A Handbook on Experiential Education

Pedagogical guidelines for teachers and parents

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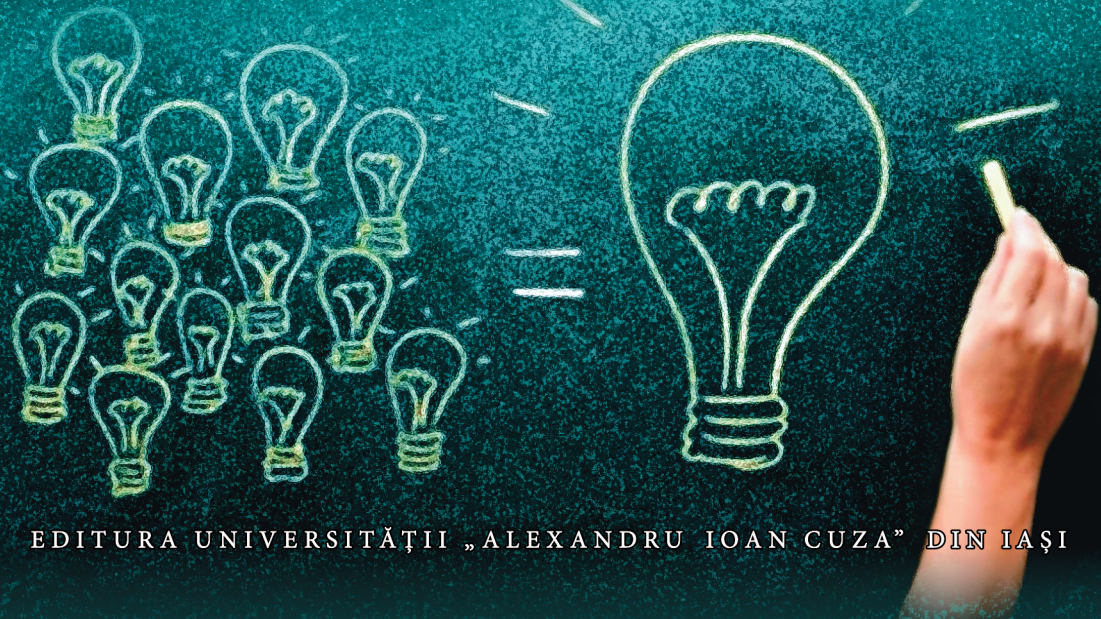

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A HANDBOOK ON EXPERIENTIAL EDUCATION
PEDAGOGICAL GUIDELINES FOR TEACHERS AND PARENTS

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HANDBOOK CONTENTS

FOREWORD

Violeta KAMANTAUSKIENE[1]

Experience-based education is the method or way of teaching through doing, namely it is the process during which young learners obtain knowledge and skills via personal experience. Individuals are involved in a particular activity which they reflect, analyze and that brings higher level of awareness and/or changes in behavior

World tendencies require to educate young learners so that they were creative, flexible, able to analyze, think critically.

It is common sense that the most predominant tendency in education is to educate young learners so that they become creative, flexible, able to analyze, critical thinkers, independent and democratic citizens.

Experiential Education Competence (teaching children aged 3-12) - EXPEDUCOM is an Erasmus+ project (the grant reference number: 2014-1-LT01-KA200-000368) risen from the needs to meet the requirements of the modern world via developing and implementing innovative educational practices related to experience-based pedagogical approach addressed to children aged 3-12.

The project outcomes target at strengthening the professional profile of in-service educators as well as students - future teachers by developing pedagogical guidelines on experiential education, open educational tools-real life cases, offering training for improvement of professional and communicative skills, improving curricula of pre-school, primary and teacher training institutions.

This handbook rose from the needs to meet the requirements of the modern world via developing and implementing innovative educational practices related to experience-based pedagogical approach educating children aged 3-12.

This handbook constitutes an approach for investigating the theoretical and practical training strategies from the perspective of experiential education. The purpose of this paper aims to provide theoretical and practical tools useful in early education specialists and primary education by developing practical strategies component, to support the development of educational activities and research to adapt

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permanently instructive approach to the specific demands of contemporary society. Due to changes at multiple curricular authors develop paradigms for training future teachers and introduce the need for activity planning, implementation and evaluation of training through experiential learning activities, thereby contributing directly to improving interactive teaching strategies.

Given the above, this handbook is organized as follows:

– *Part A.* General framework on experiential learning: What is experiential learning? (General assumptions and constraints on experiential learning; Characteristics of experiential based learning; The principles of experiential learning; Stages of the learning experience process; The role of the teacher in experiential learning; The role of children into experiential learning process; Integration of experiential learning in teaching process); Overview of conceptual foundations on the experiential based learning (Instructional models for the experiential learning theory; Dewey's foundations for the experiential based learning; Implications of Vygotsky's ideas on learning process; Bruner's conceptual contribution to the experiential based learning; The Jean Piaget's perspective; Kolb's experiential learning theory); Citizenship and 21st century education (An overview of 21st century skills education; What kind of citizens are needed in the Netherlands in the 21st century?); Different approaches of experiential education (Reggio Emilia Approach; High Scope Approach; Pedagogy in Participation or MEM)

– *Part B.* International research report on experiential learning approaches

– *Part C.* Examples of experiential based learning developed in different countries structured as case studies on experiential education in kindergarden and case studies on experiential education in primary school.

– *Part D.* Instead of conclusions: Advocacy for experiential learning - ABC guidelines to teach for experiential learning.

This handbook aims to provide the necessary and adequate information regarding experiential learning and teaching and is directed to parents, students and educators of preschool and primary school children. More specifically, the outcomes of the project directly address teachers working in kindergartens and primary schools; students of pre-school and primary education; teacher trainers, researchers at universities providing pre-school and/or primary education; parents or anybody interested in education of children aged 3-12.

PART A

GENERAL FRAMEWORK ON EXPERIENTIAL LEARNING

CHAPTER 1

WHAT IS EXPERIENTIAL LEARNING?

Gianina-Ana MASSARI[1], Florentina-Manuela MIRON[2]

1.1. GENERAL ASSUMPTIONS AND CONSTRAINTS ON EXPERIENTIAL LEARNING

There is a growing literature around experiential learning in which we can identify different assumptions about this concept. At the final decade of the twentieth century the interest on the experiential learning is growing as part of the educational research on what is learned "in school and out". Through a renewed look at the way of teaching and learning, by changing the pole activity with main role on the child activity, in the experiential learning the learner will be more engaged in interdisciplinary exploration, collaborative activity, field based opportunities, reflection and self assessment. Experiential learning is a philosophy and methodology in which teachers intentionally engage with children in direct experiences and focus their reflection on raising knowledge, developing certain skills, and highlighting values. Because teaching and learning are interdependent processes, a key element of experiential learning is the child, learning depends entirely on his degree of involvement in the activity. Taking these into consideration, the experiential learning can be synthesized by some authors following the well-known maxim of Confucius: *"I hear and forget, I see and remember, I do and understand."*

In the early 1980s, Mezirow, Freire and others emphasized that the core of learning is how we reflect on the experience. The concrete experience for reflection is the result of a cycle that begins with experience, continues with reflection and later leads to action.

Curtis Kelly (1987) sumarized that „the non-reductionist perspective did not lead directly to the theory of experiential learning itself, but, it

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spawned a number of its predecessors: new interpretations known as as cognitive theories and revitalized progressivism known as humanist theories. Cognitive theorists, such as Bloom, dealt with the hierarchical nature of knowledge in the cognitive domain, while humanists, such as Maslow, concentrated of the affective domain and how "learners attempts to take control of their own life processes" (Rogers, 1996, p. 100).

The theory of experiential learning differs from other cognitive theories - which mainly emphasize the importance of appropriation, manipulation, reminiscent of abstract symbols - or behaviorism that denies the importance of individual consciousness and subjective experience in learning process. Learning through experience is not a new concept for educational practice. The importance of experience in learning was acknowledged by more and more psychologists, like Brookfield (1990); Cross (1981); Jarvis (1995), Kemp (1996); Knowles (1990), McKeachie (1994), Peters (1991).

Regarding the historical trajectory of the concept, educational psychologists such as John Dewey (1938), Kurt Lewin (1947), Jean Piaget (1970), Carl Rogers (1969), James A. Coleman (1977), Morris T. Keaton & Pamela J. Tate (1978), David Kolb (1984), Joseph J. Stehno (1986), Peter Jarvis (1987), Lauren Resnick (1987), Anita J. Green (1995), Patrick Whitaker (1995), Christian M. Itin (1999), Reid A. Bates, Elwood F. III Holton & Dian L. Seyler (2000), Jennifer A. Moon (2004), Colin Beard & John Peter Wilson (2006), Melvin L. Silberman (2007) have focused their studies on learning theories with an emphasis on "learning by experience" or "learning by doing".

John Dewey, in 1938, has promoted the concept of "experiential education," which focuses on problem solving and critical thinking rather than memorizing and learning by heart. Experiential learning involves acquiring new knowledge and skills by doing something (learning by doing). J. Dewey asserts his conviction that any new education is achieved through experience, and in particular through that real life experience that an individual has it. He says that in order to become an experience, the syllabus, especially the study objects, must contain contents that is part of the ordinary life. J. Dewey argues that the experience within a person influences the development of attitudes, according to its desire and purpose.

In 1947, Lewin's field theory and work on group dynamics proved significantly influential to the domains of social and educational psychology. With regard to Lewin’s position that theory and practice must all times be integrated, he realized that the process of learning should be a dynamic approach and systematic method of planning, action, and fact finding that takes into account reflecting upon a concrete experience

where the educators plays the role of change agents of social behaviours.

Piaget's model basically focused on what he identified as the four major stages of cognitive development, starting with the sensory-motor stage (age birth to 2 years) and going to the stage of formal operations (age 12-15 years); each stage building on the previous one. This four stages of cognitive development forms the basis for the adult basic learning process.

Carl Rogers, in 1969, considered this type of learning to be significant being the acquisition and application of knowledge in relevant contexts, compared to what he called "meaningless cognitive learning". Experiential learning is a natural way of learning in which experience is considered to be the most important, it can be verified and open for change and the finallity is achieved because the individual is engaged affectionally and cognitively in the learning experience, leading to a profound and lasting change of his personality. For Carl Rogers, experiential learning is a cycle that begins with experience, continues with reflection and later leads to action, which itself becomes a concrete experience for reflection.

Rogers laid the foundation for a non-directional pedagogy that is based on the notion that any significant knowledge derives from a learning that can only be transmitted from a personal experience.

James A. Coleman (1977) differentiates between the information assimilation process of the regular classroom and the experiential learning process, underlining that the experiential learning process occurs in almost an inverse sequence and at least initially does not use a symbolic medium for transmitting information, the information being generated through the sequence of steps itself. Knowing the fact that the traditional learning model is dependent on extrinsic motivation, as action (the intrinsic motivation) comes at the end of the learning sequence, James A. Coleman (1977) strengthens the idea that the steps of the experiential learning process are to perform an action in a particular state and see the effects of that action, then the understanding of those effects and the consequences of the action give the learner the instruments to understand the general principles involved, and finally to apply through action what has been learned in a new circumstance.

Morris T. Keaton and Pamela J. Tate (1978) conclude that through experience, the learner is in direct contact with the reality he is studying.

The experiential learning theory was launched, in 1975, by David Kolb, along with Ron Fry, who emphasizes that learning experiences are essential to learning and this type of learning is a process through which knowledge is created by transforming and refining concrete experiences.

In his work *Experiential Learning*, in 1984, David Kolb states that John Dewey, Kurt Lewin and Jean Piaget are the founders of the approach. The same author argued that the new concept should not be seen as an alternative to behavioral and cognitive theories, but rather as a holistic integrative perspective on learning that combines experience, perception, cognition and behavior. The fundamental reason that David Kolb denotes this theory, inspired by the theories of Dewey, Lewin, and Piaget, is the desire to highlight the essential role that experience plays in the learning process. David Kolb's interest lay in exploring the different styles of learning and associated process in relation with the concrete experiences. In Kolb's view, learning is the holistic process by which the child can easily adapt to the world around him and presupposes the full functioning of the whole organism.

Peter Jarvis (1987) believes that an experience itself has no meaning until it is endowed with meaning by the individual who mainly drawson socially constructed meaning and learning is a continuous process that has the objective of giving meaning to experience that turns into knowledge, skills and attitudes. This author, by using the Kolb's model to explore the process of learning in context, suceed to make a better appreciation of context and the ability to approach memorization, contemplation, practice etc. However, it remains to clarify a number of problems around stages. The same author, in 1995, reinforces the idea of insufficient conceptual and practical development of experiential learning,underling the idea that "is actually about learning from primary experience, that is learning through sense experiences [...] unfortunately it has tendedto exclude the idea of secondary experience entirely".

Lauren Resnick, in her 1987 Presidential Address to the prestigious American Educational Research Association, suggests that school learning often becomes a matter of manipulating symbols rather than connecting with the real world and that there is growing evidence that there is less direct transfer from in-school to out-of-school use and recommend that schools should begin to be more out-of-school functioning and to include a greater use of reflection and reasoning.

Anita J. Green (1995) conclude that experiential learning concept offer a way of structuring and sequencing learning that leads to the increased effectiveness of the experience.

Patrick Whitaker (1995) agues that experiential learning offers a vital insight into making learning a more complete process, by emphasizing the importance of reflection, analyzing and theorizing and then active experimentation.

Christian M. Itin (1999) defines experiential education as „a process that occurs between a teacher and a student that infuses direct

experience with the learning environment and content". But then, experiential learning refers to „making meaning from direct experience".

Regarding the conceptualization of experiential learning, C. Beard and J.P. Wilson (2006) offers the next view: the insight gained through the conscious or unconscious internalization of our own or observed experiences which build upon our past experiences or knowledge.

Jennifer A. Moon (2004, p. 130) says that experiential learning usually involves reflective learning - except where the material of learning is unchallenging to the learner.

To Melvin L. Silberman (2007, p. 8), there are two ways to define the experiential learning: 1) the involvement of learners in concrete activities that enable them to „experience" what they are learning about and 2) the opportunity to reflect on those activites.

As it can be seen, the views of experiential learning differ widely. Synthesizing all these views, the experiential learning theory draws on the work of prominent 20th century scholars who gave experience a central role in their theories of human learning and development, like John Dewey, Kurt Lewin, Jean Piaget, Lev Vygotsky, Carl Jung, Paulo Freire, Carl Rogers and others. So, the experiential learning theory is based on a holistic model of the process of learning from experience driven by the resolution of the dual dialectics of action/reflection and experience/abstraction and a multi-dimensional model of human development.

Experiential learning has always been mistakenly used interchangeably with experiential education. To avoid any misconception throughout the reconceptualization, in their studies the authors try to make the difference between experiential education and experiential learning. It seems to be helpful to distinguish between *learning from experience* („taking place in the lifeworld of everyday contexts" – Robin Usher and Nicky Soloman, 1999, p. 161) and *experiential learning* („a key element of a discourse which constructs experience in a particular way, as something from which knowledge can be derived through abstraction and by use of methodological approaches such as observation and reflection" - Usher and Soloman, 1999, p. 161). As Stephen Brookfield (1983) has commented that authors in the field of experiential learning have tended to use the term in two contrasting meanings. One meaning of experiential learning is used to describe the sort of learning undertaken by pupils who are given a chance to acquire and apply knowledge, skills and feelings in an immediate and relevant setting. Experiential learning involves a direct encounter with the phenomena being studied (Borzak, 1981) within an institution and might be used on training programmes for social work, teaching, social

administration or geography courses. The second meaning of experiential learning is about the way that most of us do the achieved learning through reflection upon everyday experience. Houle (1980, p. 221) defines as ”education that occurs as a direct participation in the events of life” without the direct implication of the formal educational institution.

Therefore, we believe that it is important for researchers to revisit current learning and teaching theory and practices regarding the experiential learning, and to develop a deep and wider concept concerning the relationship between designed experience and achieved learning in educational programs. As far, we think that experiential learning fulfils a supporting role in experiential education which facilitates the process of knowledge, sense-making and knowledge transfer. We emphasize that experiential education is a didactic approach focused on action followed by critical reflection in order to make the learning process more efficient by transforming concrete experiences into new learning situations for an easier understanding of what surrounds us.

It is relevant to underline the idea that all educators should be aware of the fact that the "real-life" experiences or work-study apprenticeship programs make use of the same principles of learning and teaching, only in a different setting.

1.2. CHARACTERISTICS OF EXPERIENTIAL BASED LEARNING

Based on current teaching principles, we inferred the following six representative features of experiential learning: 1. applicability; 2. integration; 3. flexibility; 4. adaptation; 5. awareness; and 6. empowerment.

1. Applicability is an experiential learning feature that demonstrates the practical character of learning as a transaction between the individual and the environment. Applicability involves capitalizing on all the knowledge gained through the learning process in practical activities and is proven by changing information generated by the interaction between internal conditions and external environmental factors, personal characteristics and behavior. Experience is derived from this game of interaction between internal and external conditions. "Experience does not simply go inside a person. It goes there because it influences the formation of attitudes of desire and purpose" (Dewey, 1938, p. 39). Ted L. Rosenthal and Albert Bandura (1978) supported the mutual determination of personal characteristics, environmental factors and behavior. Any learning experience changes somehow behavior. Because learning is a dynamic process, it involves **transactions**

between person and environment and is done both individually and in groups, reflecting in all the activities of everyday life. D. Kolb prefers the transaction term to define the interchangeable nature of internal conditions and external conditions and their transformation. Through each interaction of exposure to needs, values or habits, learning process actors act as negotiation, control, or direct or indirect influence, in order to change the perceptions and reactions of other actors. According to Bradford et.al (1964), "behavior becomes the currency for the transaction. Each invested amount helps determine yield". We can extract the idea that changing the environmental factors influences personal characteristics, perceptions, in order to ultimately change behavior.

