetics and artists.
 - Creation: based on the prior knowledge derived from the research phase, both of the artistic movement and of the techniques that characterise the work of each avant-garde artist, the resolution of projects was carried out through the creation of final products typical of a PBL-A (Figure 2).
 - Communication of results: presentation and presentation of the final products and conclusions of the PBL-A model to the rest of the educational community (Figure 3).
4. *Analysis phase.* Interpretation of the data and verification of the conclusions obtained in relation to the reference theories that were analysed in the diagnostic phase and as a theoretical basis for the case study.
5. *Reporting phase.* Preparation of the final report of results.

Results and discussion

The results obtained in the case study in relation to the RQs and ORs proposed in section 2.1 and the categories analysed and key contents included in section 2.2 were specified in the following sections:

Conceptualisation of the area of Arts Education in a competency framework (RQ1 /O1)

In relation to this category, it was interesting to start from the idea that the aims of our area of knowledge have undergone a clear metamorphosis in recent times. For some time now, the importance acquired by the arts, images and heritage education for a comprehensive education that is not outside the competency-based education established in a European context in the *Council Recommendation of 22 May 2018 on key competences for lifelong learning* (European Commission, 2018; de Juan, 2019; Fontal et al., 2017; Fontal et al., 2020; Huerta and Domínguez, 2020; Salido-López, 2017) has become evident. In this sense, the case study that focused the development of this research showed the need to deepen the concept of Art Education acquired by teachers in training, as well as to make known the way in which the visual arts should be taught according to the premises of the most recent research (Acaso and Megías, 2017; Marín et al., 2020; Salido-López, 2021). The stimulation of memory, then, revealed the persistence of the erroneous relationship of our discipline with pedagogical approaches that are alien to its

purposes. Hence, initial teacher training should entail a renewal of the way in which arts teaching has been approached, the main challenge faced by the group participating in the development of the project. It was detected, in this sense, how any teaching-learning programme can be immersed in a cyclical process in which the actions carried out are clearly influenced by previous knowledge which, in our case, is far removed from the premises of a renewed Arts Education. The experience of the research group during the internship period revealed, in most cases, a reality marked by a clear marginalisation of our discipline in today's schools and by a lack of knowledge of the essence and purpose of artistic practices in the formal sphere, which has been mentioned in some research in recent years (de Juan, 2019). This reality of the current school was shown to be the reason why, on occasions, we resort to linking our area of knowledge with methodologies characterised by the transformation of materials through manipulative processes and which do not take into account the transformative possibilities of the arts in the face of the challenge of inclusive education. As evidence of these results, the initial discussion groups provided some opinions that highlighted a need for metamorphosis in the 21st century school: *"during the work placement, in the art class we did arts and crafts, something very similar to what I did at school"; "in the school where I did my work placement, which is bilingual, autumn landscapes were made while working on vocabulary in English"; "the work placement did not allow me to learn how this subject is taught because there was only one hour a week and I never took part. I think that more emphasis is given to other subjects such as Mathematics, Language or Physical Education"*.

Given that the research carried out was based on current education regulations, it was necessary to connect the terminology and methods characteristic of the training of education professionals and those used in the learning contexts in which the research group will carry out their future professional work. A first concept dealt with was that of competence and its relationship with specific didactics, specifically with the area of Art Education, as it structures the reality of the classroom and must be taken into account when designing inclusive didactic projects. In this sense, the following opinions of the sample collected in the diagnostic phase through the discussion groups showed that the general concept has been acquired, as they alluded to qualities distributed in knowledge, skills and attitudes that should form part of the educational process: *"Set of skills, attitudes or values that pupils acquire in the educational process"; "Skills, abilities or attitudes that pupils acquire throughout their school career in the different areas and fields of learning"*.

