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**DEVELOPING ARTISTIC AND PLASTIC ARTS SKILLS IN
SCHOOL-AGE CHILDREN
THROUGH FLIPPED CLASSROOM**

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Abstract

Flipped classroom is a learning strategy that has continuously and largely developed in the past years in primary school educational practice. However, teaching Visual Arts has still been considered a component of the traditional method which is thought to be of second importance, therefore, the teaching time allotted to the development of plastic art skills being many a time inappropriately and inefficiently used taking into account the peculiarities of the integrated curriculum. If in other subjects the instructional-educational process is carefully and responsibly organised, painting is understood only as entertainment and not as a potential factor of cognitive, social development. Another impediment is the teachers' insufficient former training. The study in question is intended as a solution to put forward the designing of tutorials by the middle school arts teacher (or another specialist) and the achievement of "mirror classes-"(flipped classroom) in which the students should become familiar with plastic arts elements by means of art movements: the impressionism, the cubism, the abstract expressionism. At the same time, the eTwinning type of project offers the learning framework through European school exchanges and an environment for the manifestation of integrated curriculum approaches.

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1. Introduction

Flipped classroom is a blended-learning strategy consisting in a swift of direct teaching from the common learning space, the classroom, to an individual learning space, i.e. the home. The emergence of this strategy has been determined, on the one hand, by the need to divide the learning contents into smaller items and on the other hand, to reduce the differences in learning paces among the participants in the instructional process, by time reorganization. The introduction of the flipped classroom in an e-learning programme such as eTwinning, is creating the premises for a collaborative learning process.

eTwinning projects imply integrated approaches to curricular contents. Such project-based learning becomes efficient by taking into account both virtual environment elements as well as traditional ones. In Visual Arts, for example, the content elements from in the primary school curriculum are: the dot, the line, the regular shape, the irregular shape, the linear and pictorial pattern. The correct use of these elements in plastic compositions based on an instructional scenario and designed by a trained teacher and shared online, can contribute not only to reaching specific competences, but also to some cross-curricular ones: emotional management, time management.

Exemplification by means of flipped classroom of current art movement styles: the impressionism, the cubism, the abstract expressionism is guiding the very young students in creatively using of artistic means and offers them starting points in elaborating new and original works. Moreover, an intercurricular connection is to be highlighted: Visual Arts-Environment, Language and Communication, facilitated by the impressionism, Visual Arts -Maths, through cubism and - Visual Arts – Civics / Personal Development, by means of abstract expressionism.

In the present study, we will point out the following:

1) the way Jean Piaget's constructivist theory and respectively Lev Semionovici Vygotsky's social-historical theory of psychological development can be taken into account in an effort to develop the plastic art skills in the 7-8 year olds;

2) flipped classroom as a new strategy in children's plastic art development in view of these theories. Such an approach is important mainly due to two reasons: a) flipped classroom is a strategy that is becoming more and more popular in Europe; b) eTwinning projects result in a significant growth in the quality of the educational process.

1.1. Psychological bases of plastic art skill development in children

Through the knowledge it reveals, Art facilitates "us to sensitively reach our condition of real and imaginative beings" (Berger, 1975, vol. III, p. 145). But in order to reach knowledge, Piaget states, we have to go through a series of maturation stages throughout our lives that will progressively become appropriate. Agreeing to the idea that intelligence is reached gradually as children grow, Piaget introduces the syntagm "cognitive development stages". The passage from one stage to another is made by means of cognitive structures/ perceptive patterns, developed as a result of spontaneous learning based on action. The material object, transformed and given value to, now having turned into a real tool, is included in the structure of a cognitive pattern. Then, it is the fixing into his/her cognitive structure that fits their sense and meaning to finally being used in a future similar circumstance.