2. Integration is an experiential learning feature that involves embedding within the experiential activities of those elements that lead to conscious learning and capitalizing on previous experiences of students' knowledge and uniting them with abstract elements. For Piaget (1970) each understanding is the result of a process of building and inventing through the interaction between assimilation and accommodation. J. Bruner (1984) stated that the purpose of education is to stimulate interrogation and to form skills in the process of acquiring knowledge and not to memorize a sum of knowledge: knowledge is a process, not a product. Unlike behavioral approaches that treat learning as a behavioral response to the stimulus, within the experiential activities the focus falls on self-learning, not on the outcome. In other words, **learning is conceived as a process and not as a result**. The theory of experiential learning starts from the assumption that knowledge is not fixed and unchanged elements of thought, but that it is developed and transformed by experience.

3. Flexibility remains that attribute of experiential learning through which it is highlighted that property of adapting to circumstances. Because learning is a life-long continuous process, we can highlight the idea that **learning is a continuous process based on experience**. "[...] the principle of continuity of experience means that each experience deals with something that has gone before and changes somewhat the quality of those who come after [...] What he learned in terms of knowledge and skill in a single situation becomes a tool for interrupting and effectively addressing the situations that follow. The process lasts as long as life and learning continue" (Dewey, 1938, pp. 35, 44). This continuous process based on experience has profound pedagogical implications: any learning act is a re-learning. New ideas are adopted by

the individual either by integration or by substitution (Piaget apud Kolb, 1984). Integrated ideas tend to be more stable parts of a person's worldview. The difficulty of students to learn new ideas is related to the propensity to defend old theories in use (Argyris and Schon, 1974). The teacher's responsibility is to change old knowledge with new ones. Open and flexible learning refers to the adaptability of learning when it comes to the needs of learners; the flexibility of the mental conception of possible support services for this process and the ideas of material and essential know-how for learning in the frame of cooperative and creative activities.

4. Adaptation is another specific feature of the experiential learning that differs from other characteristics by the fact that learning also requires a conflicting state between concrete experience and abstract concepts, between observation and action. It is not enough just to create a situation in itself, but also to provoke an antithesis between observation and action. If we dialectically analyze this approach, we will consider the situation itself as the thesis, the dialectical opposition between observation and action as the antithesis that denies the thesis, then it is necessary to present the synthesis that can be marked by two other specific characteristics that we will call as awareness and empowerment. Therefore, this antithesis implies an adaptation of the new knowledge, attitudes and skills acquired through confrontation. Lewin emphasizes this conflict between concrete experience and abstract concepts, between observation and action. For Dewey, there is a relationship of determination between the impulse that gives the ideas "their mobile force" and the rationality that desires its direction by analyzing and discussing contradictory arguments. All this can be sustained when ideas are adapted to the external environment. Piaget supports this need to accommodate ideas to the outside world. He considers that cognitive development is conditioned by the dual processes of hosting ideas in the outside world and assimilating experience in existing conceptual structures. Freire (1974, p. 36) conceptualized the dialectic nature of learning and adaptation through the concept of praxis that signifies "reflection and action on the world in order to transform it". Kolb (1984) argues that the learning process has two main dimensions: the concrete experience opposed to abstract conceptualization and the active experiment opposite to the reflective observation. Synthesizing the above, **the learning process claims conflict resolution between two dialectically opposed modes of adaptation to the world.**

5. Awareness is the experiential learning feature that highlights the idea that the learning process development is in a relationship of interdependence with teaching process and it is based on the outcome of the transaction between personal knowledge and social knowledge. There are multiple forms of social knowledge that derive from different assumptions about the world, based on hypotheses about the nature of knowledge and truth. Knowledge derives from the transaction between objective and subjective experiences. The objective experiments are the thesaurus of the previous collective human experience, while the subjective experiences are generated by the individual's personal life. If we analyze this feature dialectically, then awareness is specific to the synthesis stage in the learning process in which the person becomes aware of the purpose, necessity and usefulness of an activity. So, **learning is the process of creating knowledge.** In order to be realizable, it is necessary to understand nature, the forms of human knowledge, and the processes through which this knowledge is created.

1. Empowerment is a specific feature of experiential learning through which the individual develops integrating the functions of the whole organism into a holistic, adaptive approach to the internal and external environment. By treating dialectically, the synthesis ends with the responsibility of developing **a holistic learning process for adaptation to the world**. Learning conceived as holistic includes diverse adaptive activities that vary as time and space. Learning is the major process of human adaptation. This concept goes far beyond the meaning of learning in institutionalized environments. From the perspective of the experiential learning theory, learning, performance and development form a continuum of adaptive environmental approaches. If we consider that learning involves the integrated functioning of the whole body - thinking, affectivity, perception, behavior, then we can say that the level of immediate reaction to a certain situation can be measured in terms of performance, and the degree of individual development is the result of adaptations during life.

1.3. PRINCIPLES OF EXPERIENTIAL LEARNING

For a good development and organization of the educational process, the teacher must respect and apply the didactic principles correctly. These principles are valid also for those activities that aim to experiential learning because the same actors are involved in educational art through mutual empowerment. The didactic principles are certain norms that are indicative, they are the theses that lead and

conduct, giving a functional meaning to the didactic process, thus ensuring the achievement of the proposed objectives. In other words, "the teaching principles adjust the whole action of transforming objectives into quality results and outlines the criteria for optimizing the learning process in contents and strategies" (Gianina-Ana Massari, 2014, p. 25). Unlike the traditional class situations where pupils can compete with each other or remain uninvolved or unmotivated, if the teaching process is structured according to the principles of experiential learning in which the teacher facilitates progress and the focus is on the learning process and not on the product, then the pupils will engage in direct experiences, cooperate and learn one from each other about situations and problems of the real environments. Experiential learning advocates claim that pupils will be more motivated to learn when they have a personal stake in the topic than when they are asked to review a topic or read a chapter in the textbooks that they are not directly involved in and do not see the meaning.

What makes experiential learning different and stronger than "learning by doing" or "interactive learning" models is the presence of experimentation, reflection and application stages. From our oint of view, the experiential learning follows the same basic and traditional didactic principles. By making a relationship of equivalence between the characteristics of experiential learning and the basic teaching principles, there might be highlighted some specific actions that can be taken by teachers as follows:

I. The principle of intuition (the correlation between sensory and rational, between concrete and abstract)

Action: provide relevant and meaningful resources to facilitate learning and help students to succeed.

II. The principle of integrating theory into practice

Action: facilitate the learning process by application, reflection, critical analysis and synthesis.

III. The principle of a thorough learning of knowledge, skills and abilities

Actions: allow and support pupils to formulate questions, to investigate, to experiment, to solve problems, to learn from errors, to experience success, failure, adventure, risk-taking, to discover solutions on their own, and to be creative in building a plan.

IV. The principle of respecting age and individual peculiarities

Actions: ensure physical and emotional security;

share feelings and thoughts with students;
give constructive feed-back.

V. The principle of accessibility of knowledge, skills and abilities.

Actions: approach the learning experience in a positive way to combine experience, perception, cognition and behavior

VI. The principle of conscious and active participation of the pupil in the teaching-learning-evaluation activity

Actions: explain the purpose of the activity by transferring the knowledge and skills that will be accumulated for different living situations;
identify appropriate situations in which students are interested and personally involved to develop concrete learning experiences;
increase the child's degree of involvement in learning activity through asking the pupil to take the initiative, to make decisions and to be responsible for the results;
build reflection situations to increase the level of knowledge, to develop certain skills and to highlight the values;
clarify learning objectives in relation to direct experiences and problems so that students will understand what they need to do.

VII. The principle of systematization and continuity in learning

Actions: recognize and encouraging spontaneous learning opportunities.

1.4. STAGES OF THE LEARNING EXPERIENCE PROCESS

The model of experiential learning involves four stages (see fig. nº 1):

1. *The experimentation* is the first step of concrete experience in this type of learning. Having little or with no help by the teacher, children will be involved in an interactive activity such as making a product or role modeling, role play, problem solving etc. Experience is the trigger element that creates the need for a good understanding of situations and phenomena. A key aspect of experiential learning is what the learner learns from experience rather than the amount of experience.
2. *The analysis* is the moment of reflection on what happened. Children will share the results, reactions and observations with their colleagues and will discuss, analyze and reflect on the information and feelings

generated by the experience. Its description and analysis made through observations and reflections allow children to connect with future experiences.

3. *The generalization* is given by the formation of abstract concepts and itassumes the conclusion of what has been learned and allows it to be connected with real-world examples, so students will discover common tendencies and truths.
4. *The application* through testing implications of concepts in new situatios facilitates behavioral change. Students will apply what they have learned from experience in a similar or different situation. Students will also discuss how the newly learned process can be applied to other future situations.

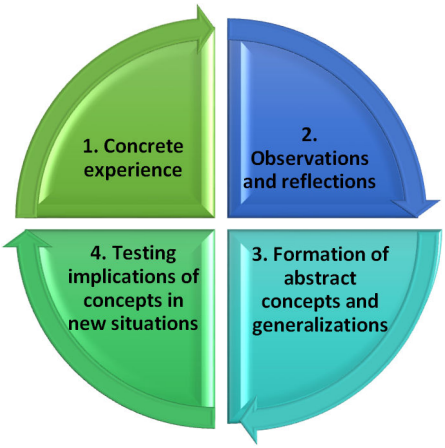

Fig. no. 1. Stages of Experiential Learning Model

Learning experiences can be positive or negative, and the teacher is the one who has to make sure that the children benefit from positive experiences. Not all experiences are educational. It is important for the children to be able to make the difference between an educational and a non-educational experience.

1.5. THE ROLE OF THE TEACHER IN EXPERIENTIAL LEARNING

In the process of experiential learning, the child is naturally interested in gathering information and discovering, and the teacher is

guiding himself after some essential steps. Forwards, we will present the roles, schematically arranged according to the praxiological criterion, which the teacher has to fulfill in an experiential learning activity. So, the teacher must fulfill the role of:

1. *identifying* appropriate situations in which pupils are interested and personally involved to develop concrete learning experiences;
2. *increasing* the child's degree of involvement in learning activity through asking the pupil to take the initiative, to make decisions and to be responsible for the results;
3. *providing* relevant and meaningful resources to facilitate learning and help pupils to succeed;
4. *explaining* the purpose of the activity by transferring the knowledge and skills that will be accumulated for different living situations;
5. *clarifying* learning objectives in relation to direct experiences and problems so that pupils will understand what they need to do;
6. *pointing out* the roles of each one (pupils and teachers) focusing the idea that learning is conceived during the whole activity as a process, not as a result;
7. *approaching* the learning experience in a positive way to combine experience, perception, cognition and behavior;
8. *being* less dominant in the classroom and setting boundaries;
9. *facilitating* the learning process by reflection, critical analysis and synthesis;
10. *allowing and supporting* pupils to formulate questions, to investigate, to experiment, to solve problems, to learn from errors, to experience success, failure, adventure, risk-taking, to discover solutions on their own, and to be creative in building a plan;
11. *ensuring* physical and emotional security;
12. *sharing* feelings and thoughts with pupils;
13. *giving* constructive feed-back;
14. *letting* the pupils *to see* that even the teacher learns from experience as well;
15. *recognizing and encouraging* spontaneous learning opportunities;
16. *building* reflection situations to increase the level of knowledge, to develop certain skills and to highlight the values.

1.6. THE ROLE OF CHILDREN INTO EXPERIENTIAL LEARNING PROCESS

Pupils give meaning to those things seen, felt, discovered and experienced in the world around them. Therefore, the qualities of experiential learning are those in which pupils themselves decide how to

be personally involved in learning experience (students are actively participating in their own learning process and have a personal role in learning direction)

Pupils are not left completely alone to learn; however, the teacher assumes the role of guidance and facilitates the learning process.

In the experiential learning process, the role of pupils is much more than can be seen or measured, but some of those role are more emphasized especially those that trigger and sustain interest, curiosity and desire for learning by informing the group of students, community, family, etc. on the results obtained, such as:

- *the reflective role* with an emphasis on the ability to be objective in self-evaluation of performance/activity;
- *the leading role* - often students are placed in a situation where they have to engage in difficult and challenging situations;
- *the role of motivating* - students are involved in issues that are practical, social and personal;
- *the role of finding and assessing activity and learning outcomes* - based on discussions, worksheets, feed-back and assessment sheets, students will self-assess their own progress in learning, becoming the primary tool of assessment;
- *the social role* - students will learn to become more open to change themselves by collaborating, cooperating, offering or receiving more support from their colleagues than from the teacher, which will facilitate their development of authentic learning abilities and experiences.

1.7. INTEGRATING EXPERIENTIAL LEARNING IN TEACHING PROCESS

In experiential learning, an essential role that the teacher has to fulfill is to identify a situation whereby pupils/students can solve problems through cooperation, collaboration, self-discovery and self-reflection. At the same time, he decides what the pupils should learn or what the pupils could achieve as a result of their learning experience.

What would be the steps to integrate experiential learning into the teaching-learning-evaluation process? To ensure that this approach about experiential learning is attained, the teacher should consider at least four phases: planning, organizing, conducting and evaluating.

1. The **planning** is a first step for the integration of experiential learning into the educational process. At this stage, a work plan is developed that aims at learning objectives, determined by pupils'

needs, operationalized in such a way that the proposed activity is successfully completed (material and informational resources, such as short texts, worksheets, grids and orientation or work directions, etc.).

2. The **organization** is the next step in preparing the workspace, the materials, the grids, the assessment tools, and physical space is checked before learning begins.
3. The **development** consists in facilitating students' content and providing additional information.
4. The **evaluation** makes use of previously planned assessment strategies and takes the form of discussions, reflections, and a series of questions that can help strengthen and expand the learning process and thus bring success to learning experience.

Thus, an educational process with an emphasis on experiential learning exploits and supports the student's active participation in the learning process by developing all his senses by involving all learning areas.

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CHAPTER 2

OVERVIEW OF CONCEPTUAL FOUNDATIONS ON THE EXPERIENTIAL BASED LEARNING

2.1. INSTRUCTIONAL MODELS FOR THE EXPERIENTIAL LEARNING THEORY

Gianina-Ana MASSARI[1]

To make an overview of conceptual foundations on the experiential based learning, it is necessary to explore a few of the philosophical and psychological relationships between experience and learning.

From this point of view, the literature provide us a structured and valid analysis on learning theories, educational philosophy, the psychology of learning, theories of intelligence, and research on learning. Two major direction of criticism are focused on learning theories which are generally divided into behavioral, social and cognitive theories, and on the fact that the observable behavior in or outside the classroom is the major focus of the behavioral theories, while the mental processes individuals use to learn and remember information or skills represent the focus of the cognitive theories.

The importance of experience in learning was acknowledged by more and more theoreticians and practitioners. Many experiential educators have grounded their learning activities based on the ideas of the progressive educational movement founded by Dewey (1938), of action research model of Lewin (1947), of the humanistic psychologists such as Maslow (1968) and Rogers (1969), of the cognitive and learning development theory of Piaget (1970), Gagne - eight categories of learning (1985) and Bruner (1966), or on the learning style theories of Kurt Hahn (1970), Friere (1973), Kolb (1976), Gregore and Ward (1977), McCarthy (1980), or on theories of Stehno (1986), Jarvis (1987), Resnick (1987), Seyler (2000), Moon (2004), Beard and Wilson (2006), Silberman

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(2007), or on the pedagogy based on concrete experiences of the Maria Montessori (1972).

By cognitive and humanistic points of view, reffering to the experiential theory, Saljo (1979, summarized in Kelly, 1987) structured a hierarchy of student views of learning:

1. Learning brings about increase in knowledge (knowing a lot);
2. Learning is memorizing (storing information for easy recall);
3. Learning is about developing skills and methods, and acquiring facts that can be used as necessary;
4. Learning is about making sense of information, extracting meaning and relating information to everyday life;
5. Learning is about understanding the world through reinterpreting knowledge.

Saljo (1979, summarized in Kelly, 1987) found that the more life experience a student has the more likely they are to view learning as an internal, experience-based process.

Curtis Kelly (1997) summarized that „nonetheless, the theory of experiential learning did not gain prominence until the work of Mezirow, Freire, Kolb and Gregore in the 1980's.” The same author underlined that ”experiential learning is not just ‘field work’ or ‘praxis’, which mean connecting of learning to real life situation. On the contrary, it is a theory that defines the cognitive processes of learning and it asserts the importance of critical reflection in learning.”

Against the backdrop of the periodic fluctuations of US schools to reach the forgotten half of students, especially among the poor and minority, some teachers, psychologists, educators and some public decision makers return to some of the basic ideas of learning based on experience, many of these written nearly a century ago - Dewey's writings or even two centuries to Rousseau and other European writers.

For John Dewey, one of the pioneers of the progressive educational movement, education is a process of reconstruction and reorganization of past experience to gain a new experience. "... Education must prepare for the future. If education means growth, it must progressively realize the present potential, and thus make individuals better adapted to meet further demands" (Dewey, 1972, p. 49). Thus, true education is that one that relies on the development of mind processes taking into account the present and future actions of the child and guarantees the development of the student based on an actional autonomy.

Dewey criticized learning based on abstract and text-based knowledge, as the child's life is based on continuity, and the teacher has to respect that by making the activities a good use for the child's later

needs. In Experience and Education (1938, pp. 19-20), Dewey has differentiated between progressive and traditional education: ”To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity; to learning from texts and teachers, learning through experience; to acquisition of isolated skills and techniques by drill, is opposed acquisition of them as means to attaining ends which make diiect vital appeal; to preparation for a more-or-less remote future is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world”.

Dewey constantly emphasized the social aspects of learning, the development should be physical and moral too, not just intellectual because the learning contributes to the good of the society. The model proposed by Dewey is similar to Lewin's model, with the exception that it more explicitly highlights how learning transforms impulses, feelings and desires into higher-end actions. The formation of goals, according to Dewey (1938), is a complex intellectual operation involving:

a. observing the surrounding conditions,

b. knowledge of what happened in similar circumstances in the past, knowledge obtained in part from memories, readings, information, advice, warnings received from those with a wider experience,

c. judgment, which means putting together what is observed and what is learned from others to create meaning. A purpose differs from an impulse or a desire in that it anticipates the consequences of the action given by certain present conditions.

Regarding the learning experiences, if there is a lack of the rigor and discipline regardless of the environment - in or out of the school, Dewey also warned that they could be miseducative because ”they prevent further growth or lead to callousness or lack of sensitivity.