In some cases, reference was made to autonomous lifelong learning, which brought the concept of competence of future teachers very close to what is set out in the *Council Recommendation of 22 May 2018 on key competences for lifelong learning* (European Commission, 2018). For example, it referred to *"development and autonomy for learning and socialisation skills, as well as the development and ability to solve other problems in the future"*.

On the other hand, the discussion groups highlighted the need to assess the appropriateness of the treatment of each competence to the educational context. Thus, when confronted with the need to renew a pedagogical practice which,

beyond focusing on the mere manipulation and transformation of materials, should include strategies for integrated learning applied to different contexts and in various combinations, the opinions gathered through the non-structured interviews were as follows:

"You can work on the basis of project-based learning, inquiry-based learning and collaborative learning".

"I believe that PBL and cooperative work are two models that make it easier to place Art Education in the context of learning by competences. According to my own experience in practice, I have been able to observe how in other subjects the students were more motivated to learn because they had fun with these methodologies".

"It can be taught through a project-based methodology. It can be collective or individual. You can work on linguistic competence by presenting your work to your classmates, digital competence by using ICT to search for information, a sense of initiative and entrepreneurship, as it is a more enjoyable and dynamic way of learning than a master class. Also social and civic skills, as you interact with other classmates to work in a team, learning to learn, as they organise their own time. Finally, cultural awareness and expressions through Art Education".

Given this evidence, framed exclusively in the analysis of the concept of Art Education and in the approach to methodologies for teaching the visual arts, the need was assessed to bring to the classroom methodological approaches that, in a context of educational inclusion, involve a renewal of our area of knowledge and the development of integrated skills within the key competences (Salido-López, 2017): critical thinking, leadership, problem solving, teamwork, communication and negotiation skills, analytical skills, creativity and intercultural skills.

Assessment and implementation of new pedagogical and didactic approaches in Art Education: ABP-A (RQ2 / O2)

The methodological metamorphosis in arts education has been a challenge in recent times, since, as noted above, we are faced with a discipline that has adapted its objectives to the importance given to the arts and their cultural component in the context of a holistic education. In contrast to pedagogical models centred on the manipulation and sometimes the teaching of drawing, the case study showed that the PBL-A approach responds to the demands of a renewed education by linking a conceptual part, articulated from research on a specific theme, with the observation of the work of art, experimentation and the technical field. This methodological approach must take into account the object of Art History, as the study of the work must form part of the visual events of a discipline that must not move away from its humanist component (Huerta, 2019; Marín, 2003).

From this perspective, it was deduced from participant observation how working through projects of an artistic nature facilitated the organisation of creative processes, as well as the planning of learning that allows for understanding the role of the arts in education and the development of skills to adapt pedagogical practice to new tasks that are far removed from an outdated

notion of Arts Education. The cooperative component of PBL-A referred to by Fajardo and Gil (2019) or Salido-López (2020) allowed for a reflection on social learning in which each member of the working group must be considered an active agent in the training process. In this sense, the importance of activating processes for intra-group motivation referred to in works such as those of Rodríguez, Valle and Núñez (2014) was shown to be a fundamental aspect for good cognitive planning.

The educational approach based on the principles of PBL-A, therefore, involved the valuation of critical and creative thinking in a learning process that involved joint reflections and actions among a heterogeneous group in terms of learning pace and previous knowledge. In addition, it was valued how the collaborative work that articulated each project made it possible to estimate the different ways of approaching artistic learning and to respond to the challenge posed at project level. Hence, compared to individual practices, there was evidence of the development of skills to regulate a long-term learning process arising from group strategies.



Figure 1. Creation phase ABP-A / AC "Artists and avant-garde aesthetics".

Photograph by author (2022).

It is also interesting to note what the pedagogical model adopted has meant for the development of leadership management skills. From the participant observation process, a clear release of essential aspects of creativity in a shared learning experience, an increase in participation in the learning process and attitudes of respect towards others derived from processes of active listening to the proposals of the rest of the working group were detected. Finally, communicative competence was increased in the process of reflection to evaluate the dynamics and performance of the group. All this resulted in a new awareness of artistic learning in relation to the reality of a renewed discipline.