Referring to the stages of intellectual development (or to the corresponding stages periods), Piaget (1965, 1973) notices that there are four stages of changes in it: the **sensorimotor** stage (from birth to 2 years old), the **preoperational** stage (from 2-7/8 years old), the **concrete operational** stage (from 7/8-11/12 years old), the **formal operational** stage (from 11/12-15/16 years old). For the present study case, the concrete operational stage has been taken into account (the age of the children participating in the eTwinning project and constituting the study base is 7-8 years), getting to adapt it to the plastic arts field by comparing it to the stages and the interpretations of the drawing as described by Luquet (1927) and perfectly valid, as Piaget himself stated. The similar stages corresponding to the concrete operational stage in Georges Henri Luquet are the intellectual realism stage or that of a ideoplastic drawing stage (4/6-9/10 year-olds) and the visual realism and physioplastic drawing stage (9/11-14 year-olds).

Table 01. Characteristics of cognitive development in young school-age students according to Piaget and Luquet (apud Miller, 2011; Cioca, 2007)

Jean Piaget	Georges Henri Luquet
<p><i>The concrete operational stage (7/8- 11/12 year-olds)</i></p> <ul style="list-style-type: none"> • Child understands world through representations • Operations are forming now: reunions and dissociations, sequential mastery of relationships, associations, syntheses etc. • Internal, organized, concrete operations • Discentred, dynamic, reversible thinking • Reflects world in a logical thinking system • Thinking is in harmony with the environment • "The what it is" becomes more important than "the what could be" • Applies operations to purely verbal and logical statements, both to the possible and the real. 	<p><i>The intellectual realism and ideoplastic drawing stage (4/6-9/10 years)</i></p> <ul style="list-style-type: none"> • Draws what he sees, understands and the way he understands • Produces patterns for familiar objects (e.g. house, tree, human being) • Arranges the pattern figures along the line and from the bottom of the working space • Mixes points of view and proves transparency <p><i>The visual realism and physioplastic drawing stage (9/11-14 year-olds).</i></p> <ul style="list-style-type: none"> • Draws what he sees from a certain angle • Visual perspective elements emerge • Represent shapes as real object projections

In the concrete operational stage, the 7-8-year old child is able to divide the representation of an object in its main parts which are later used in different contexts. The process of thinking and imagination are thus being structured, leading to the creation of a set of combinations and new images. The representations bear an increased level of generalisation, now operating with a group of representations. Interiorized, organised operations become more relevant to the understanding of the surrounding world to the detriment of "action patterns". However, the child at this age still remains indebted to the concrete, such operations being applied at the level of the possible and the real only towards the end of the stage. During the child's drawing stage, as described by Luquet, there is a slightly noticeable overcoming of the age range appropriate to the concrete operational stage, a fact that proves that a developed fine motor coordination is also required, on the one hand while on the other, the complexity of aesthetic expression belonging to the formal operational stage implies the emergence of emotions, the implementation of procedures on symbols, the plastic encoding of information. The gap between the periods in child

development in Piaget and Luquet may bring up the relativity of the stage concept, the process of cognitive change being continuous, with scarce moments of inactivity and disbalance, which " assumes that the child's cognitive structures are in a permanent change and process of acquirement of new skills" (Sion, 2003). Yet, during a study carried out in 1994, Pierre Dasen confirms that " deep structures, basic cognitive processes are indeed universal" (apud Collin et al., 2015, p. 269). What differentiate the development processes are the pace of the processes and the frequency with which they are carried out due to environmental and cultural factors. The child is integral part of the social assembly, an aspect that Piaget didn't insist on.

As far as the stage character of cognitive development is concerned, Lev Semionovici Vygotsky affirms that in order to carry out some tasks, the children need their parents' support. It is about the theory concerning the proximal development zone. This theory shows the child as having a certain level of development, measurable by standardized tests and a development potential characterized by what it could achieve with the help of an adult to finally succeeding in doing by itself. The means by which the child gets from what it can do to what it can't do is copying the adult, which is a superior level of development. Now here comes the argument of how the teacher can ensure the passage from an inferior to a superior development stage of an entire class of students within the framework of a mass education. A tailored approach is needed, yet bringing about time management issues.