The model of experiential learning, according to Dewey, can be represented as a four-stage cycle: impulse, observation, knowledge, judgment. According to Dewey, the learning process integrates experience, concepts, observations, action. Dewey argues that the crucial issue of the educational system is to get the immediate action postponed until the observation and judgment interfere. Anticipating the consequences of action must be matched with desire and impulse to determine the action. The impetus of the experience gives the ideas of force, and the ideas give impulse direction. Postponing the immediate action is necessary for the observation and the judgment to interfere, and the action is essential for achieving the goal.

For those advocates of experience-based learning, remain valid those Dewey's warnings which aims at attention to further swings of the educational pendulum.

Constructivism is one of the most influential paradigms in contemporary education. This trend emphasizes the learner and not the trainer, the learning being a result of mental engagement, building, and rebuilding based on previous experience that is being used as the groundwork for new acquisitions. For Piaget (1970), cognitive development involves the transition from concrete knowledge to abstract knowledge, built from an egocentric active knowledge, to a reflectively internalized way of knowledge, and the learning process takes place in a cycle of interactions between individual and environment, similar to the Lewin and Dewey models.

The implications of Piaget's theory are critical for experiential learning educators. Piaget's theory of learning and cognitive development stands to four interrelated factors that influence mental development: 1. physical maturation; 2. experiences that involve handling, moving, and thinking about concrete objects; 3. social interaction, particularly with other children; and 4. equilibration which results from bringing the other three factors together to build and rebuild mental structures. In Piaget's terms, the evolution of intelligence is perceived as a set of elements (the personal experiences, the environment) in which, through their interdependence, the adaptation process takes place, the learning key being the mutual interaction of the processes of accommodating the concepts or schemes to experience which implies a change of knowledge already held, a new situation and the assimilation of events and knowledge along with the information the individual has at that time. Adaptation takes place through the balanced tension of the two processes. When immitation takes place, we are modeled on external patterns or constraints; when the assimilation dominates it takes place the game - its own concepts and images are imposed regardless of reality. Cognitive processes of the individual evolve from concrete to abstract and from active to reflective, during several stages of cognitive development, which are valid from birth until the age of 14-16 years.

Regarding the experiential learning, the ideas of Piaget have played a role of leadership in the 1990s for those teachers who offered a lot of their time to design and implement learning experiences that involve active, concrete learning in interaction with the physical environment and in social interaction with members of the group.

Once again, we can see in the literature that there is no excuse especially when there are so many warnings that should be taken into

consideration by the elementary, secondary and higher educators regarding about the excessive use of symbolic learning and memorization and the lack of active physical and social interactions with one's environment. It is worth mentioning the ideas of James Coleman (1977) that differentiates between the information assimilation process of the regular classroom and the experiential learning process. The comparative analysis carried out by Coleman between the traditional teaching and learning model and experiential learning, strengthens the idea of the philosopher Paulo Friere, critic of contemporary education, that modern schools education seldom offer opportunities for action and rarely touch the reflection journey where genuine change occurs.

Through the Lewin's action research model, the learning is effectively facilitated if it starts with the actual experience, followed by gathering data and observations about experience. The data is then analyzed, and the findings of this analysis are then used by experienced actors to modify their behavior and choose new experiences. Thus, learning is conceived as a cycle consisting of four stages: 1. immediate concrete experience; 2. observation and reflection; 3. development of abstract concepts and generalizations; 4. testing the implications of concepts in new situations.

In conceiving the theory of exprimental learning, Kolb has been exploited for two aspects this model:

1. Stresses the importance of concrete experience for the validation of abstract concepts. By referring to personal experience, the learner provides a subjective, subjective, vivid sense of the abstract concepts and at the same time provides a public reference point for the validation and testing of the concepts created in the learning process.

2. Action research is based on the feedback process. The feedback on social learning and problem-solving provides a basis for a continuous process of goal-oriented action and for assessing the consequences of this action. Lewin believes that the inefficiency of processes is due ultimately to the lack of adequate feedback processes, an imbalance between observation and action.

The purpose of this model is to integrate the two processes - the action and the observation of its effects in order to generate learning.

Peter Jarvis (1987, 1995) evolved quite an elaborate model (see below fig. no. 2), based on Kolb’s model, to show that there are a number of responses to a potential learning situation. Depending upon the route taken by a learner, the result could be a non-learning, a non-reflective learning or a reflective learning. Looking at the diagram produced by Jarvis, we can see a model which allow different routes that could be approached by learners in an experiential learning situation.

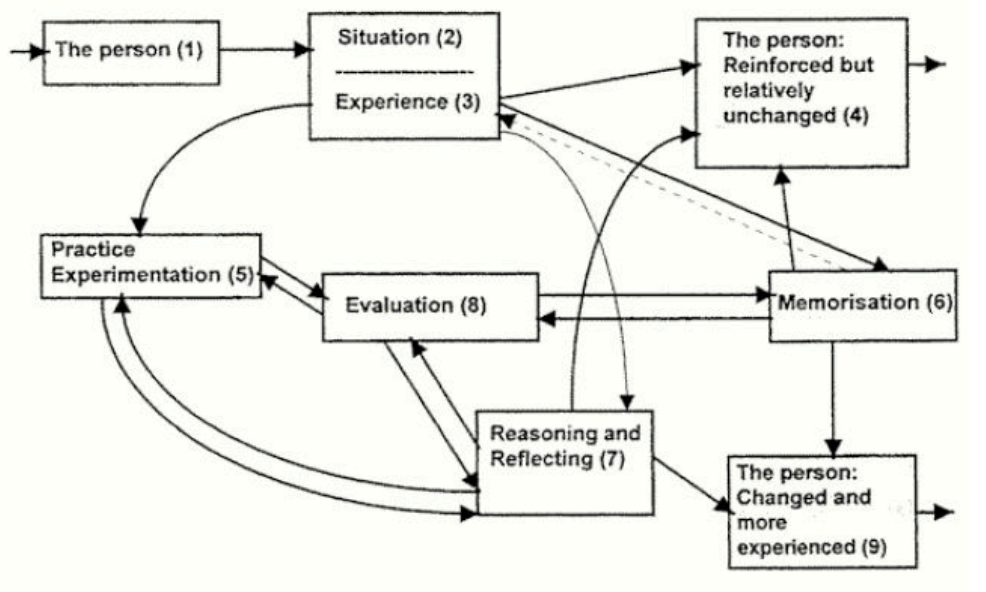

Fig. no. 2. Jarvis learning model

Concerning the use of experience as a means to develop the whole person, Hahn approached education as a transactive process between teacher and student where the "foremost task of education is to ensure the survival of these qualities: an enterprising curiosity, an undefeatable spirit, tenacity in pursuit, readiness for sensible self-denial, and above all, compassion (apud C. Itin p. 92, HIOBS, 1990, p. 71).

James (1995) indicated four central elements in Hahn's approach to education: 1) using a "training plan" in which students would act around specific personal goals and a code of responsibility; 2) structuring the use of time to gently impel students into action; 3) placing difficult challenges before students that involved a level of risk and adventure; and 4) using the group to mirror a mini-community and using shared experiences to help them begin to work together. James Davis (1993) has presented a conceptual model for the transactive process between teacher and student (see fig. nº. 3). The strength of Davis' model is that it provides a useful framework for an experiential education model. The philosophy of experiential education enhances Davis's model by making it clear that the relationship between teacher and student is transactive rather then interactive.

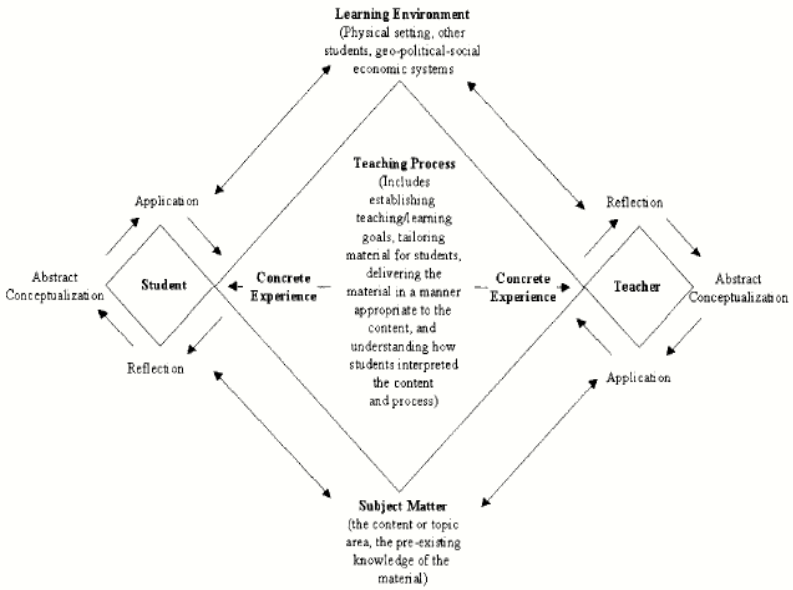

Fig. no. 3. The Diamond Model of the Philosophy of Experiential Education

In a transactive model, transaction assumes interaction and an exchange of knowledge by the fact that the teacher brings information to the process, but also does the students. Everyone learns from each other.

Experiential learning is not totally a new educational approach, but it suggests a renewed look at the way of teaching and learning where the students should be engaged into a interdisciplinary exploration, transactive activity and field based opportunities, reflection and self-examination.

So, a teacher who understands experiential learning would not approach the process in an artificial way and never will overlook student needs to reflect upon experiences, he will ensure that he will design and implement sufficient opportunities to test and experience in real life the interplay of actions, changing ideas, skills, insights and reflection.

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2.2. DEWEY'S FOUNDATIONS FOR THE EXPERIENTIAL BASED LEARNING

Cristina MESQUITA[1]

The conceptualizations of Dewey about the value of experience, interest, reflective thinking, democratic education are important foundations for pedagogy and for experiential based learning.

The method

Dewey's ideas (1953, 2001) were firstly influenced by Hegel's vision that connects the subjective and objective, the material and the spiritual and the divine and the human. However, his concern with the practical problems, and influenced by the theories of evolutionary biology of Darwin and the genetic perspective and dynamics of experimental studies of William James, gradually moved away from the absolute idealism of Hegel's thought towards the pragmatism and experimental psychology (Westbrook, 1993). He values the significance of the experimental method as an educational method. He argues that learning experience requires observing materials and processes, inquiring, following clues of ideas to discover connections, and carry out activities to test hypotheses. This process includes moments of observation, review and synthesis, analysis and discussion of the meaningful elements of the experience. Dewey's educational model, synthesized on table 1, uses an approach that is based on experience and requires reflective thinking.

Table 1. Dewey's Educational Model

Phase	**Summary**
Sensing perplexing situations	The teacher presents an experience where the students feel thwarted and sense a problem.
Clarifying the problem	The teacher helps the students to identify and to formulate the problem.

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Phase	Summary
Formulating a tentative hypothesis	The teacher provides opportunities for students to form hypotheses and try to establish a relationship between the perplexing situation and previous experiences.
Testing the hypothesis	The teacher allows students to try various types of experiments, including imaginary, pencil-and-paper, and concrete experiments, to test the hypothesis.
Revising rigorous tests	The teacher suggests tests that result in acceptance or rejection of the hypothesis.
Acting on the solution	The teacher asks the students to devise a statement that communicates their conclusions and expresses possible actions.

(Adapted from Bybee et al., 2006)

In this sense, the experience is the way to involve children in the intellectual work and problem solving that could be understood as relevant for their learning.

Children are seen as researchers who take a reflexive attitude which involves reasoning and deliberating. This means that children are able to make questions and to find answers. For that they must be actively engaged in the selection of the material that can help them to think about the implications and the relationship between the material and the solution they are looking for (Dewey, 2002, p.128).

The interaction between experience and reflective thinking

For Dewey (2001), reflective thinking is sustained on the value of the experience; the real experience lies in the combination of "the impression that things cause on us, the change in our actions, favoring some of them, resisting and checking others, and what we can do in them to produce further change" (p. 280). Consequently, he believes that educational situations should be based on the child's activity, what he describes as *learning by doing*. He argues that "the principle of continuity of experience means that every experience takes something from past experiences and changes, in any way, subsequent experiences" (Dewey, 1971, p. 26).

To consider the experience as truly educational, they should express a clear educational intention without representing the annulment of children's initiative and the expression of their creativity (Pinazza, 2007).

The learning environment

Dewey (1971) values the experience as a source of learning, assuming that all education is experiential action performed by the subject in a learning process in action. He also emphasizes the idea that the educational experience is a direct manifestation of life itself (Gamboa, 2004). In this regard, he recognizes the school as a physical and social environment that allows the child's growth. The school's aim is "first of all to live, and learn through the interaction with that experience" (Dewey, 2002, p. 41). Because of that, it is important to use the resources from the environment, promoting study visits, contacting with the natural environment, such as discovery of locus that broaden the experiences and knowledge.

Dewey gave a strong importance to the materials in the educational process. He considered that the materials must bee 'real', direct and obvious, because he understood that the more natural and direct the experiences of children are, the more meaningful the learning experience is.

In this sense, space and materials should allow the child to engage in occupations, not only for sensory training but also for the discipline of mind[1].

Dewey believed that education happens beyond the school. An overarching principle in Dewey is that the growth based on experiences does not have an end. It continues throughout one's life. In effect, Dewey saw education as an *experiential continuum* (Dewey, 1938, p. 28), a succession of knowledge, experiences, and individual growth – unique to each individual. This definition expresses the idea of a school as a laboratory of learning opportunities (Dewey, 1971). In this sense, school time must be flexible and move over the course of the experience moments, allowing children to: experience the materials and interact socially; talk, discuss, communicate; observe and interact with peers and adults so that they can take advantage from the action; cooperate and participate in the life of the group; reflect and become aware of what they did and what they need to do; discover the potential of experience and

[1] In Chapter one of How we Think, Dewey (1910) states that: "Discipline of mind is thus, in truth, a result rather than a cause. Any mind is disciplined in a subject in which independent intellectual initiative and control have been achieved. Discipline represents original native endowment turned, through gradual exercise, into effective power. So far as a mind is disciplined, control of method in a given subject has been attained so that the mind is able to manage itself independently without external tutelage. The aim of education is precisely to develop intelligence of this independent and effective type - a disciplined mind. Discipline is positive and constructive" (p. 13).

use it to solve problems; research to get the real meaning of the everyday experiences in the world they live in.

Dewey also argues that there is a second criterion of educational experience - the interaction. In his words, "every genuine experience has an active side which changes in some degree the objective conditions under which experiences are had" (p. 34). This requires interaction, or the interplay between external (environment - "whatever conditions interact with personal needs, desires, and capacities to create the experience which is had" p. 44) and internal conditions. Thus, these two factors (*experiential continuum* and interaction) work together to articulate truly educational experiences. Situation after situation, an individual carries over something from one experience to the next (continuity). As this happens, that individual's world grows bigger, drawing more contact with a wider range of individuals/experiences (interaction).

In the end, the role of the educator must be to understand the capacities of the children and adapt the experiences they create to those individuals' needs at the present time.

For Dewey (2002), the living experience takes place through social interaction. Dewey's concept of togetherness focuses on the interactional complicity that is held through a mutual give and take: the teacher receives but he should not be afraid to also give.

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2.3. IMPLICATIONS OF VYGOTSKY'S IDEAS ON LEARNING PROCESS

Gianina-Ana MASSARI[1]

The foundation of experiential learning is built on a sophisticated understanding of human behaviour and the theory of social constructivism. Learning happens primarily through social interaction with others, individuals interact within a dynamic and influential field in different ways to others according to their own life experiences and prior learning.

Lev Semionovich Vygotsky, a prominent social constructivist, is known for research on child development and research on educational psychology. His work includes interpretations of the cognitive role of mediation tools, as well as the re-interpretation of well-known concepts in psychology such as internalization of knowledge. According to Vygotsky's learning theory, learning produces a variety of internal processes that become active only if the student interacts with own interests and cooperates with his colleagues.

As Vygotsky's theory claims the social interaction sets the basis for learning, and social and cultural tools serve as mediators for learning.

In Vygotsky's socio-cultural approach, the first aspect is that social interactions play an important role in cognitive development. For him the cognitive development is determined by learning; he considered that social learning precedes development: consciousness and knowledge are the final products of socialization and social behavior. For a child, learning is spontaneous, he can achieve independently the daily learning from the family and from its social life, while the process of learning for a student begins with imitation and can be achieved with the help of a teacher to develop deeper levels of understanding through guidance and support that challenge the learner current abilities.

A second aspect of Vygotsky's theory is regarding the relation between children's learning and cognitive development. From his point of view, the cognitive developmentis limited by a certain period of time, described as the zone of proximal development. This new concept, the zone of proximal development, means the difference between the child's ability to solve assisted problems and the ability to solve it by itself. Through this learning theory, Vygotsky described the potential of human cognitive development and the fact that learning is developmental. We all known that learning experiences for children should be age-appropriate.

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The zone of proximal development includes all the functions and activities the child can do assisted by someone. On the other hand, the level of development refers to all those activities and tasks that a child can accomplish on his own.

Building on the role of experience in shaping learning, Vygotsky emphasized the importance of the expert - teacher. Its main roles are those that aim toprovide real-life examples and situations for learners; to encourage the students to develop new understandings for themselves; and to provide support and guidance till the students are able to succeed by themselves. Just like Illeris (2007) ideas, to be labelled as experiential ‘‘learning processes and outcomes must be part of a process of continuity and interaction, and must to some extent be learner controlled and involve a connection between the learning environment and the broader culture’’. The learning environment must be adapted to respect and integrate the prior knowledge of students. This knowledge should lead to positive social development by introducing models that can create personal experiences for their colleagues, focusing on subjective experience.

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2.4. BRUNER’S CONCEPTUAL CONTRIBUTION TO THE EXPERIENTIAL BASED LEARNING

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The pedagogical conceptualization of Bruner (2000) emphasizes the idea that children's development should take place in an enabling environment where both the agency and the self initiated work are promoted.

For Bruner (2000), self initiation means to allow children to control what they want to do. It means that school should promote an enabling culture that encourages them to participate in their learning process, to be proactive, to learn in community and collaboratively, creating social or natural meanings about the world.

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Learning environments

Valuing the environment and the culture, Bruner developed the idea of the folk pedagogy. He was concerned about how the children's minds work, but mainly with how children learn and what allows them to develop. The folk pedagogy values the common interaction, while activity helps children to see the world but also the constitutional role of culture in the construction of meanings (Bruner 2000).