Principles and dimensions of SAD in the framework of active methodologies: ABP-A (RQ2 / O3)

The pedagogical theories of the 21st century have given a privileged place to active methodologies. In addition to placing the learner at the centre of the learning

process, in the field of arts education they represent an inclusive approach that makes it possible to respond to the diversity of learning in the face of educational processes marked by cultural and curricular exclusion and, on most occasions, focused on those who have acquired certain artistic skills. In the light of the particularities of the ABP- A model highlighted in section 2 of this discussion of results, the development of artistic projects revealed the potential of the principles of this active methodology to identify and eliminate barriers to learning, to mobilise resources that make it possible to respond to diversity through collaborative work and, lastly, to commit the recipients of a project to the development of inclusive pedagogical models. Through the stimulation of memory and discussion groups, the idea that initial teacher training should not remain on the sidelines of the diversity of situations, abilities and interests that characterise the classrooms of the different educational stages was ratified, as this is one of the challenges facing today's teachers. Among the annotations collected by the main researcher in the interviews carried out, questions such as the following were expressed: "I have never been good at art and this model of group work has allowed me to rely on my classmates to get rid of the fears with which I arrived here on the first day".

In this sense, it was assessed how to establish connections between the PBL-A model and the principles of SAD through an educational practice determined by the following aspects (CAST, 2011):

1. Removal of physical, sensory, affective and cognitive barriers in teaching, and design of appropriate adaptations, supports and challenges to maintain high expectations of achievement for all students.
2. Flexibility in the ways in which information is presented to learners and in the way they respond to or demonstrate their knowledge and skills, as well as in the ways in which they are motivated and engaged in their own learning.

From this perspective of inclusion in learning, and taking into account the principles of SAD (CAST, 2018; Márquez and García, 2022), the qualitative assessment process showed that the main connections with PBL-A are in the following terms:

Principle 1. Provide multiple forms of engagement in relation to the affective networks of learning. The why of learning.

This principle involves articulating methodologies that motivate students to learn in a context of autonomy. One of the most important challenges in the classroom is to motivate and involve students in learning, an aspect that requires activating affective networks (Alba, 2019). In this sense, PBL-A was a way to capture the interest of the project's recipients in the process of autonomous construction of artistic learning that characterises a methodology that goes from research to practice. In this way, the differences in the interests of each member of the participating group were addressed. The need to respond to the objectives of

PBL-A from a cooperative approach and the free choice of techniques for the development of the experimental part, always through a process guided by the participating teacher and main researcher, led to an improvement in the capacity for problem solving and the development of knowledge in accordance with the strategy of the working group. In addition, this classroom perspective showed a greater commitment to training than isolated, individual practices. On the other hand, self-reliance and the ability to pay attention and value the importance of the learning process in didactic-disciplinary training were improved.

Involvement in the formative process of the working groups was also manifested in the development of social and behavioural skills characterised by emotional self-regulation. On the one hand, the ability to communicate, cooperate and lead the work group was identified as an ingredient of commitment to shared learning. The affective networks generated by a methodology that fosters the ability to manage emotions was another of the contributions highlighted in the classroom approach. Likewise, cooperative work helped to alleviate the feeling of insecurity generated by the artistic challenge.

On the other hand, the PBL-A model also made it possible to provide options for sustaining effort and persistence, another of the SAD guidelines (CAST, 2018). The need to respond to the PBL-A challenge through a final product of an artistic nature made it possible to reflect on the importance of clearly defining the goals and objectives set out as a project. In the case of initial teacher training, a great variety of training requirements was detected in the experimental process, as the diversity of levels of previous artistic training was evident. Thus, while in some cases the working groups resorted to traditional techniques linked to colour and drawing, in others they opted for methods from contemporary trends that are easily applicable in classroom practice. The final product of PBL-A varied depending on the artistic skills of each member of the working group, but obviously without altering the educational aims set out at project level (Figure 3). Throughout the process, collaboration between the members of each working group was encouraged as a strategy for responding to individual learning which, as noted above, derives from a project of a community nature.