The hypothesis of the Russian psychologist is that the development of human personality is in direct relationship with social transaction and implies the fact that learning is always ahead of development, that is why his hypothesis of proximal development of personality explains the performance difference between the present and the next level of development. Here it is how Vygotsky defines the proximal development zone: "...the distance between the present level of development, as it is determined by independent problem-solving and the level of potential development preset by problem-solving under adult guidance or in cooperation with more gifted students" (Vygotsky, 1972, p. 90). Lev Semionovici Vygotsky states that child development takes place as a result of its experiences with the parents, teachers and classmates : we become ourselves through the others.

In *The Psychology of Art*, Vygotsky (1972) agrees that art will be the object of a scientific study unless it is thought to carry out one of the vital roles in society, in close connection with the other components of social life. What draw our attention in the work of the Russian psychologist are the ideas and conceptions related to the aesthetic-generating emotion contradiction, the so-called catharsis (Aristotel), as well as the art of the child. Starting from Wundt's studies regarding the origin of social creativity (" an individual's creativity can be recognised by another person as a suitable expression of one's own ideas and emotions; therefore, a number of different persons might be simultaneously the creators of the one and the same concept"), he concludes that emotions play a dominant part in artistic creativity. Vygotsky also agrees that art's prevailing feature is the shape. Therefore, a specific emotion of a shape becomes a necessary prerequisite for artistic expression". "Art starts where the touch begins" he says, quoting Briullov. As " art is the work of the intellect and of emotional thinking" , "the impression stays beyond image". Vygotsky explains the difference between the artistic and the ordinary feeling: " the artistic feeling is no different from the others, unless it is released by an extremely intense activity of imagination. An essential part of the aesthetic reaction is the manifestation of the affective contradiction here

referred to as catharsis". The role of the catharsis " is to keep our body in harmony with the surrounding environment". On the other hand, he points out that " the field of child art and the children's response to art are completely different from that of adults'." There are remarkable phenomena to be noticed in the children's drawings, mainly due to „ the early presence of a specific artistic structure, which shows that in a child, art and play are psychologically related". Because the child is not aware of the connection between the line structure and the emotional feelings given by the "heart and soul" , the obvious fact is that in this stage, is most oftenly set at the " boundary of artistic creativity". Vygotsky opionates that in a child, the function of art is fundamentally different from that of the adult. The ability to render human and animal expressions in different positions and gestures is developing very slowly from different reasons. The most important one is the essential thing that a child is attracted to models, not to events or phenomena.

1.2. Flipped Classroom

The specific of flipped classroom learning strategy lies in the fact that the teacher is recording the lessons and is sending them online. Thus, the time issue is solved, the students being able to have a look at the lessons whenever they wish to, in their own pace. Some consolidation tasks can be differentiated according to the students' level of development. At first, a teacher imitation-based learning is suggested by means of tutorials on impressionism, cubism, abstract expressionism, then followed by independent work creations in the style of these art movements. The eTwinning project, which acts like a framework to learning, promotes a social/collective type of learning, through school partnerships, sharing ideas and experiences. As some objections to the difficulty of approaching the art movements to the disadvantage of a "classical" approach of using plastic elements, it is advisable to be reminded the fact that, as psychologist Jerome Seymour Bruner stated, "... any school subject can be successfully taught to any child, no matter its development stage, of course, in a suitable intellectual way" (Bruner, 1970, p. 59). This optimistic learning hypothesis is collated with the idea that any notion can be accurately and usefully presented to school children, based on further assimilated concepts, of course, if carefully adapted to their thinking. The process of piagetian stages should not be expected to be carried out in order to intervene in child's preparation. It can be helped out to gradually progress from concrete thinking to the use of some more highly conceptualized thinking techniques. Therefore, Jerome Seymour Bruner thinks that, learning is not subject to development, on the contrary, it takes a lead over the child's intellectual development, the passage from one stage to another thus being accelerated. The important thing is to find the basis that will enable the child to understand the terms considered to be difficult to assimilate, that is the point of view from they should be approached as well as a proper language.

2. Problem Statement

The aim of the research in this study is to capture the way the students' artistic skills are being formed, highlighted by the compositional organization of the artistic space, in agreement with Piaget's theory of stadial cognitive development and with Vygotsky's theory of proximal development zone, by using the flipped classroom learning strategy within an eTwinning project.