According to Bruner (2000) the environment has a key role in the learning process. Action learning takes place through the manipulation of objects, not as mere imitative handling or breeding, but as action intentionally conducted by individual purpose. For him "the mind is an extension of the hands and of the tools we use" (p.198). The space where children learn should be an opportunity to act, think and communicate. It should be configured as a starting point that allows developing an effective sense of participation in an enabling community. However, the learning space is not conceived by the author merely as physical. The enabling action depends on the existence of a social context. For Bruner (1997) the artifacts lead children to different actions and because they are steeped in culture, they constitute a way of cultural appropriation. The author believes that thinking involves learning how to use cultural, symbolic and material tools considering the specificities of its use (Bruner, 1998).

The materials are conceived as opportunities for action and interaction that facilitate play. Regarding this, play allows to learn in situation, to think about the action, as well as the construction of social functioning rules.

The activity of manipulation of objects through games favors dialogue and the construction of a narrative action.

This perspective emphasizes that the organization of time should favor the action of the child with the materials, experiencing their chances and the dialogue about their achievements. In this sense, every moment of the day should be a learning opportunity. The actions of adults developed during the daily routine should structure the spontaneous activity of the child (Smidt, 2011).

The ideas of Bruner (2000) about the importance of adult as a scaffold in the construction of children's meanings, highlight the importance of the dynamic of the daily routine that should be deeply interactive, conversational and reflective. The educational environment is conceived by Bruner (2000) from the sociocultural constructivist perspective that values the child's action in a cultural context, nothing

that there is an active interaction between reality and the subject in the construction of knowledge, feelings and emotions.

Children's Interactions with adults and with peers

The importance given by Bruner (1998, 2000) to the experience and culture, leads him to emphasize that learning is not a passive act, not merely individual. The author asserts that learning is a construction "of ourselves as agents animated by self-generated intentions" (Bruner, 2000, p. 35) within communities, through exchange and negotiation that create a culture of participation. An important role of education is to help children to build a self-consciousness that necessarily involves the recognition of the other as itself.

Children are viewed as thinking beings which build and share the meanings, through interactions with others and with the engagement with culture. This view highlights the important role of collaboration and dialogue that educators should promote with the children during the educational process. The interaction between the educator and the child must be a dialogic transaction to allow the child to complexify his thinking and make meaning of the world around him (Bruner, 1998).

However, he emphasizes that the support that the educator gives the child, should never replace the construction of meaning by itself. The educator is a scaffold that helps children to construct meaning through collaboration and negotiation (Bruner, 2000, p. 86).

Children as active and competent learner

From the perspective of Bruner (1997, 1998, 2000) the child is competent to perform intentional actions. He also states that learning is a complex process that will expand as the subject structure the meanings of the world. In this sense, the author considers that the activities should take into account four fundamental aspects: action, reflection, collaboration and culture.

Children can define their actions in order to achieve satisfaction, which makes them assumption makers. From this meaning, Bruner conceived the concept of *child's agency* (Smidt, 2011). Bruner (1984) refers that the activity contrasts with the mere movement. The activity requires conducting and regulating the movement to achieve some specific goal.

To regulate the intentional action, it is necessary to have the opportunity to compare what we try to do with what we do in fact, using this difference as a correction factor.

In this sense, the author reveals that intentionality precedes ability, noting that the deliberate intent on the use of objects will gradually show the child's autonomy.

Learning, as an act of motivation and discovery, should have the purpose of going beyond the transmission and repetition. Only the attitude of reflecting on the actions developed by oneself allows discovering the solutions. According to Bruner (1998, 2000), learning is only meaningful when built by oneself, which implies discovering. The author considered that there are two important experiential based learning strategies that help children to discover, to reflect, to collaborate and to contact with culture: play and the narrative.

Play and the narrative as means to make sense of experience

Play provides an excellent opportunity to test the combination of behaviors that would never be tried under pressure. Repeated opportunities to play allow children to develop their observation skills and the ability to reflect upon actions.

Moreover, playing is connected with the symbolism that children give to materials, creating and adapting them to new situations. Accordingly, the symbolic processing of playing has consequences on the child's learning, serving as a vehicle for contact with social conventions. The narrative, as a mean of oral speech, describe facts in real or imagined sequencesthat conveys the meaning.

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2.6. THE JEAN PIAGET'S PERSPECTIVE

Rosa NOVO[1]

This sub-chapter presents the Piagetian constructivist interpretation and the aim is to expand the understanding of experiential learning

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beyond the stages of development, since it is the most widely-publicized theme of Jean Piaget's work.

In the field of the development of intelligence, an idea seems to stand out in the legacy of this author – the idea of operation. The knowledge is not a copy of reality, because it is always a reciprocal action between the child and the object through the double game of assimilation and accommodation: the child acts on objects by transforming them according to the action schemes and the operations on these schemes available to him/her. In turn, the child imposes them modifications based on the variations of the objects in order to incorporate them. In this process, the balancing mechanism – considered by Piaget as fundamental – is decisive to the adjustment of the child to new information and to the needs of adaptation to the environment.

To know is thus to modify, to transform the object, to understand the process of this transformation and, consequently, to understand the way the object is constructed. An operation is then the essence of knowledge. It is an internalized action that modifies the object of knowledge.

Therefore, it is understandable when Piaget (1970, p. 68) states: “although the child’s activity in certain levels entails the manipulation of objects and even a certain amount of physical contact”, the operations "are not derived from the handled objects, but from the child's (mental) actions and the coordination of these actions." In other words, experiential learning is not the passive reproduction of what the teacher shows or does what he has planned, but of progressive action and construction involving creation through the pursuit of the problems and issues that children face.

These ideas become clear in the light of the distinction made by Piaget between learning in the strict sense and learning in a broad sense. In the strict sense it is an acquisition that is made in terms of the experience that takes place in time, i.e., mediate and non-immediate (Piaget, 1974, p. 53). Learning, in a broad sense, is "the union of the learnings in the strict sense and the balancing processes" (Piaget, 1974, p. 54), that is, the processes resulting from an internal organization that enables new knowledge.

Thus, for Piaget, the concept of learning is much more comprehensive than the meaning with which it is normally used because it does not end in the strict sense of mediate experience, but, along with the balancing process, assumes the dimension of the cognitive structure development itself, which means intellectual growth.

And according to the form of the experience held by the child, learning can focus the physical and the logical-mathematical knowledge

or the social knowledge. In the first case, the child's initiative is emphasized, his/her actions on objects and their comments about the feedback of the objects. In the second case, the knowledge that the child acquires through experience is derived not from the objects, but from the coordination of actions that the child exerts on objects and the awareness of this coordination. These two experiences are interrelated; one is the reason for the emergence of the other. In the case of the social knowledge there are similar procedures, since it requires the coordination of views to regulate their actions in mutual benefit.

So, we can say that the experiential learning involves tasks that include not only an operational component (child - object interaction), but also a communicative component (child - other children interaction).

However, it is highlighted that the child's interest is necessary to play a regulatory function in the experiential learning. Without interest, the child will never make the constructive effort of understanding the experience.

Starting from Piaget's thought, the teacher must focus on a dynamic in the classroom capable of allowing the collaboration and cooperation of exchanges of points of view, in the pursuit of knowledge and moral growth. This must be based on the organization of the educational environment and the style of adult-child interaction capable of promoting autonomy.

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2.7. KOLB'S EXPERIENTIAL LEARNING THEORY

Gianina-Ana MASSARI[1]

David A. Kolb, as Professor of Organizational Behavior in the Weatheread School of Management, has an interest in the nature of individual and social change, experiential learning, career development and executive and professional education. As founder and chairman of

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Experience Based Learning Systems Inc. (EBLS), he targets to provide „ongoing quality research and practice on experiential learning". Recognizing his contribution to experiential learning, he has been awarded four honorary degrees from SUNY Empire State College; Franklin University; Buckingham University, UK; and Knox College. In 2008, David A. Kolb and Alice Kolb received the Educational Pioneers of the Year award from the National Society of Experiential Education. Besides his work on experiential learning, David A. Kolb is also known for his contribution to thinking around organizational behaviour.

The Experimental Learning Syntax was launched in 1984 by David A. Kolb, depicting learning as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984).

David A. Kolb with Roger Fry, in 1975, created his famous model out of four elements: concrete experience, observation and reflection, the formation of abstract concepts and testing in new situations. He represented these in the famous experiential learning circle that involves (1) concrete experience followed by (2) observation and experience followed by (3) forming abstract concepts followed by (4) testing in new situations. Kolb's model of experiential learning can be found in many theoretical and practical approaches of adult education, informal education and lifelong learning. Kolb called his model to emphasize the role played by learning experience. Referring to Dewey, Lewin and Piaget theories, he wanted to distinguish it from the cognitive theories of the learning process. Kolb points out that the learning process is built on four pillars: experimenting with something, interpreting the experience, generalizing the experience, applying the experience. To experience something requires knowledge of something through direct contact with reality, it exhibits emotions,certain dispositions and sensations. Interpretation of experience refers to understanding the phenomenon through analysis and diagnosis, in which the individual integrates sensations into perceptions, reflects, observes things, phenomena. The generalization of experience involves the association of real situations with personal interpretations through which it conceptualizes, establishes connections, identifies rules and solutions. Applying experience refers to the stage in which an individual experiences or acts, giving new meanings or experiencing new ways of action. Kolb further refined the concept of reflection by dividing it into two separate learning activities, perceiving and processing (Algonquin,1996). By this way, he added another stage, called "abstract conceptualization". The difference between these stages is that in the critical reflection stage we ask questions about the experience in terms of previous experiences, and in the abstract conceptualization stage we try to find the answers. In Kolb's conception,

the abstract conceptualization phase is explained as follows: "in this stage, learning involves using logic and ideas, rather than feelings to understand problems or situations. Typically, you would rely on systematic planning and develop theories and ideas to solve problems." The same author defines the active experimentation phase as follows "learning in this stage takes an active form - experimenting with, influencing or changing situations. You would take a practical approach and be concerned with what really works..." (p.4).

Kolb's experiential learning cycle (see fig. nº 4) is considered to be one of the most influential theoretical models in experiential education (Vince,1998; Cunningham,1994, Smith, 2001).

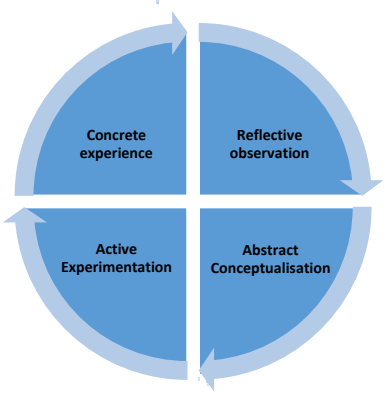

Figure no. 4. Kolb's Experiential Learning Cycle (Kolb,1984,"Experiential Learning: Experience as the Source of Learning and Development")

D. Kolb and R. Fry (1975) argue that the learning cycle can begin at any one of the four points and it should be approached as a continuous spiral.

Kolb's experiential learning model (Kolb, 1984, pp. 25-38) proposes six assumptions which are:

- Learning is a process not outcome.
- Learning is driven from experience.
- Learning requires the learner to resolve conflicts through dialect.
- Learning carries a more holistic and an integrative view.
- Learning requires the individual to interact with its environment.
- Learning creates knowledge.

In other words, Kolb considers learning a holistic process that involves an integrated functioning of the whole body through which man adapts to the environment. Basically, we can associate this cyclic model with Bloom's cognitive taxonomy as a hierarchy of behaviors for their complexity: knowledge and skills and intellectual capacities focused on

the following mental processes that students are expected to achieve: knowledge, understanding, application, analysis, synthesis, evaluation.

Because Bloom provides a support framework for teachers in the process of identifying learning abilities and contributes ways to support teachers in helping students achieve these abilities,we can assert that this cognitive domain taxonomy is based on both structured cognitive stages by Jean Piaget as well as on the constructivist perspectives,and especially on Lev Vygotsky's theory.

Also, Kolb developed a Learning Style Inventory that measures the learner's preferred learning style according to the four stages of learning: concrete experience, abstract conceptualization, active experimentation and reflective observation.

According to David Kolb and Roger Fry (1975, pp. 35-36), to be an effective learning,an individual should possess four abilities. For each pole of their model, they indicated four different abilities: concrete experience abilities, reflective observation abilities, abstract conceptualization abilities, and active experimentation abilities.

As a result they developed a learning style inventory (Kolb,1976) to identify four basic learning styles. The learning styles are: converger (specific to next learning characteristics: abstract conceptualization & active experimentation), diverger (specific to next learning characteristics: concrete experience & reflective observation), assimilator (specific to next learning characteristics: abstract conceptualization & reflective observation) and accommodator (specific to next learning characteristics: concrete experience & active experimentation).

There are some limitations of Kolb's theory and inventory.

Regarding the deficiencies in Kolb's experiential learning cycle, Habermas (summarized in Rogers, 1996, p. 110) proposed that there are at least three kinds of learning and that we have different learning styles for each. Rogers (1996, p. 108) points out that "learning includes goals, purposes, intentions, choice and decision-making, and it is not at all clear where these elements fit into the learning cycle". Also, Fenwick (2001, summarized in F. Mughal & A. Zafar, 2011, pp. 27-37) makes a critical analysis of Kolb's learning cycle from four alternate perspectives: the psychoanalytic (interference) perspective, the situative (participation) perspective, the critical cultural (resistance) perspective and enactivist (co-emergence) perspective. The same author, Fenwick (2001, summarized in F. Mughal & A. Zafar, 2011, pp. 27-37) has suggested that "traditional theories and practices have been unsuccessful to acknowledge the significance of 'multidimensional experience' of individuals, with 'overly deterministic understandings' of experience, cognition, and relationship of perception, experience, knowledge and the

learning process". Also, famous authors note other issues that arise out the Kolb's model: an insufficient attention to the process of reflection (Boud et al., 1983), the relationship of learning processes to knowledge is problematic (Jarvis, 1987), the claims made for the four different learning styles are extravagant and the empirical support for the model is weak (Jarvis 1987; Tennant 1997), the model takes very little account of different cultural experiences/conditions (Anderson 1988).

As for the Inventory, Kolb, himself, points out its limitation. The learning style inventory is related only to the personal views regarding own learning process, it is not built on standards or behavior. Also, the results offers relative strengths within the individual learner, not in relation to others and it is based only on how the learners rate themselves.

Whatever their limitations, Kolb's contributions cannot be underestimated. Using the model proposed by Kolb, we can distinguish between the advantages and disadvantages of an experience because not all experiences have an educational purpose. It is obvious that some learning experiences may be positive or negative, but it is the teacher who must ensure that in the process the pupil benefits from positive experiences as they contribute to the harmonious development of the individual.

A substantial advantage of this approach is focusing on the student's experiences and the practical nature of learning activities, in which the variants depend on the level of creativity of the teacher. If we should mention the disadvantage of this approach, we can mention the allocation of a great amount of time spent in the activity that needs to be well structured so that the student is always motivated and involved in the activity.

Through a holistic integrative perspective on learning that combines experience, perception, cognition and behavior, the theory of experiential learning differs from other cognitive theories - which mainly emphasize the importance of appropriation, manipulation, reminiscent of abstract symbols - or behaviorism that deny the importance of consciousness and experience subjective in the learning process.

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CHAPTER 3

CITIZENSHIP AND 21ST CENTURY EDUCATION

3.1. AN OVERVIEW OF 21ST CENTURY SKILLS EDUCATION

Jan Karel VERHEIJ[1], Frank Van HERWAARDEN[2]

21st Century Skills – an introduction

Literature on 21st Century Skills suggests that education must be innovated for learners to flourish in the new global economy and to participate fully in democratic processes. Success in today's world requires the ability to access, synthesize, and communicate information; to cooperate across differences to solve complex problems; and to create new knowledge through the use of modern technologies. Four conclusions can be derived from literature on 21st Century Skills (Ledward & Hirata, 2011):

1. The learner's world today is fundamentally different than before; the expansion of ICT is changing the nature of learning;
2. 21st Century Skills establish new learner standards by integrating core-subject mastery and present interdisciplinary themes (e.g., civic literacy, global awareness, and environmental literacy);
3. There are many different ways (e.g., place-based, project-based, or problem-based learning) in which development of 21st Century Skills can be achieved based on a rich learning environment and skilled teachers;
4. There is evidence linking 21st Century Skills with positive learner outcomes.

There is no shortage of current descriptions of 21st century skills and knowledge. Below two are given that differ strongly.

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The funded Assessment and Teaching of 21st Century Skills (AT21CS) consortium organizes 21st century skills, knowledge, and attitudes, values, and ethics into these four categories:

- Ways of Thinking: creativity and innovation, critical thinking, problem solving, decision making, and learning to learn (or metacognition);
- Ways of Working: communication and teamwork;
- Tools for Working: general knowledge and information communication technology (ICT)-literacy;
- Living in the World: citizenship, life and career, and personal and social responsibility, including cultural awareness and competence.

A second description comes from the book *The Global Achievement Gap* by Tony Wagner (2008). He proposes that students need seven survival skills to be prepared for 21st century life, work, and citizenship:

- critical thinking and problem solving;
- collaboration and leadership;
- agility and adaptability;
- initiative and entrepreneurialism;
- effective oral and written communication;
- accessing and analysing information;
- curiosity and imagination.

Education systems around the world have developed schemes emphasizing on developing the skills, knowledge, and attitudes necessary for learners in the 21st century.

Models of 21st century skills

There is no consensus on what skills are most important for success in the 21st century. Each education system chooses their own focus and prioritization. In a literature review Voogt and Pareja Roblin (2010) conclude that, despite this variation one can distinguish a set of general, most important skills. They compared five models for 21st century skills, worldwide, and in addition they looked at research and recommendations of the European Union, OECD and UNESCO.

Voogt and Pareja Roblin (2010) conclude that in all models mentioned skills in the areas of:

- Collaboration;
- Communication;
- ICT use;

- Social and / or cultural awareness (including citizenship).