Finally, the cooperative nature of PBL-A facilitated the development of self-assessment strategies in relation to the group's performance, which allowed self-awareness to be reinforced. Thus, participant observation showed the implementation of reflective practices centred on the analysis of one's own abilities to solve the artistic challenge posed. In the context of the SAD, this active methodology showed the development of skills to regulate a long-term learning process that responds to a strategy set by the working group. In this sense, the artistic intervention project made it possible to detect an evident development of strategies and personal skills to respond to problems that obviously go beyond the limits of artistic training (leadership capacity, knowledge management, emotional control...).

Principle 2. Provide multiple forms of representation in relation to recognition networks. The what of learning.

In relation to this second principle, it should be borne in mind that PBL-A is part of active methodologies, as it allows students to construct their learning and internalise knowledge in order to transfer it to other situations. In this way, an intervention model was proposed in the context of arts pedagogy, based on cooperative research and personalisation of the way in which information is presented from the artistic experience. The nature of the discipline requires the elimination of barriers in learning in order to facilitate the understanding of concepts specific to our area of knowledge and to the history of the plastic arts that have a markedly abstract character, as in the case of some technical processes and their final results. In order to respond to this need, different means of presenting information were made available to the members of the research group. These resources were characterised by a variety of languages (textual, visual or audiovisual) and facilitated access to information and, consequently, its comprehension and integration (Bone and Bouck, 2017). Finally, it is interesting to note how the fact that the working group organised the research proposal that forms part of the PBL-A autonomously, giving the work of the teacher and main researcher the role of guide in the training process, facilitated the development of an artistic project characterised by more flexible guidelines and times for the resolution of the challenge posed. The methodological approach adopted, therefore, required an assessment of previous knowledge in the process of acquiring new information.



Figure 2. PBA-A results communication phase.
"Avant-garde artists and aesthetics". Photograph by author (2022).

Principle 3. Provide multiple forms of action and expression in relation to strategic learning networks. The how of learning.

This principle deals with how to "activate strategic networks taking into account the different ways students learn, i.e. in the situations that are created or

the tasks they have to carry out so that they can construct learning and express what they have achieved by interacting with the information" (Alba, 2019, p. 62). Participant observation made it possible to make visible the existence of different enquiry and creation actions that offered opportunities to construct artistic learning to all students in a SAD context. The three phases that make up this methodological model (research, artistic experimentation and communication of results to the community) were shown to be different ways of interacting with information and expressing progress in a learning process that places the emphasis on the process and not so much on the end result. In addition, expression and communication between the working groups was encouraged through different channels. The text, as an essential part of the research, the image (still or moving) that characterised the creative process, or verbal interaction, linked to a cooperative project, were valued in the case study as a means of attending to the heterogeneity of the group members and, consequently, adapting the didactic proposals to the needs of the classroom. In this way, a pedagogical approach characterised by universality in learning and training was given the green light.

Finally, PBL-A was also presented as a methodology that allowed the development of metacognitive skills which, in the context of SAD, are considered a way to regulate impulsive reactions (Alba, 2019). The experience carried out showed how working through collaborative projects facilitated a deepening of self-knowledge through reflective practices that allowed for knowing the capabilities and limitations to respond to the challenge posed. In this learning context, the fostering of skills was detected to articulate a long-term learning process based on strategies that were determined by the working group. It should not be forgotten, moreover, that the creative resolution of the projects made it possible to value the emotional component linked to the creative process. The art, beyond the strictly formal and technical, was in response to experiential learning in which the cognitive and metacognitive spheres were as relevant as the emotions and the meta-emotional (Caeiro-Rodríguez, 2018). In this context of initial teacher training, therefore, the aim was to establish the necessary courses of action to optimise learning and organise the resources that would facilitate cultural training and artistic development based on heterogeneity in the way of learning.