3. Research Questions

What is the potential in the students' plastic skills of using the flipped classroom strategy, reflected in the compositional organization of the pictorial space?

To what extent does the eTwinning project contribute to the development of visual plastic skills in young school children?

4. Purpose of the Study

The eTwinning project called ARTmania is meant to approach the flipped classroom learning strategy by applying it to the Visual Arts subject. Designed as an integrative project, it compiled competences, knowledge, attitudes and values specific to other subjects as well: Maths and Environment, Personal Development and Communication in the Romanian Language. The project's purpose was to improve young school-age children's performances in view of communicating through artworks, of expressing their feelings through shapes and colours, of cooperating and stimulating increased learning motivation.

5. Research Methods

The activities were projected for a full school year. A monthly activity was posted on the eTwinning platform within (TwinSpace). The students learnt about art movements (the impressionism, the cubism and the abstract expressionism) and created original artworks. The artistic-plastic movements had been chosen in compliance with the 2nd grade curriculum, as well as with the students' age peculiarities, initiating in this respect a partnership with the middle school arts teacher. Through this we mean the specific competences in the Visual Arts curriculum, corresponding to the general competence "Achievement of functional and / or aesthetic by using varied materials and elementary techniques" and to plastic art language elements in this project: the line, regular and irregular shapes, the plain and the pictorial pattern.

Specific implied competences in accordance with The School Curriculum for the preparatory, 1st and 2nd grades:

- (2.1) Exploration of some characteristics / features of materials in varied contexts;
- (2.2) Expressing ideas and personal feelings by using the line, the dot, the shape and the colour;
- (2.3) The realisation of some useful and/or aesthetic products by combining easily processing materials and accessible techniques;
- (2.5) Exploration of usage in beneficial and/or aesthetic contexts of self-made objects/ works.

To identify the changes occurring in the students' level of performance determined by the implementation of the flipped classroom and reflected in the achievement of plastic artworks, we also designed an evaluation criterion-based scheme made of 4 assessment criteria, divided into 18 subcriteria, with descriptors specific to achievement levels: Very Good- (Foarte Bine- FB), Good (Bine-B), Sufficient (Sufficient-S) and Insufficient (Insufficient-I). The compositional organization of the plastic art space criterion comprises 6 criteria referring to space framing, compositional balance, accuracy, composition unity, adequate use of colours, creativity and originality. In establishing the degree of creativity and

originality, we aimed at using plastic art elements by obeying the plastic art rules and principles, detaching ourselves to a certain extent from the example given in the tutorials at the experimental sample unit.

An experimental group of 20 7/8-year old students from Şcoala Gimnazială "Avram Iancu" from Turda, participants in the ARTmania eTwinning project were included. The control group was made of 20 students from a parallel class at the same school. In order to acquire the techniques with the help of the arts teacher, video presentations were made in which the steps in the realisation of a plastic artwork in the respective manner were shown. These recorded materials were posted on Facebook, on the class group wall and then watched at home by the students. Some deadlines for the covering of each lesson were set, the students having apprehended the important elements of the techniques, having written down the confusing issues and tried to make drawings similar to those displayed. Then, the elements specific to art movements were being discussed and the techniques practised in the classroom. The feedback was permanently offered both during the classes, paying more attention to the students who had incorrectly acquired the techniques and after the classes, by a specialist, i.e. the Arts teacher. The photographs during the activities were processed by the students by means of Web 2.0 tools and posted on the project wall. The students who have opened an account on the eTwinning platform also share administrator roles, being able to design pages, load different materials, post in the project timeline, participate in debates within videoconferences, etc.

6. Findings

In the control group, (Table. 02.), only 20% of the students evenly balanced most of the elements within the composition space, 80% of them just trying to set them there, with a few errors. The central element had been clearly highlighted and evenly set against the composition borders only in 5% of the cases, 65% containing errors, yet keeping a certain compositional balance, while 15% showing a faulty setting of the central element, the entire composition balance being thus affected.