In addition, in most models also mentioned skills in the following areas:

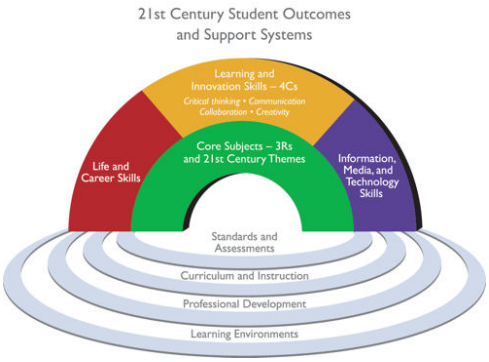
- Creativity;
- Critical thinking;
- Problem-solving skills;
- Productivity.

Furthermore, there are a number of skills that are mentioned in some models. These are:

- Skills of self-learning (metacognition);
- Planning;
- Flexibility;
- Adaptability.

More recently conative skills are increasingly mentioned. According to Marzano and Heflebouwer (2013) conative skills are the ability to analyse situations based on what we know, what we find and how we take the right steps. It involves skills to understand and manage yourself and to understand others and to work with them.

In the US the 21st century skills are often called '*the four C's'*: critical thinking, creativity, communication and collaboration. These have been further developed in a model well-known through the publication by Trilling and Fadell (2009). In this model the ICT skills and life and career skills are appointed separately. It differs from many other models.



Another model used much internationally is the KSAVE model ATCS (Binkley et al, 2010; Binkley et al, 2012). This model distinguishes itself in the fact that generic skills are clustered into four categories: ways of thinking, ways of working, handling and instruments function in society (global citizenship). For each skill listed sub-skills with the necessary knowledge, skills and attitudes are described.

The KSAVE model:

A. Ways of Thinking
   1. Creative and innovative thinking.
   2. Critical thinking, problem solving, decision-making.
   3. Learning to learn (metacognition).

B. Methods of work
   4. Communicate.
   5. Collaboration (teamwork).

C. Instruments (supplies to operate)
   6. Information Literacy.
   7. ICT skills.

D. Global Citizenship
   8. Citizenship (locally and globally).
   9. Living and working (career).
   10. Personal and social responsibility (incl. cultural awareness and competence).

The skills

The models mentioned have been developed in different contexts with different frames and goals, and have different areas of interest within the overall set of skills. There are also differences in terminology used to categorize the generic skills. Explicit references to a level of education (primary, secondary, vocational or higher education) or an educational environment (formal or informal) are often missing.

The Netherlands institute for curriculum development SLO (2014, concept version) categorizes the knowledge, skills and attitudes into the following eight groups, based on the description of Voogt and Pareja Roblin (2010) and the KSAVE model.

Creativity

This skill is about coming up with new ideas and the ability to work out and analyse. More specifically, it concerns:

- an inquisitive and entrepreneurial attitude;
- be able to think outside-the-box;
- knowing creativity techniques (brainstorming, etc.);
- risk-taking and errors can be seen as learning opportunities.

Critical thinking

Critical thinking involves the ability to formulate their own vision or substantiated opinion. More specifically, it concerns:

- ability to formulate and argue effectively;
- interpret, analyse and synthesize information;
- be able to identify gaps in knowledge;
- the ability to ask meaningful questions;
- critically reflect on their own learning process;
- be open to alternative viewpoints.

Problem solving

This skill involves recognizing a problem and arriving at a plan to resolve the issue. More specifically, it concerns the following knowledge, (sub)-skills and attitudes:

- be able to identify, analyse and define problems;
- knowledge of strategies for dealing with unfamiliar problems;
- to generate, analyse and select solving strategies;
- creating patterns and designs;
- ability to take well-founded decisions.

Communicating

This is about communicating effectively, and efficiently transmitting and receiving a message. More specifically to:

- targeted information exchange with others (speaking, listening, recognizing the essence of a message, articulate effectively, clearly, avoid noise);
- ability to handle various communication situations (meetings, presentations, debates, etc.) and knowing the conversation rules and social conventions in every situation;
- cope with various media (texts, films) and the use of different strategies, thereby;
- have an understanding of the opportunities offered by ICT to communicate effectively.

Cooperation

This involves achieving common goals, complementing one another and offering support. More specifically, it:

- Recognise and acknowledge different roles with yourself and others;

- Requesting, giving and receiving aid;
- a positive and open attitude to other ideas;
- respect for cultural differences;
- negotiate and make agreements with others in a team;
- function in heterogeneous groups;
- Ability to communicate effectively.

Digital Literacy

This skill involves the effective, efficient and responsible use of ICT as a combination of:

- basic ICT-skills;
- media literacy;
- information literacy.

Social and cultural skills

These skills involve learning to effectively, work and live with people from different ethnic, cultural and social backgrounds. More specifically, it concerns:

- Ability to communicate constructively in different social situations with respect;
- other visions, expressions and behaviour;
- know and recognise codes of conduct in different social situations;
- recognize their own feelings and channelled and can express constructive;
- showing empathy and concern for others;
- awareness of their own individual and collective responsibility as citizen in a society.

Self-regulation

This skill is about being able to realize targeted and appropriate behaviour. More specifically, it concerns:

- setting realistic goals and priorities;
- targeted action (concentration, can motivate themselves and focus on the performance of a task, independence) and monitoring the process (planning, time management);
- reflection on the performance of the task, and feedback on their own behaviour and actions to make appropriate next steps;
- have insight into the development of their own competences;

- take responsibility for their own actions and choices, and have a view of the consequences of its actions for the environment, even in the long term. (SLO, 2014, concept version)

How to teach 21st century skills

Decades of empirical research on how individuals learn, substantiate ideas about the best ways to teach 21st century skills (Saavedra & Opfer 2012). More specifically these are:

1. Make It Relevant;
2. Teach Through the Disciplines;
3. Simultaneously Develop Lower- and Higher-Order Thinking Skills;
4. Encourage Transfer of Learning;
5. Teach Students to Learn to Learn;
6. Address Misunderstandings Directly;
7. Understand That Teamwork Is an Outcome and Promotes Learning;
8. Exploit Technology to Support Learning;
9. Foster Students' Creativity.

Assessing 21st century skills

According to Saavedra & Opfer (2012) twenty-first century skills are more challenging to teach and learn, and they are also more difficult to assess. Designing tests that measure lower-order thinking skills, such as memorization, is straightforward in comparison to measuring such skills as creativity, innovation, leadership, and teamwork.

Both formative and summative assessments play useful roles in teaching for 21st century skills. Formative assessments remind students of their learning goals, give them feedback about their progress and misunderstandings as they learn, guide them to shift course as they need, and are a critical part of the learning process. The formative assessment process generally does not involve others beyond teachers and students.

Summative assessments give students the opportunity to demonstrate what they understand at a given point in time. They are useful to certify students' achievements, for example, to assign grades, determine level of preparedness for further study, or award diplomas. They are also useful to measure teachers', schools' and systems' performance for accountability and improvement purposes. There are many ways for students to demonstrate their understanding. They could

debate about an issue related to a generative topic from a certain perspective and then from another. They could apply what they learn about literature to their own creative writing. They could use what they learn about the scientific method to develop their own experiment. The list of possibilities is endless (Saavedra & Opfer 2012).

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3.2. WHAT KIND OF CITIZENS IS NEEDED IN THE NETHERLANDS IN THE 21st cENTURY?

Gerben de VRIES[1]

Preface

Worldwide two major ways of thinking about what people are needed in the 21st century can be recognized: firstly the economically driven way, closely related to neo-liberalism, of what is generally seen as 21st century skills, focusing on the labor market. In this article this way is analyzed as a threat to society and secondly a way towards a social

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approach of citizenship in the 21st century, focusing on a society with people that are learning to live together. In the new plans for education in the Netherlands, Ons Onderwijs 2032 (2016) both ways of thinking can be determined, giving space for a renewed way of thinking about what kind of citizens the Dutch society needs in the 21st century.

Introduction: the source and aims of 21st century skills

21st century skills in education are hot. Google gives over 70 million hits in a split second.

Thinking of 21st century education makes you wonder about Ipads, Steve Jobs schools, ICT everywhere. Checking some of these 70 million hits will change this impression. It is more, it is different and the way they are dealt with is a danger for the 21st century.

One of the most popular books on 21st century skills in education is written by Bernie Trilling and Charles Fadel, *'21st century skills, learning for life in our times'* (Trilling & Fadell 2009).

Central focus point of Trilling and Fadel is *'how can we help our students to learn for a job that might be there when they graduate and for solving problems that they might meet in an unsure, quickly changing, competitive and connected world?* (2009, p. XV). Trilling and Fadel explain that answers from the past no longer are appropriate for the future, due to changes in economy, production methods, energy sources etc.

It is important to know something of the background of the writers. Trilling and Fadel aim to contribute to economical growth, to the quality of the labor force in the 21st century. In their book they explain the relation between economy and education in the 21st century: *'education is now seen as the golden ticket to a brighter economic future'* (p. 152). Furthermore: they are both deeply engaged in the ICT business, as is shown in the preface and the list of recommendations in the book. Baring in mind that the book was written in 2008, during a period of a severe financial crisis, this is what one might expect from two ICT experts. In short:

- it's about economical interests; Trilling and Fadell are looking for skills for employees, they do not focus on how to be a citizen, a self-responsible person in the 21st century. They do not wonder what might be needed by society. They focus on the labor market and it's needs from an economic perspective;
- it's American: the impressively long list of sources hardly shows literature from outside the USA.

The 21st century skills, learning for life in our times is by far not the only book on 21st century skills; and not the only one that is known in The Netherlands. A quick search on the internet, using the search engine of Bol.com as a tool for literature written in Dutch, did give the following hit: *Marzano & Heflebower, Klaar voor de 21e eeuw (Vlissingen 2012, translation of 'Teaching and Assessing 21st century skills', Bloomington USA 2012).* Marzano & Heflebower write about cognitive skills: analyzing and use of information, coping with complex problems and challenges, creating patterns and mental models; and about conative skills: self knowing and controlling, understanding interaction with others (Marzano, Heflebower 2012, p. 17). The reason for all this is explained in the preface (p. 9): improve the pupil's outcomes and improve the educational system to support economical and industrial developments. In other words, their work has first and foremost an economical motive. When we look at the content of *Teaching and assessing 21st century skills* from the perspectives as displayed above for Trilling and Fadel, we can conclude that it's about economic interests; and it's American: like Trilling & Fadel, Marzano & Heflebower hardly use sources from outside the USA.

In Dutch education, two more publications on 21st century skills are commonly used.

The first we shall have a closer look on is a discussion paper, written in 2010 by Joke Voogt, professor ICT and curriculum at the University of Amsterdam, NL, and Nathalie Pareja Roblin, researcher at the Pittsburgh University, USA. They are straightforward in their intentions: in the first chapter (inleiding, p.1 and 2) they reflect on the relationship between economics and 21st century skills, which leads to the phrase that *'…within all these jobs several core tasks are comparable and ask for different, new competences, the so called 21st century skills' (Voogt & Roblin, 2010, p. 2).* There are two interesting conclusions to be made from this quote: (1) Voogt & Roblin use the words 'skills' and 'competences' for the same content; and (2) they see 21st century skills in an economical perspective.

The research as described in the article is done on five models of 21st century skills (p. 5). 4 of them are from the USA, the fifth, NETS, part of ISTE, is an international organization, founded in the USA, governed by a team of USA educationalists, sponsored by Smart, Microsoft and Samsung business (see http://www.iste.org). In summary, Voogt & Roblin too write from an American and economical perspective.

The second Dutch publication got its place on the internet in 2012: *21st century skills in het onderwijs, whitepaper versie 1.0,* van Frank van der Oetelaar (http://www.21st centuryskills.nl/whitepaper/)

Oetelaar emphasizes the importance to contribute to the 'knowledge economy' (p. 4) and 'living, working and learning in the knowledge society' (p. 6). In the next pages he does not refer to the 'living', only to the 'working and learning'. For definitions or concepts of 21st century skills, Oetelaar refers to his website (http://www.21st centuryskills. nl/modellen/). His theory is strongly based on Voogt & Roblin and Trilling & Fadell. By doing so, Oetelaar proves the right of Voogt & Roblin, who state in their preface that all models for 21st century skills converge towards a more or less shared set (Voogt, Roblin p. i). In summary: Oetelaar joins the ranks of the American, economical approaches towards learning for the 21st century.

As a final conclusion we can state that without a reasonable doubt 21st century skills in education are put there for an economical, utilitarian reason; and most of the theory comes from the USA.

In the following we shall challenge both.

The risk of the economical focus of 21st century skills

In November 2014 the Czech economist Tomas Sedlacek was invited to do the 'Van der Leeuw' lecture in Groningen, a yearly event with lecturers of the statue as Iris Murdoch, György Konrád, Daniel Cohn-Bendit, Seymour Hersh and Guy Verhofstadt. The lecture, entitled *'Economics as an Unorchestrated Orchestrator',* is published on the internet. Sedlacek is very negative about the leading role of economics in western society. For economics, *'outside economics, nothing makes sense…. ...is a field which suppresses all it cannot count'*. Sedlacek points out that there are many valuable things in life which are not countable, such as values (Sadlacek p. 4). Instead of 'the invisible hand of the market' we should follow 'the invisible hand of society' (p. 7), because there is no such thing as an invisible hand of the market, *'it's all human'* (p. 8).

A striking example of the results, though maybe partly, of the following of the invisible hand of the market, is given by Alcinda Honwana. In *Waithood, youth transition and social change (2012)* she argues that due to globalized neo liberal free market economics and local socio-political developments, nowadays there is a huge amount of young people in the stage of waithood, between school and the start of the first job. Some of these people might stay for always in that waithood position. She sees this period of waithood as one of the major reasons for unrest, revolution, wars in lots of places in the world, from countries in Central Africa and the Middle East to neighborhoods in the western world: *'There is no doubt that young people are a critical indicator of the state of a nation, of its politics, economy and social and cultural life.*

Although national and regional contexts differ and grievances are diverse, young people's anger derives from deepening social inequalities; they are affected by the same ills created by globalization and failed neo-liberal policies that broke the social contract. As globalized communications raise their expectations, local conditions and public policies push those aspirations out of reach'. (Honwana, 2012, p. 8).

Martha Nussbaum, in *Not for Profit (2010; Dutch translation 2011)* states that society for her future does not need people that are lead by economics, but by people that are independent, critical thinkers; people that are able to acknowledge equal rights to everybody, from whatever color, religion, gender etc.; people that care for each other and the environment; people that think from a multiperspective approach; people that are able to think what is good for society, even if it is at the same time not the most economical preferable option for themselves (Nussbaum, 2011, p. 45). And she sees education as a very important tool to achieve this, though it is a majestic agenda (2011, p. 79).

Gert Biesta states that society needs people who are qualified with knowledge, skills, dispositions; and who are socialized as a part of existing orders (Biesta 2014 p. 147). The professional order, to be seen as the economical part, is only one of might orders: political, cultural, religious and so on (p. 147). Like Nussbaum, Biesta sees an important role for education in order to educate people towards this qualification and socialization.

Sedlacek, Honwana, Nussbaum and Biesta show us that the economization, utilitarization of society and it's actors, the people, is a threat for all kinds of people who together actually are that society: the 21st century skills emphasis on economics is a dangerous one. We need a reorientation. Nussbaum and Biesta point a way out.

Alternative thinking about what is needed in the 21st century

That way out does not lead us to the USA, but to the results of global cooperation ship, that started in the '90's of the last century. From 1993 till 1996, Jaques Delors, former president of the European Commission, chaired the UNESCO Commission on Education for the Twenty-first Century. The main goal of this commission was to formulate the needs of society in the 21st century; and explore the task of education. The sixteen members of the commission came from countries all over the world and from different backgrounds, being mostly politicians and/or scientists. The commission was supported by more than one hundred individuals and institutions, again worldwide, to be consulted (p.105). The commission concluded that this diversity was a big advantage, leading in the end to a *'very broad agreement on the*

overall approach and the conclusions' (p. 36). In 1996 Jaques Delors presented the final report of the commission: *The Treasure within*. The full report is available on the internet. The commission was principally thinking about the children and young people who will take over from today's generation. (pp. 13-14). The commission admits that trust in economic progress might lead to disillusionment (p. 15). The emphasis should be on *how to live together in a global village* (p. 16). People in the 21st century will have to cope with all kinds of tensions (pp. 17-18):

- between the global and the local;
- between the universal and the individual;
- between tradition and modernity;
- between long-term and short-term considerations;
- between competition and equality of opportunity;
- between extraordinary expansion of human knowledge and human beings' capacity to assimilate that;
- between the spiritual and the material.

All these tensions will lead to very intense changes in the lives of all human beings. According to Delors it is fundamental that people in all their uncertainties should understand respect other people in theirs. The great challenge for society in the 21st century is *'learning to live together'*. And education will have a very important role in achieving this (p. 22).

The commission understands that in order to achieve this, people should learn to *know* (the knowledge, including selection of what matters, what does not), learning to *do* (skill, including selection of what matters; and cooperation ship); and learning to *be* (including learning to see and accept one's responsibility) (p. 23). After these statements, describing the current situation, three desired developments in the 21st century world are worked out (p. 39 and further):

- from a local community to a world society;
- from social cohesion to democratic participation;
- from economic growth to human development.

The report, published in 1996, did not change the world immediately. What happened with the report and why this happened, can be read in a reflective article, written by Alexandra Draxler, secretary of the Delors commission, in 2010, published on the Norrag website. According to Draxler, though being mostly an academic report, it made it's way from universities to society, including educational systems; and generated a great deal of interest in the four pillars: learning to know, do, be and live together. It slowly changed thinking about education from the utilitarian, economical, neo liberal viewpoint, based on a strong capitalistic, productivistic approach of the value of education towards a *'deeply humanistic vision of education as a holistic process ... balancing*

individual with collective competence'. According to Draxler, in the end, the report did not change the world, but the content still holds as a pledge for human dignity, equality, idealism (Draxler, 2010).

Learning to live together, ESD and citizenship combined in *Our common future*

Nowadays the influence of the Delors report in The Netherlands can be found in at least two developments: firstly in the stepwise implementation, in a bottom up process, of Education for sustainable development; and secondly in the renewed attention for citizenship. Both developments strongly focus on 'learning to live together'.