Figure 3. ABP-A final products series "Artists and avant-garde aesthetics" consisting of four photographs by the author. Selection of techniques. From left to right: collage, object art, prints and tempera (2022).

Conclusion

In recent years, the way we teach and learn has been the subject of numerous reflections that have led to a clear metamorphosis of pedagogical practices and an obvious transformation of learning environments (Acaso and Megías, 2017; Huerta, 2019; Marín et al., 2020;). This reality is more pressing in the context of Art Education, as there is a clear lack of knowledge of the purpose of our discipline in school contexts and of the potential of art to transform education based on the principles of equality and diversity alluded to in research in recent years (Acaso, 2017; de Juan, 2019; Huerta, 2022; Pablos and Fontal, 2018; Springinzeisz and Cobos, 2024). Given this reality, and in relation to RQ1, we can conclude by pointing out the need to influence initial teacher training processes in the main characteristics of a renewed Arts Education that responds to the demands of a comprehensive education. The results obtained in this aspect show the persistence of an erroneous link between arts education and the transformation of materials through manipulation. This is why pedagogical teacher training is required that takes into account the educational and transformative possibilities of the arts, that guarantees inclusive and quality education and that promotes learning opportunities for all in diverse educational environments (Marín-Cepeda et al., 2017; Ramos, 2020a; Salido-López, 2017).

In connection with this change of perspective and educational paradigm, RQ2 is formulated, as it aims to respond to the requirements of the SAD from the principles of active methodologies and, specifically, from the so-called ABP-A. Although there is not a large amount of literature that brings together both concepts, in recent years research has come to light that shows the potential of PBL, the case that concerns us in this research, to design active, inclusive and diverse educational proposals (Márquez and García, 2022; Ramos, 2020b; Salido-López, 2020). In the case of art pedagogy, the results obtained show that this need for change is more evident. In contrast to models that are scarcely inclusive and focused on the manipulation of materials or on learning to draw, the role of the arts has been reclaimed for an integral education in line with the demands of an already advanced 21st century. As has been shown, active methodologies and their component for cooperative learning represent a new perspective on the development of artistic knowledge and, specifically, on the didactic-disciplinary training processes of teachers. In the light of the results obtained, PBL-A is presented as a methodology for an inclusive classroom that addresses the diversity of learning in the face of the formative challenges of Art Education. In this sense, the research shows that the design and implementation of projects in teacher training processes requires questioning how learning takes place, under what circumstances and why. The approach, then, has a transformative sense that comes to alleviate the problems of ignorance to address training processes that cater to different learning rhythms, break with the homogeneity in pedagogical actions and, in turn, allow us to value the role of the arts in the processes of integral training.

In summary, and to conclude, the case study that is the focus of this research

corresponds to an educational research experience for a necessary pedagogical and didactic-disciplinary renewal of teachers in the face of the demands of an Arts Education in need of changes in its traditional methodological approaches. Faced with pedagogical models that are far removed from the real objectives of our discipline, this project demonstrates the possibilities of ABP-A to train teachers capable of constructing learning environments that are inclusive and motivated by the teaching of the arts. The limitations of the study derive mainly from a clear lack of knowledge of what artistic practices mean for transforming education. This reality is a clear handicap for the renewal of arts pedagogy, as it is sometimes considered that cultural development and the creative process do not require inclusive programmes that address the diversity of learning in the classroom. Finally, the research opens up a prospective research perspective that focuses on the evaluation of the impact of this initial teacher training in the school. In this way, the aim is to make visible new models in arts pedagogy that, in addition to cognitive ingredients, value ethical and emotional training based on cooperative work in order to respond to situations that go beyond the limits of the classroom.

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