In 20% of the drawings, the colours are less appropriate to the composition theme, 65% are trying to render through suitable colours the composition elements, showing a certain knowledge of the working techniques and tools while only 15% are using adequate colours to render the sent elements and messages, therefore proving tool and techniques mastery. 90% of the students are trying to closely render the drawing elements, generally accurately, except for some minor errors, 10% having displayed one error only.

In 60% of the compositions, the students are trying to include some striking and original ideas, though sometimes are not topic-related, 20% of them failing to do so; 15% are including just a few topic-related elements and only 5% are bringing forth elements of novelty and proving creativity in the realisation of the plastic composition.

The works are relatively unitary (55%), with correctly set and interrelated elements against the whole composition. 45% of the participants in this study are trying to properly set some elements, displaying some connections between them, though mostly confusing.

Table. 02. Evaluation of the control sample group (compositional organization)

Compositional Organization	1. space framing (<i>competence 2.2</i>)	0 FB (0%)	4 B (20%)	16 S (80%)	0 I (0%)
	2. distance of central element from the borders (compositional balance) (<i>competence 2.2</i>)	1 FB (5%)	3 B (15%)	13 S (65%)	3 I (15%)
	3. adequate use of colours (<i>competences 2.1, 2.2, 2.3, 2.5</i>)	0 FB (0%)	3 B (15%)	13 S (65%)	4 I (20%)
	4. accuracy of drawing (<i>competences 2.2, 2.3, 2.5</i>)	0 FB (0%)	2 B (10%)	18 S (90%)	0 I (0%)
	5. originality and creativity (<i>competences 2.1, 2.2, 2.3, 2.5</i>)	1FB (5%)	3 B (15%)	12 S (60%)	4 I (20%)
	6. composition unity (<i>competence 2.3</i>)	0 FB (0%)	11 B (55%)	9 S (45%)	0 I (0%)

In the experimental group (Table. 03.), 85% of the students are evenly setting the whole range of elements in the composition space which thus becomes visually attractive, only 10% displaying errors in rendering these elements' balance.

The central element is evenly set against the composition borders in 85% of the students displaying only scarce errors, but keeping a certain compositional balance in 10% of the sample group.

85% of the works render feelings, messages, elements through adequate colours, a fact that shows the mastery of their working techniques and tools, a few errors being noticeable in only 10% of the works.

The drawings are flawless, and the whole content is accurate in 75% of the final works; there is still a 25% of the students making some minor errors. 60% of them include topic-based original ideas, creative techniques, 20% are enriching the topic with original, striking ideas, even if sometimes they are not implicit. In 75% of the works, all the elements are correctly and efficiently set against the entire composition, 15% contains some correctly set elements, with some connections, though they are most often confusing.

Table. 03. Evaluation of the experimental sample group (compositional organization)

Compositional Organization	1. space framing (<i>competence 2.2</i>)	17 FB (85%)	1 B (5%)	2 S (10%)	0 I (0%)
	2. distance of central element from the borders (compositional balance) (<i>competence 2.2</i>)	17 FB (85%)	1 B (5%)	2 S (10%)	0 I (0%)
	3. adequate use of colours (<i>competences 2.1, 2.2, 2.3, 2.5</i>)	17 FB (85%)	1 B (5%)	2 S (10%)	0 I (0%)
	4. accuracy of drawing (<i>competences 2.2, 2.3, 2.5</i>)	15 FB (75%)	0 B (0%)	5 S (25%)	0 I (0%)
	5. originality and creativity (<i>competences 2.1, 2.2, 2.3, 2.5</i>)	12FB (60%)	4 B (20%)	4 S (20%)	0 I (0%)
	6. composition unity (<i>competence 2.3</i>)	15 FB (75%)	2 B (10%)	3 S (15%)	0 I (0%)