Worldwide, the attention for ESD was renewed in 1987, with the publication of *Our common future*, report of the World commission on Environment and Development. The full report is available on the internet. The general aim of the commission was to set a global agenda for change (p.5). The basic message of the report was named after the chair of the commission, Gro Harlem Brundtland, former prime minister of Norway: *'sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*.

This, among other developments, lead to the 'decade of education for sustainable development', from 2005 till 2015, with a final congress in Japan. Part of the theoretical framework for the decade was formed by the work of Brundland and Delors.

In his report on the UN Decade of ESD (2012) Arjen Wals, professor in social learning and ESD at Wageningen University, The Netherlands, looks back on developments in the field of ESD, from the Rio Earth Summit of 1992 until 2012. During the decade the concept of sustainable development, the definition, gradually changed from almost exclusively environmental towards focus on environment, natural heritage, culture, society an economy (Wals, 2012, p. 11), in short: from ESD towards (global) citizenship. Wals distinguishes four lenses in this process (p.11):

- an integrative lens, taking a holistic perspective, integrating ecological, environmental, economic and sociocultural aspects of life, leading to more understanding of the complexity of processes towards a more sustainable future;
- a critical lens, questioning predominant and/or taken for granted patterns and routines like the idea of continuous growth, consumerism etc.;

- a transformitive lens, moving beyond awareness towards real change towards more sustainable lifestyles, values, societies;
- a contextual lens, leading to the notion that the concept of sutainability is influenced by time and location, therefore needs to be recalibrated as realitieable to activly improve s and times change.

In a way Wals is anticipating on recent developments in Dutch society regarding the importance of good citizenship and citizenship education. We shall come back to that later.

Competences for the future

The importance of the Delors report *The Treasure within* is emphasized by Wals when he describes a list of competences for educators that are developed by Unece (Wals 2012, p. 54). Unece is the UN economic commission for Europe; and it is remarkable that an economic commission formulates competences for good citizenship that might work contra productive towards economy, focusing on other aspects of developments in life.

The Unece competences were developed in 2011, published by 'Agentschap' on the internet in 2012, in English. They were translated in Dutch by De Hamer & Leusink and published in Dutch, also by Agentschap in 2012. Agentschap was a Dutch sub-governmental organization promoting sustainable development in The Netherlands. The competences include a paragraph with recommendations for policy makers and curriculum developers on different levels (p. 5).

The competences use the four pillars of Delors (Learning to know, learning to do, learning to be and learning to live together) and translate these to three levels of active behavior: holistic approach, envisioning change and achieve transformation (pp. 14-15). It is easy to partly recognize the lenses of Wals in these competences.

In *Wereldburger met ketchup (World citizen with ketchup-the Dutch word for 'citizen' is 'burger'-)* Jeroen van der Zant translates these competences, originally meant for educators, into competences for all people, starting with children: competences for pupils regarding world citizenship (vd Zant 2012, p. 14). The competences are simplified by De Vries, making them useable as a model for personal reflection regarding citizenship:

	You understand…	You are able to…	You are...	You get along with others in a way that...
Holistic approach	*relations between people, nature and economy; *relations between people then, now and in the future; and here and there; *that your vision on the world is yours; and others have a right to have a different vision; *your influence on the future.	*share knowledge, without prejudice, from a diversity of disciplines, locations, cultures, generations; *Look from different perspectives, viewpoints to people and the world; connect people to local and global influences (like democracy, participation, stand up for… etc.).	*an example of thinking and acting with regard of different perspectives, persons,even if they are distant from yours; *an example in thinking about, acceptance of knowledge en opinions from nearby, far away, present and past.	*people from different generations/cultures/locations/disciplines get along in a positive way because of your attitude.
Envisioning change	*the causes of negative relations between people, nature and economy (like pollution, poverty, egoism, fear); *the necessity to change the relations between people, nature and economy; *the importance of thinking about impact on the future before you make choices; *the importance of being able to cope with change; *the importance of a scientific approach in thinking about the future.	*critically judge changes in society in relation with their impact on the future; *raise awareness of the necessity of change by other people; *inspire towards hope on a great future; *engage people in thinking about future results of activities in the present; *use examples of relations between people, nature and economy in thinking and talking about the future.	*able to actively improve the life of others socially, ecologically and/or economically; *able to act deliberately, even in uncertain situations.	*positive opinions about a better future for all are actively supported; *developments in the direction of a better future for all are actively supported.

	You understand…	You are able to…	You are...	You get along with others in a way that...
Achieve trans-formation	*why education in the future needs to be different; *why learning in the future needs to be different; *the importance of working from the perspective of 'the other' as a basis for change; *that working from realistic situations (gardening, social work etc) improves learning and the use of what is learned.	*explain why education in the future needs to be different; *explain why learning in the future needs to be different; *explain why it is important to learn how to cope with change; *explain the importance of working from the perspective of 'the other' as a basis for change; *explain the importance of working from realistic situations.	*able to critically discuss about activities with a negative impact on the future; *able to actively participate in learning processes; *a self-critical and self-reflective thinker,especially regarding your acting and impact of it on others and the world; *a source of inspiration for others regarding thinking about acting and impact of it on others and the world; *striving towards a positive connection with others.	*activities with a negative impact for the future are critically discussed and changed into positive action; *people through dialogue learn how to clarify their opinions about the world; *people through dialogue are supported in exploring and acknowledging opinions of others (waaw, there are other possibilities then mine….); *people through dialogue are supported in exploring and acknowledging frames of references of other people (waaw, there are….).

These competences are meant to be used by educators. And they reflect all kinds opinions about good citizenship in the 21st century as meant by Delors: 'learning to live together'.

Dutch developments

In The Netherlands thinking about 'good citizenship', it's meaning and how to deal with it in education, became popular in the beginning of this century, as a result of a growing tension in society in the field of multiculturalism. In The Netherlands this was a long ignored topic, politically dangerous to discuss because of the risk of losing votes. It was put on the agenda in 2000, by Paul Scheffer. For an overview of the discussion, one can check the internet: for those reading Dutch a good place to start is the NRC site 1995-2001; for others, a brief introduction of the discussion is given in English on Wikipedia: *Multiculturalism in the*

Netherlands. The discussion today lingers on, is getting stronger because of the current refugee situation.

An example of a part of this discussion is written in a Dutch newspaper, NRC, September 2007. A governmental commission presented the results of an advisory report, 'identification with The Netherlands'. Queen Máxima, then princess and being an immigrant asked for a reaction on the report, stated that she 'had not discovered the Dutch identity'. She got lots of comments from all kinds of players in the field of politics, sciences, socio-cultural life in The Netherlands (NRC 2007).

What makes a citizen a good citizen in the 21st century, according to the Dutch people?

Around the turn of the century the Dutch government, realizing that against the background of plurification of society, facing all kinds of new cultures in The Netherlands, in the field of citizenship improvements were needed. The Dutch educational system was one of the carriages to ride these improvements home. After much discussion on all kinds of levels a new set of core objectives for primary and secondary education were formulated and became compulsory by law in 2009. In this article we shall focus on the objectives for primary education as published on the SLO website (SLO is the official Dutch organization for curriculum development). In the field of science and humanities -until then History, Geography, Science and Health Education- a new chapter, 'domain', was added: People and Society. In the explanation can be read: *'This domain deals with themes from society such as health, environment and consumer's behavior.'* When we have a closer look at the actual objectives for People and Society, we read much more than that (SLO/Tule, 2009):

- pupils learn how to take care for the physical and psychological health of themselves and others;
- pupils learn how to act self-reliant in social contexts, as a participant in traffic and as a consumer;
- pupils learn essentials of Dutch and European civil governments and political structure and the role as a citizen;
- pupils learn how to act with respect for general accepted ethics and values;
- pupils learn essentials of religious denominations that are important in the Dutch multicultural society, the learn how to respectfully take care of sexuality and diversity, including sexual diversity;
- pupils learn how to respectfully take care of the environment.

This is not only about health, environment and consumer's behavior; this is about citizenship the way Delors meant it, 'live together', with a touch of Dutchness and Europeanism. As an illustration of the latter, the new core objectives on history, also on the SLO/Tule site, were not formulated anymore from a pluriform view on world history, but replaced by a narrow, Dutch centered focus: a division into ten periods in time, based on the Dutch history, not useable for any approach of world history; and a 'canon' of fifty topics from Dutch national history. This makes it possible that children leave primary education with some knowledge of the first 'Dutch' written manuscript (check out www.entoen.nu for all fifty topics), but no clue whatsoever about Egyptian pyramids or Marco Polo, unless the teacher introduces it despite the general aims (De Vries, in Kleio 2007, p. 16-17). The chances that a teacher does so, are not too big. Topics that are not deliberately connected to the national aims are often neglected by Dutch teachers; and even when they are part of national aims but rather new to teachers, the chances that they will get attention are small, as shown by research that De Vries did on implementation processes in the field of sustainability, officially not explicitly written down in the Dutch core objectives. His general conclusion from research in 23 Dutch primary schools, using the Prise analysing sytem, was that in most schools something, but nothing structural happened; and that schools did score higher on criteria when external drives like governmental control or textbooks were decisive (De Vries, LTM 3-4 2014, p. 34).

The general aims for primary schools give some insight in what the Dutch government in 2009 meant with citizenship. In the meantime new developments in The Netherlands are taking place. Sander Dekker, vice minister of education, in 2015 started a nationwide discussion about what education in 2032 should be. The results were published under responsibility of a commission chaired by the already mentioned Paul Schnabel, nowadays member of Parliament and professor in sociology in Utrecht. Though not deliberately asking for criteria on citizenship in 2032, lots of people came up with ideas that can be related to it. As a result, the final report, *OnsOnderwijs2032, eindadvies* (Our Education 2032, final advise), published in January 2016, has a special chapter about citizenship (p.34). The core message there says: *'for all schools, despite their religious orientation or pedagogical ideas, it is a mission to teach young people how to function in a democratic society. It is a shared responsibility to keep the core values of the democratic state, governed by laws, alive, as well as to promote and increase knowledge of organization of government and democracy and existing applicable rules.*'

Though there are similarities between this message and the general aims of 2009, the strong emphasis on ‘democracy’ is striking. And there is less emphasis on ‘national’ citizenship in this chapter. For the commission Schnabel, citizenship has to do with:

- orientation on shared values;
- democratic attitudes;
- living and working together;
- adjusting to rules;
- shaping an opinion with respect for other opinions;
- finding a decent place in society;
- discover what contribution can be made to the neighborhood, region, country, world (OnsOnderwijs, 2032, p.35).

On the next page the importance of the democratic state, based on and regulated by laws, again is emphasized, together with respect and attention for human rights - including children’s rights- in daily life, social skills and codes of behavior and social responsibility (p. 36). In the next chapter, ‘knowledge of the world’, some more notions concerning citizenship are mentioned, including elements of national awareness:

- knowledge matters: citizenship is not only about attitudes, you need to know about what is going on to understand how to behave like a (world) citizen;
- a multiperspective view is crucial to understand other people, other places; and one selves;
- a cultural fundament is important to know how the Dutch history and identity did develop; this matters because you have to know your history to understand the future; it is all about developments in time;
- a holistic, interdisciplinary approach matters: the society is complex; and will be more complex in 2032; people need to know how to cope with that complexity;
- as part of that holistic approach it is important to see connecting factors, wider perspectives, meaning and purposes, related to actual, realistic situations (p. 40).

Reading this, one might think that Schnabel and his commission did learn Delors by heart; and used that knowledge for their report. However, this is by no means true. The Delors report is not part of the list of sources, used as starting point by the commission. Several reports of the OECD, organization for economic co-operation and development are. Witch brings us back tot the economical, utilitarian way of thinking. In a way, it is a miracle, or a deliberate wish of the Dutch people that joined the national discussion, that citizenship on such a fundamental level is part of OnsOnderwijs 2032 and hopefully will be part of education in

2032, in order to raise citizens that are able to live together. In another way it might prove the right of Draxler (2010): the thinking of Delors c.s. did find it's way through society.

Conclusion: What kind of citizens are needed in The Netherlands the 21st century?

Worldwide two major ways of thinking about what people are needed in the 21st century can be recognized:

- the economically, utilitarian, productivisitic driven way, closely related to neo-liberalism, of what is generally seen as 21st century skills. We analsyed the sources of this way of thinking and came to the conclusion that they are mainly coming from ICT scientists in the USA. The work of Trilling & Fadel (2009), Marzano & Heflebower (2012) and others was used as examples of what these 21st century skills are and where they come from. We showed that this way of thinking can be seen as a threat to society. The work of Sedlacek (2014) and Honwana (2012) was used as an example of what is going wrong worldwide and in our deprived neighborhoods. Biesta (2013) and Nussbaum (2010) showed alternative needs for society and education.

- the way towards a social approach of citizenship in the 21st century, as set out by Brundtland (1987) and Delors (1996). The source of this way of thinking is embedded in Unesco, working from world-wide perspectives. The major focus of this way of thinking is: learning to live together. The wide spread of the Unece competences (2012) and developments in the field of education for sustainable development as described by Wals (2012) are supportive to the implementation in society, especially in education, of ideas, knowledge and attitudes about ESD and (world) citizenship.

In the new plans for education in the Netherlands, OnsOnderwijs 2032 (2016) both ways of thinking can be determined, giving space for a renewed way of thinking about what kind of citizens the Dutch society needs in the 21st century: we need people that are able to live together in a Dutch orientated society. For those who find this a positive development: the future years will taught us how this works out against a background of new nationalism in The Netherlands, fed by feelings of 'nativism' (Duyvendak 2013).

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CHAPTER 4

DIFFERENT APPROACHES OF EXPERIENTIAL EDUCATION

4.1. THE REGGIO EMILIA APPROACH

Marina TZAKOSTA[1]

Basic characteristics

This approach is named after the city where it was developed, Reggio Emilia, with approximately 130.000 inhabitants. What is remarkable about this town is that it has invested more than 10% of its budget in high quality preschool education services to its citizens (Edwards et al. 1993). The main characteristic of the Reggio Emilia Approach, which was introduced after the end of World War II and has attracted the interest from all over the globe, is the various ways of application of democracy to education drawing on fundamental ideas of the works of the American philosopher and psychologist John Dewey (cf. 1916, 1938).

The Reggio Emilia Approach was first introduced by the teacher Loris Malaguzzi in the early 60s'. Malaguzzi's belief was that education should be able to integrate children's (possibly more than a) hundred languages (cf. Edwards et al. 1993). The term 'hundred languages of children' corresponds to the different and various ways children have to and should express themselves. More specifically, children are supposed to be independent human beings who are knowledge bearers, who have rights, who should be given all kind of opportunities to develop their potentials and should be encouraged to openly express their ideas and feelings. To give an example, in the Reggio Emilia approach children are encouraged to depict their understanding through symbolic languages and forms of expression such as drawing, writing, (dramatic) play, fine

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arts. Teachers encourage children to revise, modify and repeat the activities in the process of better understanding the topic under investigation and improving learning (cf. Edwards et al., 1998). Children are viewed as part and members of a community rather than being evaluated in isolation (Gandini 1993).

The philosophy underlying the Reggio Emilia approach is summed in the following traits:

- Children should have some control over the form and content of their learning
- Children should be able to learn through their senses and their experiences
- Children are expected to have relationships with other children
- Children are expected to relate to items which they can explore
- Children should be allowed to express themselves in various and different ways (cf. Hewett 2001)

One of the most challenging aspects of the Reggio Emilia approach is the solicitation of multiple points of view regarding children's needs, interests, and abilities, and the concurrent faith in parents, teachers, and children to contribute in meaningful ways to the determination of school experiences. Teachers trust themselves to respond appropriately to children's ideas and interests, they trust children to be interested in things worth knowing about, and they trust parents to be informed and productive members of a cooperative educational team. The result is an atmosphere of community and collaboration that is developmentally appropriate for adults and children alike.

The role of the environment

Environment is also placed in the center of the Reggio Emilia philosophy. It is often referred to as the ‘third teacher’ (Cadwell, 1997). The idea is that new ample open to view spaces are created, old ones are renovated and remodeled, classrooms are filled with plants, children’s works and their writings are displayed everywhere. Each classroom is part of the school and not isolated, for example, classrooms are connected through telephone lines or passageways (Tarr, 2001). The school becomes part of the community and not outside of it. The environment is important because it allows children relate to the world and establish relationships with the environment and other children/ people (Cadwell, 1997).

The role of the teacher

In the Reggio Emilia approach, education is child-centered and not teacher-centered. About this sense, the teacher is a co-learner and not (only) an instructor. Teachers are supposed and expected to facilitate children's activities and encourage and support their learning. Therefore, the teacher is inside the learning process and, for this reason, the child becomes totally aware of the topics being taught (Hewett 2001). A necessary prerequisite for the accomplishment of the above is that children stay with the same teacher for at least a three-year period in order to ensure mutual trust and avoid added pressures created by having to continuously establish new relationships.

As far as the curriculum is concerned, teachers are autonomous and are encouraged to apply their teaching ideas, methods, strategies and practices in class. Curriculum planning and implementation revolve around open-ended and often long-term projects based on child-initiated learning activities. In other words, all topics of interest are formulated by the children. Therefore, teachers are not backed up by curriculum guidelines or achievement tests; rather, they are responsible for their curriculum planning.

The role of the parents

As already mentioned above, within the Reggio Emilia approach schools are part of the community. Consequently, parents and families could not be excluded from the learning and teaching process. Communities are also involved since they financially support the teaching programs.

Like teachers, parents are viewed as the children's partners and collaborators. As a result, parents can participate in school discussions, school activities, even be responsible for the successful accomplishment of the latter. Parents may even make proposals regarding curriculum planning and evaluation. Conversely, aspects of the school life are expected to be incorporated in the family life.

'Vehicles' for learning

Teaching applied in Reggio Emilia schools mainly takes the form of projects. Projects provide children with the chance to observe, explore, test, assess, question, discuss and clarify their understanding (Forman 1996).

Project topics must be derived from children's play and teachers' observations of children's play and should be related to social concerns. Projects which are successfully carried out challenge children's creative thinking and problem solving. Working groups should consist of children

coming from different backgrounds – including children with special needs - and various interests. The main disadvantage of applying the project approach in class is that children are given opportunities to make connections between prior and new knowledge while engaging in authentic tasks.