As a result of applying the flipped classroom, the students in the experimental sample group (Table. 04.) are better setting all the elements with an increased 75% within the composition space than those in the control sample, the frame being more attractive aesthetically speaking. The central element is also 80% better highlighted, showing a balance between it and the composition borders. The colours used are appropriate to the rendered elements, messages and feelings, proving an increased 85% technique and tool mastery. The difference between the 2 groups regarding the flawless content achievement is 75%, only 25% of the students' works in the experimental sample group displaying minor errors. A qualitative difference of 60% is obvious between the experimental and the control group in view of originality and creativity of plastic artworks, where the former include topic-based striking ideas and techniques. Unity of composition is also 75% increased in the experimental group against the control group, all the elements being correctly and efficiently set against the entire composition. The composition elements are closely interwoven. As far as composition organization is concerned, the implementation of the flipped classroom learning strategy makes a qualitative 75% difference between the 2 groups, displayed in the creation of artworks.

The works in the experimental group display a detachment from linearity and an attempt to suggest depth both by settling proportions as well as by an adequate use of chromatics in this respect. Therefore, background objects are rendered by means of small elements and dimmed colours. Shades are additionally highlighted through cool colours (blue). The students' interest in achieving the inner balance of their compositions in order to establish active relationships between the plastic forms is also obvious. Some forms as projections of real objects are met (for example, the passage from house rendering as a plane shape to a spatial one.). All these characteristics noticed in the works of the students in the experimental group belong to the final stage of visual realism and of physioplastic drawing (according to Luquet's classification), slightly surpassing the concrete operational stage in Piaget.

Table. 04. Evaluation of the experimental sample group – control sample group (compositional organization)

Evaluation criteria/ Specific competences			Control sample group	Experimental sample group
Compositional Organization	1. space framing (competence 2.2)	FB	0 (0%)	17 (85%)
		B	4 (20%)	1 (5%)
		S	16 (80%)	2 (10%)
		I	0 (0%)	0 (0%)
	2. distance of central element from the borders (compositional balance) (competence 2.2)	FB	1 (5%)	17 (85%)
		B	3 (15%)	1 (5%)
		S	13 (65%)	2 (10%)
		I	3 (15%)	0 (0%)
	3. adequate use of colours (competences 2.1, 2.2, 2.3, 2.5)	FB	0 (0%)	17 (85%)
		B	3 (15%)	1 (5%)
		S	13 (65%)	2 (10%)
		I	4 (20%)	0 (0%)
	4. accuracy of drawing	FB	0 (0%)	15 (75%)

	(competences 2.2, 2.3, 2.5)	B	2 (10%)	0 (0%)
		S	18 (90%)	5 (25%)
		I	0 (0%)	0 (0%)
	5. originality and creativity (competences 2.1, 2.2,2.3, 2.5)	FB	1 (5%)	12 (60%)
		B	3 (15%)	4 (20%)
		S	12 (60%)	4 (20%)
		I	4 (20%)	0 (0%)
	6. composition unity (competence 2.3)	FB	0 (0%)	15 (75%)
		B	11 (55%)	2 (10%)
		S	9 (45%)	3 (15%)
		I	0 (0%)	0 (0%)

7. Conclusion

In accordance with Vygotsky's ideas, the teacher can facilitate the transition to the proximal development zone by situational contexts in which the child is to formerly take them into account through imitation. Although the framing of an artwork within a criterion-based evaluation scale can bring up creativity, freedom and originality limitation issues, it is however necessary, given the students' age and their need for guidance in appreciating an art work. By setting criteria, students are guided into systematically organizing their compositional space in a more efficient rather than intuitive manner.

The use of flipped classroom learning strategy, by tutorials that illustrate different plastic-art currents in Visual Arts facilitates the students' development of competences and skills, through customization and time reorganization. The eTwinning project offers the framework for an interactive learning and contributes to competence attainment as well. Other raised issues are those related to the interactivity of the video lessons. They have been designed as a dialogue, part of them being theoretical in terms of art history, also combined with the demonstration of actual manners of artistic expression which allow the students to practise at home. Some students still experience some difficulty in expressing their states and feelings because they are put off by colours. The flipped classroom and the chosen art movements help them overcome these fears, through the lessons in the video lessons and from the works of famous painters. The tutorials designed with the help of an expert teacher remove the inconvenience generated by the insufficient and inconsistent former training of the teaching staff.

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