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4.2. THE HIGHSCOPE APPROACH: LEARNING THROUGH ACTION

Cristina MESQUITA[1]

The HighScope curriculum is a preschool pedagogical approach that offers kindergarten teachers a set of ideas and practices supported by the children development, as they value the action of their learning process (Hohmann & Weikart, 2007).

This approach emerged from the work developed by David Weikart and his coleagues in the Perry Preschool Project, from the idea that preschool

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education was the educational base to prevent educational failures of the children from poor areas (Schweinhart & Weikart, 2010).

According to Schweinhart and Weikart (2010), the HighScope curriculum has, through the time, established a few conceptual lines that make this an approach under constant update. The program was supported, since the beginning, on John Dewey progressive education and on the child development theories of Jean Piaget[1]. More recently, it also incorporates the contributions of sociocultural work by Lev Vygotsky (1991), the cognitive and development psychology, in particular on the studies developed by Clements (2004) Gelman and Brenneman (2004), the National Research Council (2005) and on the ideas of Shore (1997) and Thompson and Nelson (2001) (quoted by Schweinhart & Weikart, 2010).

In the HighScope approach, the child is recognized as an active learner, that learns better from the activities that herself plans, develops and reflects on. As Hohmann and Weikart (2007) state, the "learning through action is defined as the learning in which the child build new understandings based on her actions on the objects and on the interaction with people, ideas and events" (p. 22). This kind of learning is considered, by the authors, as necessary to the cognitive restructuring and development.

In the HighScope approach, the educational intentionality is greatly valued. For the child to learn, she has to experience the world, reflect on it and create meanings from these experiences. The intentionality refers to the way adults interact with children and how they establish authentic relations, based on the construction of a shared thought (Epstein, 2007b). All the curricular structure of the approach is intentionally structured to support active learning. The HighScope approach favours the active learning centred curriculum and the children active and participative learning, as explained next.

The interactions and the role of the kindergarten teachers

The teachers, like children, are considered as active learners. Through evaluation and daily planning, considering the Key Developmental Indicators (KDIs), adults access children's experiences and continually assess the learning environment to appropriate the overall picture of the interests and abilities of each one. Teachers are educational support, observing the interactions of colleagues with children and thinking collaboratively about the actions of each one

[1] To analyze the curricular evolution of the HighScope approach and its theoretical support*vide* Oliveira-Formosinho (2007 a). The High-Scope curricular model contextualization in the scope of the Projecto Infância, *In J. Oliveira-Formosinho (org.), Modelos Curriculares para a educação de infância: construindo uma práxis de participação*, (pp. 41-92). Porto: Porto Editora.

challenging in this way, their continuing professional development (Schweinhart & Weikart, 2010).

One concern of educators is to build a learning environment that encourages the confidence, the autonomy and the initiative of children. There are five key ingredients to guide educators in this goal: i) the organization of spaces and materials, considering its abundance, age appropriateness and the possibility for having different uses. This point is related to the piagetian idea that learning takes place through the direct action of children with the materials (Piaget, 1983); ii) the active manipulation of objects, considering that when children has direct experiences with materials, they have the opportunity to explore, with all the senses, combining and transforming its initial use; iii) the choice, allowing the children to decide what they want to do, because the learning results from the attempts children make to defend their interests and follow their objectives) the enhancement of communication language and the child's thinking. Children communicate their ideas, needs, feelings and discoveries through their emotions, facial expressions, sounds, gestures and words. Adults value and encourage these forms of expression, establish proximity and security relationships with children; v) the adult, as scaffold, recognizes and encourages the intentions, actions, interactions, communication, exploitation, problem solving and creativity of children (Lockhart, 2011).

Daily routine

To create an environment in which children actively learn is important to design a consistent daily routine. This daily routine, in the HighScope approach, takes place in specific time segments corresponding to certain activities that children have to do, like plan their activities, interact in large groups, implement their plans to play in the schoolyard, eat or rest (Hohmann & Weikart, 2007). The following elements are considered.

Plan-do-review sequence (planning time, work time, recall time)

In the Highscope approach the sequence plan-do-review is a key element for the active learning. It includes all the fundamental aspects of that activity: the materials, the handling, the choice, the language, the communication and thinking. Children plan, make choices, think about the possibilities of the materials as they reflect on their actions with the support of adults (Hohmann & Weikart, 2007).

This cycle starts with a time to **plan**. Preschoolers are able to make choices, to decide actions and act deliberately on the materials. In this regard, a plan is necessary for children to think on them systematically.

The time **to do**, in the cycle plan-do-review refers to the moment when children put in action their intentions. It is the time of greatest length of the day, in which children embody their intentions, play and solve problems.

Afterwards it is the time for remembering the original plan developed during the working time. The time to **reflect**, in High Scope approach, goes beyond the mere description of their work. Engaging children for thinking requires the adults' stimulation that makes them aware of the learning they have done, the interests that this experience caused in them, how they can extend that activity, anticipating ideas for the next day (Schweinhart & Weikart, 2010). The reflection promotes the broadening of the knowledge that can be used in other situations (Epstein, 2003).

Small-group time

During small-group time, a group of six to eight children is with an adult to experience, explore, work with materials and talk, offering a variety of active learning experiences. Adults they plan learning experiences, considering the interests and needs of children, the exploitation of a new material or problem solving (Hohmann & Weikart, 2007).

Large-group time

At the time of large-group, everyone, children and adults, gather to play games, sing songs, perform movement activities, playing instruments or listening to a story. At this time the children can participate and share ideas with colleagues, or follow the ideas of the others. The adults, regard the large-group time as an opportunity for share common experiences with children. Adults organize learning experiences, structuring them in order to share the lead with the children, encouraging their participation (Schweinhart & Weikart, 2010).

The Key Developmental indicators (KDIs)

The development of children, in High Scope approach has reference to a set of key indicators established from research on

developmental theories. The High Scope[1] curriculum identified 58 KDIs in eight content areas: approaches to learning; social and emotional development; physical development and health; language, literacy, and communication; mathematics; creative arts; science and technology; social studies (in http://www.HighScope.org).

The KDIs is a flexible system built from the assumption that children's development takes place in a *continuum* and that children have rhythms and different levels of development. Indicators are reference points for the educator to know which way to go with each child that must be articulated with the principles listed above, inherent in a participatory and active learning.

Child Observation Record (COR)

The Child observation record (COR)[2] is an instrument that provides comprehensive information on the continued development of children. It can be used at any developmental line program (High Scope Educational Research Foundation, 2003; 2005). The COR for preschoolers is organized in six categories representing the major areas of child development: initiative, social relations, creative representation, movement and music, language and literacy, mathematics and science. The children is observed in various items (3-8) in each category, describing important behaviours of the developmental level.

In the High Scope approach, all aspects are essential to the delivery of the researched outcomes. These include the focus on supporting play and children's interests; the commitment to active learning; the child choice and sharing control with children; the focus on children's strengths; the focus on the environment including the materials and resources used; the plan-do-review sequence; the six step problem solving approach to social conflict; the flexible but predictable daily routine; the regular small and large group activities; the KDIs and the COR; the focus of teachers on authentic relationships with children and families; the intentionality of the teacher and the daily professional conversations between staff.

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4.3. PEDAGOGY IN PARTICIPATION OR MEM

Luis CASTANHEIRA[1], Rosa NOVO[2]

Perspective of the Modern School Movement

The information that appears systematized in this subchapter comprises two key aspects: the first is a brief contextualization of the Modern School Movement (MSM), and the second concerns the contributions of this pedagogical model for experiential learning.

The MSM, whose origin and development date back to the 1960s, is an association of educational practitioners intended for cooperative self-training of its members and to support in-service training and pedagogical animation of educational institutions. This movement comprises a network of regional groups which act as cooperative working groups for the training and development of educational resources in several areas of formal education. Within its scope a quarterly journal named *Escola Moderna* is edited. It works simultaneously as an informative and dissemination bulletin of pedagogical practices (Nóvoa, Marcelino, & Ramos do Ó, 2012).

Sérgio Niza, the founding member of the Movement in Portugal, states that "(…) when you shape the profession you are shaping

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thepedagogy because they are no two separate things (…) There is a kind of movement, of dialectic, of dialogue between the construction of the profession and pedagogy (…) it is a dialogue with the contexts of practical life and of the constructed knowledge" (1998, cited by González, 2002, p. 111). From this quote one can easily infer that the author defends the 'pedagogical isomorphism' perceived as a methodological strategy which consists of experiencing through the entire educational process. These experiences include attitudes, methods and procedures, technical resources and organizational structures that are intended to be performed in the effective professional practices of teachers. It is through this interaction dynamics, communication and shared reflection on the practices in all degrees of education that everyone understands their professional path. As a result, the Movement itself advances in the construction and reconstruction of its pedagogy (Nóvoa, Marcelino, & Ramos do Ó, 2012). Thus, it can be said that what substantially distinguishes the pedagogy of the MSM is the progressive way that it negotiates, establishes, manages and evaluates the life of the group or class with the children themselves. This refers also to the space, the time, the learning contents and social relations (Grave-Resendes; & Soares, 2002; Folque, 2012). In this perspective, the experiential learning embodies a social and centered interaction that structures the communication, the cooperation, and the negotiation between adult and child and children among themselves. In fact, the Movement's purposes in this aspect are based on: (i) the communication circuits; (ii) educational cooperation structures; and (iii) "on direct democratic participation". All of these sustain both the way they organize the work in the classroom regarding time and space, as well as the learning pathways supported by several piloting instruments that help to regulate what happens in the classroom and which are viewed as a memory of the life of the group. In this way, experiential learning is founded and develops within a democratic organization through three strategic guidelines. One guideline is the transition from personal experience to the *à posteriori* didactics, i.e. it is essential to have the children's previous experiences as a starting point to make sense of new constructions. This means to assume that access to new knowledge is built according to the starting point of each individual, but in a multitude of processes within the classroom group he/she it belongs to.

Another guideline is the need to strengthen the awareness of the production processes, since they are essential to their understanding (from the production to the understanding). The focus on reflecting upon the action provides awareness from the child about its experience, helping him/her to evolve into more advanced levels of understanding.

Finally, intervention also appears as crucial, since its validity will only have meaning if it is socially communicated (from speech to communication). So, experiential learning is not only an individual construction, since it is systematically extended to the entire group where children are encouraged to communicate. When the child explains before the others and the adult what he/she did and how it was done, the child does not only gain consciousness of the action, but also realizes how things proceeded in terms of advances and drawbacks. This allows for a better perspective and new ways to do better or to go further in exploring his/her ideas when challenged by the comments made by peers and by the adult. The focus on experiential learning enhanced by a public scrutiny in the group shows that more than instructing oneself, it is first of all a way to reflect, to be able to tell about it and to conceptualize it. This means that experiential learning gains from complex processes of negotiation of meaning, through organizational strategies and communication circuits.

It is important to stress that this pedagogical model requires a professional learning that shows that the trainee progressively needs to assume himself as a promoter of the participated organization, as a facilitator of cooperation, as a civic and moral animator and also as an active auditor (Niza, 2013).

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PART B

INTERNATIONAL RESEARCH REPORT ON EXPERIENTIAL LEARNING APPROACHES

CHAPTER 5

INTERNATIONAL RESEARCH REPORT ON EXPERIENTIAL LEARNING APPROACHES

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OBJECTIVE NO. 1: RESEARCH SURVEY REPORT

Title:
Carrying out a Research survey on Experiential education practices (children aged 3-12) in partner countries LT, LV, TR, NL, PT, RO, GR

Description:
Project partners from 7 countries carry out a quantitative (via online questionnaire) and qualitative (via interviews) research on Experiential education practices (how much it is used, what forms, in what subjects). Research aims at identifying similarities and differences, good practice to share and problematic areas. Research results will be used when planning lectures for teachers and teacher trainers in the next project stage.

Tasks and role of each organization
All project partners were involved in carrying out the research. Ondokuz Mayis university leads WP2 Research Survey and was responsible for

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designing the questionnaire, data analysis and report composition. Other partners contributed with collection of the data.

Leading Organization for the Activity

ONDOKUZ MAYIS UNIVERSITY

CLASSROOM PRACTICES OF TEACHERS OF YOUNG CHILDREN: A COMPARATIVE STUDY CONDUCTED IN GREECE, LATVIA, LITHUANIA, PORTUGAL, ROMANIA, AND TURKEY

Success of any educational program is vitally linked to teachers' beliefs and practices (Copple & Bredekamp 2009). Presence of a perfect curriculum or physical conditions would not mean much unless teachers are endowed with necessary knowledge, skills, and attitude, which shine in their daily teaching practices (Copple & Bredekamp, 2009). It is widely recommended by educational scholars to avoid heavy reliance on basic-skills oriented teaching that focuses on instilling certain skills under strict teacher tutelage in an environment where children are expected to take a passive role and suppress their individuality (Stipek & Byler, 1997). Instead, educators are advised to replace those ineffective practices with child-centered pedagogy, as recommended by National Association for the Education of Young Children (NAEYC), which endorses practices that allow children to build their own knowledge and competencies (Copple & Bredekamp 2009). Prominence of play in children's learning and development is highly recognized within this paradigm (Bowman, Donovan, & Burns, 2000; Copple & Bredekamp, 2009). Unfortunately, educational reform does not occur overnight even if legislative dimensions are already set. It is teachers who are mainly responsible for implementation of new practices in educational settings. Therefore, without paying close attention to teachers, especially the ways they provide education in their classrooms, visions of policy makers who yearn for excellence following what research recommends would be destined to fade away in the oblivion.

Teacher qualifications in the countries involved

It seems that importance of teacher qualifications are widely recognized by the policy makers in almost all of the countries where this study was conducted. A bachelor's degree with a three or four-year-study is a prerequisite for employment in ECE settings serving older children in all of the countries except Latvia where post-secondary non-tertiary level education is the minimum level of education looked for in a preschool teacher. As far as professional development, teachers of young children

in all of the countries, except those in Greece, are required to attend continuing professional training activities (European Commission/ EACEA/Eurydice/Eurostat, 2014). In some countries, teachers, even have to receive formal training in administration as well as ongoing inservice trainings if they wish to climb the career ladders and become head of institutions.

It is a worldwide trend that teaching young children is a profession that attracts mostly women. This is especially true for the countries Greece, Latvia, Lithuania, and Romania and the Netherlands in the study. Portugal and Turkey have, although not dramatic, higher rates of men employed in the field ranging from 5 and 7 % (European Commission/EACEA/Eurydice/Eurostat, 2014).

Table 1. Qualifications required for educational staff working with older children in early childhood settings

	Teachers	Directors
Greece	Bachelor's degree (four years)	Bachelor's degree + Professional experience
Latvia	Post-secondary non-tertiary level	Bachelor's degree + Professional experience & administrative experience
Lithuania	Bachelor's degree (three years)	Bachelor's degree + Professional experience & administrative experience
Portugal	Master's level	Master's degree + Professional experience
Romania	Bachelor's degree (three years)	Bachelor's degree + Professional & administrative experience & special training
The Netherlands	Bachelor's degree	Bachelor's degree + Professional experience
Turkey	Bachelor's degree (four years)	Bachelor's degree + Professional experience

National guidelines

As decades of solid research proves again and again immediate and the long term benefits of early education both for individual citizens and indirectly for a country's welfare, education of young children has been receiving very well deserved attention from the state governments in the last decades. With a goal to better prepare young generations for schooling, many European states have adopted a formal framework that guides educators and administrators in their efforts to meet the needs of

young children (European Commission/EACEA/Eurydice/Eurostat, 2014). These guidelines usually describe learning content and list objectives and outcomes, sample learning activities and assessment methods framed under a child-centered pedagogical approach described in detail.

Curricular guidelines for older children in ECE settings are available in all of the participating countries, except Portugal, with Greece, Romania and Turkey being the countries where separate official guidelines exist for younger and older preschooler groups. In general, emotional, social, language and communication, motor, mathematics, reading, artistic, life and health related skills are comprised the listed educational objectives and goals expected to be met during preschool education while second language training is covered only by the guidelines in Lithuania, Latvia, Portugal and Romania. Intercultural skills and cultural diversity seems to be a topic that is largely ignored.

Although the national guidelines only set the pedagogical framework giving teachers power to make such practical decisions as choosing the materials, planning educational activities and strategies, in some countries including Greece, Latvia, Portugal, and Romania daily schedule is fixed within the framework. Teachers are advised to keep the balance between adult-led and children-initiated activities as well as between group and individual activities that are both meaningful, built on children's previous experiences, and related to their real lives.

Teachers are expected to make assessment ongoing based on daily observations. Only in Turkey, teachers are required to keep written records of children's development and share it regularly with parents.

In fact, parent involvement is highly valued, but put in practice in varying degrees (European Commission/EACEA/Eurydice/Eurostat, 2014). Unlike the others, there is no place for parents of community members in school councils in Turkey. Whereas, Greek and Portuguese parents are entrusted with a significant role in decision-making processes while Lithuanian, Latvian, and Romanian parents are given a consultative role.

Success of any educational program depends on what teachers actually do in their classrooms (Clements, 2004). Therefore, the aim of this study was to explore how teachers of young children provide education in their classrooms in the countries participated in this project including Greece, Latvia, Lithuania, Portugal, Romania, and Turkey. More specifically, attention was paid to reveal to what degree developmentally appropriate practices were employed in pre-k to primary programs; to explore whether teachers from different countries vary on the level they implement DAP as well as to reveal teacher and classroom

characteristics predicting teachers' practices. More specifically we intended to answer the following questions:

1. What kind of learning experiences pre-k to primary teachers value in their practices in different countries?
2. How do pre-k to primary teachers organize learning environments?
3. What are the teaching and learning strategies they use in their practices?
4. What kind of parent involvement do they value in their practice?
5. What are the processes of planning, recording and evaluation they use to assess children' learning.

Method

Participants. Early childhood and primary school teachers were invited to participate in the study. The sample was created through a convenient sampling. Demographic information about the participants was given in the tables 2 - 7. As it could be noticed in Table 2, teachers under the age of 40 dominated the Romanian and Turkish samples while in Lithuania and Portugal majority of the teachers were over 40 years old.

Table 2. Age of the participants

		20-30 years	31-40 years	41-50 years	51-60 years	>60 years
	n	%	%	%	%	%
Greece	36	16.7	36.1	44.4	2.8	-
Latvia	30	30.0	16.7	30.0	20.0	3.3
Lithuania	50	-	20.0	52.0	20.0	8.0
Portugal	50	4.0	24.0	38.0	34.0	-
Romania	71	53.5	22.5	18.3	5.6	-
Turkey	50	40,0	48,0	10,0	2,0	-

Table 3 shows the number of female and male teachers. Considering the fact that teaching young children is still seen as a woman's job it is no surprise that there were no male teachers in the Greek, Latvian, Lithuanian, or Turkish samples. Seven percent of Romanian sample, on the other hand, was comprised of male teachers.

Table 3. Gender of the participants

	Female		Male	
	n	%	n	%
Greece	36	100.0	-	-
Latvia	30	100.0	-	-
Lithuania	50	100.0	-	-
Portugal	49	98.0	1	2.0
Romania	66	93.0	5	7.0
Turkey	50	100.0	-	-

There is usually a split in place in many European countries in the system of education of young children. Regulations for who could teach children under age three is more relaxed than for the upper age groups. This reflects the composite of the participants' educational level in the countries Latvia, Turkey, and, to a lesser degree, in Lithuania. All of the teachers from Romania and Portugal had at least a bachelor's degree with a significant portion having master's degrees.

Table 4. Educational levels completed by the participants

	High School	Two-year college	Bachelors	Master	Doctorate
	%	%	%	%	%
Greece	2,9	2,9	50,0	35,3	8,8
Latvia	-	40,0	43,3	16,7	-
Lithuania	4,0	14,0	58,0	24,0	-
Portugal	-	-	76,0	24,0	-
Romania	-	-	54,9	45,1	-
Turkey	2,0	30,0	66,0	2,0	-

As Table 5 shows, majority of the participants were experienced teachers. But 44.3% of Romanian teachers were pretty new to the field with having only 1-3 years of experience while the Portugal teachers had the most experience.

Table 5. Years of experience the participants had

	1-3 years %	4-10 years %	11-20 years %	20-30 years %	31-40 years %	41-50 years %
Greece	11,1	36,1	38,9	13,9	-	-
Latvia	6,7	43,3	16,7	23,3	6,7	3,3
Lithuania	N/A	N/A	N/A	N/A	N/A	N/A
Portugal	4,0	10,	24,0	44,0	18,0	-
Romania	44,3	25,7	12,9	8,6	8,6	-
Turkey	12,0	46,0	30,0	12,0	-	-

In terms of the locations of the schools where our participants worked, majority of the teachers worked in the urban areas. All of the Latvian and Turkish teachers who participated in the study reported that they worked for an urban school. As far as public or private school difference, the Latvian and Lithuanian samples were comprised completely of teachers who worked for publicly funded schools.

Table 6. Location of the schools where the participants worked

	Urban %	Rural %
Greece	65,7	34,3
Latvia	100,0	-
Lithuania	92,0	8,0
Portugal	74,0	26,0
Romania	71,6	28,4
Turkey	100,0	-

Table 7. Type of the schools where the participants were employed

	Public %	Private %
Greece	91,7	8,3
Latvia	100,0	-
Lithuania	100,0	-
Portugal	58,0	42,0
Romania	75,7	24,3
Turkey	72,0	28,0

Survey Instrument. The Instructional Activities Scale (IAS). This scale was a part of The Teachers Beliefs and Practices Survey developed by Burts et al. (2000) following Developmentally Appropriate Practice (DAP) guidelines (Bredekamp & Copple, 1997) endorsed by NAEYC. The questionnaire is comprised of three dimensions including a teacher demographic questionnaire, Teacher Belief Scale, and Instructional Activities Scale. The demographics questionnaire contained questions about educational degrees participating teachers held, their years of experience, and their work conditions.

For this study we only used the Demographics and The Instructional Activities Scale. Comprised of 30 items, the IAS measures how often appropriate and inappropriate practices occur in classrooms. The IAS was designed with a five-point Likert type scale ranging from 1 = Almost never (less than monthly), 2 = Rarely (monthly), 3 = Sometimes (weekly), 4 = Regularly (2-4 times a week), and 5 = Often (daily). For this research, the scale was expanded by addition of ten more questions that were developed based on NAEYC's recommendations for developmentally appropriate practices. Additional questions asked the participants how often children in their classrooms do the following activities:

- Use variety of media and technology
- Build on their informal learning experiences and knowledge
- Engage in activities that strengthen their problem-solving, inquiry skills and reasoning processes
- Have plenty of opportunities to communicate what they have learned
- Are encouraged to be creative
- Talk and exchange ideas with each other during activities
- Are taken to field trips
- Are given ample time to engage in what they explore and manipulate concepts/ideas with keen interest.
- Are provided many daily opportunities for developing their social skills (i.e., cooperating, helping, talking) with peers in the classroom.
- Are engaged in activities that are responsive to individual children's interests.
- Are provided plenty of materials to engage in and explore
- Are assessed for their development and learning using alternative assessment methods (portfolios, observations, anecdotes, record keeping etc.)

In addition, with an aim to explore whether such significant issues of ever globalizing world as immigration, environment, and human rights crisises receive the attention they very much deserve in the agendas of the teachers of the new millenium. The participants were asked how often they addressed some of the 21th century topics and skills listed below in their classrooms.

- Sustainable development
- Environment
- Multiculturalism
- Intercultural skills
- Critical thinking
- Media literacy
- Language skills
- Human rights
- Care and empathy

Procedure. The research instrument was administered to preschool and primary school teachers. Participation to the study was voluntary. The participants were informed about the purpose of the study and asked to complete all of the items on the research instrument. The research instrument took about 20 minutes to complete.

Results

Descriptive analysis of data was conducted to reveal how often the participants offered developmentally appropriate and inappropriate practices. Additional analysis was run to see the frequency of inclusion of 21th Century topics and skills in their teaching.

Provision of developmentally appropriate practices

Descriptive analysis of the data showed that it is a, reportedly, common and regular practice for the teachers participated in the study to offer developmentally appropriate activities while in some important areas they failed to do so.

1. building with blocks

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,9	23,5	17,6	55,9
Latvia	-	-	-	20,0	80,0
Lithuania	17,0	8,5	8,5	25,5	40,4

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
Portugal	-	-	4,0	22,0	74,0
Romania	4,1	9,5	16,2	24,3	43,2
Turkey	2,0	4,1	12,2	22,4	59,2

2. selecting from a variety of learning areas and projects (i.e., dramatic play, construction, art, music science experience, etc.)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	-	22,2	41,7	33,3
Latvia	-	3,3	10,0	53,3	33,3
Lithuania	6,1	10,2	30,6	44,9	8,2
Portugal	-	-	10,0	42,0	48,0
Romania	-	1,4	12,2	33,8	51,4
Turkey	4,0	4,0	20,0	26,0	46,0

3. having their work displayed in the classroom

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	8,3	19,4	30,6	41,7
Latvia	-	-	-	23,3	76,7
Lithuania	2	-	22,0	38,0	38,0
Portugal	2,1	-	2,1	8,3	87,5
Romania	-	1,4	12,2	20,3	64,9
Turkey	2,0	-	6,0	26,0	66,0

4. experimenting with writing by drawing, copying, and using their own invented spelling

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,9	17,1	37,1	42,9
Latvia	3,3	23,3	30,0	30,0	13,3
Lithuania	8,2	14,9	16,3	20,4	40,8
Portugal	2,0	2,0	6,0	24,0	66,0
Romania	1,4	1,4	20,3	33,8	40,5
Turkey	4,1	4,1	18,4	32,7	40,8

5. playing with games, puzzles, and construction materials (e.g., Thinker Toys, Bristle Blocks)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	-	8,3	25,0	66,7
Latvia	-	-	-	3,3	96,7
Lithuania	10,0	14,0	10,0	32,0	34,0
Portugal	-	-	4,1	12,2	83,7
Romania	1,4	5,4	12,2	20,3	58,1
Turkey	2,0	-	2,0	16,3	79,6

6.exploring science materials (e.g., animals, plants, wheels, gears, etc.)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	16,7	44,4	25,0	11,1
Latvia	-	3,3	33,3	26,7	36,7
Lithuania	4,0	16,0	36,0	34,0	10,0
Portugal	2,0	18,0	40,0	22,0	18,0
Romania	-	6,8	24,3	45,9	20,3
Turkey	2,0	10,0	30,0	22,0	36,0

Participants' responses to the question that asked how often they allowed children in their classrooms explore science materials revealed that 64% of Greek teachers, 36.6% of Latvian teachers, 56% of Lithuanian teachers, 60% of Portuguese, 31% of Romanian, and 44% of Turkish teachers did not provide regular science explorations in their practice.

7. singing, listening, and/or moving to music

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	-	8,3	55,6	36,1
Latvia	-	-	3,3	30,0	66,7
Lithuania	-	2,0	4,0	6,0	34,0
Portugal	-	-	8,3	25,0	66,7
Romania	-	-	9,5	29,7	58,1
Turkey	2,0	-	2,0	34,0	62,0

8. doing planned movement activities using large muscles (e.g., balancing, running, jumping)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	3,0	15,2	30,3	30,3	21,2
Latvia	-	-	-	33,3	66,7
Lithuania	2,0	2,0	10,0	46,0	40,0
Portugal	-	-	38,0	36,0	26,0
Romania	-	5,4	13,5	48,6	29,7
Turkey	2,0	-	16,0	28,0	54,0

It is important for young children to engage in gross motor activities for their health. In fact, it is recommended to provide young children for at least one hour of free play time during which they can actively use their large muscles as well as an hour of structured motor play, both of which would cultivate children's physical stamina and strength. Unfortunately, participants' responses to the question about activities that support motor skills revealed that 64% of Greek teachers, 36.6% of Latvian teachers, 56% of Lithuanian teachers, 60% of Portuguese, 31% of Romanian, and 44% of Turkish teachers did not provide structured gross-motor activities regularly in their practice.

9. using manipulative (e.g., pegboards, Legos, and Unifix Cubes)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	11,4	34,3	11,4	40,0
Latvia	-	-	6,7	40,0	53,3
Lithuania	26,5	4,1	28,6	18,4	22,4
Portugal	2,0	6,1	14,3	22,4	55,1
Romania	5,4	6,8	16,2	36,5	32,4
Turkey	-	4,0	16,0	26,0	54,0

A significant percentage of the Greek and Lithuanian teachers reported that use of manipulatives was not a regular activity in their classrooms. In fact, unlike 93.3% of their Latvian colleagues, 48.6% of Greek, 59.2% of Lithuanian, 22.4% of Portuguese, 28.4% of Romanian, and 20% of Turkish participants failed to give children regular opportunities to play with manipulatives.

19. having the opportunity to learn about people with special needs (e.g., a speaker or a character in a book)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	38,9	33,3	19,4	2,8
Latvia	16,7	46,7	20,0	13,3	3,3
Lithuania	29,2	35,4	14,6	14,6	6,2
Portugal	16,3	28,6	26,5	10,2	18,4
Romania	5,4	23,0	29,7	24,3	14,9
Turkey	12,0	20,0	24,0	18,0	26,0

Participants' responses to the question about the frequency of opportunities they provided in their classrooms to learn about people with special needs revealed that this was something largely ignored in 44.5% of Greek teachers, 63.4% of Latvian teachers, 64.6% of Lithuanian teachers, 44.9% of Portuguese teachers, 28.4% of Romanian teachers, and 32% of Turkish teachers' practice.

21. seeing their own race, culture, language reflected in the classroom

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	19,4	27,8	13,9	33,3
Latvia	3,3	16,7	20,0	20,0	40,0
Lithuania	18,0	4,0	28,0	26,0	24,0
Portugal	8,3	12,5	31,3	14,6	33,3
Romania	5,4	14,9	20,3	36,5	20,3
Turkey	6,1	6,1	16,3	42,9	28,6

23. experiencing parents reading stories or sharing a skill or hobby with the class

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	20,0	28,6	34,3	14,3	2,9
Latvia	23,3	46,7	16,7	3,3	10,0
Lithuania	18,4	30,6	22,4	22,4	6,1
Portugal	16,3	20,4	22,4	14,3	26,5
Romania	21,6	31,1	31,1	12,2	1,4
Turkey	14,0	20,0	26,0	24,0	16,0

Participants' responses to the question about parent involvement that showed that parent involvement activities were something rare to occur in 48.6% of Greek teachers', 70% of Latvian teachers', 49% of Lithuanian teachers', 36.7% of Portuguese teachers', 52.7% of Romanian teachers', and 34% of Turkish teachers' classrooms.

24. engaging in child-chosen, teacher-supported play activities

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	27,8	44,4	25,0
Latvia	-	3,3	6,7	26,7	63,3
Lithuania	-	6,0	24,0	44,0	26,0
Portugal	-	6,0	22,0	22,0	50,0
Romania	-	8,1	6,8	32,4	50,0
Turkey	2,0	4,0	18,0	26,0	50,0

Majority of the participants (69.4% of the Greek teachers, 90% of the Latvian teachers, 70% of the Lithuanian teachers, 72% of Portuguese, 82.4% of Romanian, and 76% of Turkish teachers) provided regular opportunities for children in their classrooms to engage in self-chosen activities during which teachers take the role of a facilitator.

25. drawing, painting, working with clay, and using other art media

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	--	16,7	44,4	33,3
Latvia	-	-	6,7	46,7	46,7
Lithuania	2,0	10,0	8,0	44,0	36,0
Portugal	2,0	-	6,1	28,6	63,3
Romania	4,1	4,1	25,7	41,9	21,6
Turkey	2,0	2,0	10,0	30,0	56,0

Participants' responses to the question that asked how often they allowed children to use materials revealed that 77.7% of Greek teachers, 93.4% of Latvian teachers, 80% of Lithuanian teachers, 92% of Portuguese teachers, 63% of Romanian teachers, and 86% of Turkish teachers regularly provided art activities in their classrooms while it was a rare practice for 12% of Lithuanian teachers.

26. solving real math problems using real objects in the classroom environment that are incorporated into other subject areas

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	8,3	36,1	36,1	16,7
Latvia	3,3	3,3	13,3	43,3	36,7
Lithuania	10,0	6,0	28,0	36,0	20,0
Portugal	2,0	2,0	12,0	46,0	38,0
Romania	-	4,1	28,4	40,5	24,3
Turkey	6,1	6,1	22,4	36,7	28,6

Participants' responses to the question that asked how often children in their classrooms had the opportunity to solve real math problems using real objects in their classrooms environment that are incorporated into other subject areas revealed that this was a regular practice in 53% of Greek teachers, 80% of Latvian teachers, 56% of Lithuanian teachers, 84% of Portuguese, 65% of Romanian, and 65% of Turkish teachers.

28. engaging in experiences that demonstrate the explicit valuing of each other (e.g., sending a card to a sick classmate)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	17,1	22,9	37,1	20,0	2,9
Latvia	-	13,3	36,7	16,7	33,3
Lithuania	12,0	30,0	38,0	14,0	6,0
Portugal	28,0	18,0	22,0	20,0	12,0
Romania	-	8,1	31,1	36,5	21,6
Turkey	8,2	16,3	28,6	22,4	24,5

Participants' responses to the question that asked how often children in their classrooms had the opportunity to engage in experiences that demonstrate the explicit valuing of each other (e.g., sending a card to a sick classmate) revealed that 40% of Greek teachers, 42% of Lithuanian teachers, 46% of Portuguese teachers, 20.5% of Turkish teachers never or rarely provided such activities in their practices while

only 13.3% of Latvian teachers and 8% of Romanian teachers made such report.

29. working with materials that have been adapted or modified to meet their needs

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	14,3	17,1	34,3	31,4
Latvia	-	-	13,3	30,0	56,7
Lithuania	2,1	10,4	14,6	37,5	35,4
Portugal	14,3	10,2	24,5	28,6	22,4
Romania	-	-	20,3	37,8	39,2
Turkey	16,7	8,3	27,1	22,9	25,0

Participants' responses to the question that asked how often children in their classrooms had the opportunity to work with materials that have been adapted or modified to meet their needs revealed that this was a regular practice in 65% of Greek teachers', 87% of Latvian teachers', 73% of Lithuanian teachers', 51% of Portuguese teachers', 77% of Romanian teachers', and 47% of Turkish teachers' classrooms. But, 24% of Portuguese and 24% of Turkish teachers made no adaptations in materials.

30. doing activities that integrate multiple subjects (reading, math, science, social studies, etc.)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	22,2	33,3	41,7
Latvia	-	3,3	6,7	20,0	70,0
Lithuania	4,0	6,0	26,0	40,0	24,0
Portugal	-	-	10,4	27,1	62,5
Romania	1,4	-	9,5	35,1	51,4
Turkey	2,0	4,0	16,0	26,0	52,0

Participants' responses to the question that asked how often children in their classrooms had the opportunity to do activities that

integrate multiple subjects (reading, math, science, social studies, etc.) revealed that provision of integrated activities was a common practice.

31. using variety of media and technology

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	13,9	33,3	19,4	27,8
Latvia	10,0	33,3	36,7	20,0	-
Lithuania	8,0	10,0	24,0	48,0	10,0
Portugal	8,2	8,2	24,5	36,7	22,4
Romania	2,7	13,5	32,4	29,7	18,9
Turkey	12,0	6,0	22,0	34,0	26,0

Participants' responses to the question that asked how often children in their classrooms had the opportunity to use variety of media and technology revealed that 48% of Greek teachers, 58% of Lithuanian teachers, 59% of Portuguese, 49% of Romanian, 60% of Turkish teachers, and only 20% of Latvian teachers allowed children to use media technologies regularly in the classroom.

32. building on their informal learning experiences and knowledge

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	19,4	33,3	44,4
Latvia	-	-	10,0	16,7	73,3
Lithuania	-	8,0	32,0	46,0	14,0
Portugal	-	-	16,0	40,0	44,0
Romania	4,1	12,2	24,3	41,9	14,9
Turkey	6,4	10,6	23,4	34,0	25,5

Majority of the participants (90% of Latvian teachers, 84% of Portuguese, 78% of Greek teachers, 60% of Lithuanian teachers, 57% of Romanian, and 61% of Turkish teachers) reported that children in their classrooms had regular opportunities to build on their informal learning experiences and previous knowledge.

33. engaging in activities that strengthen their problem-solving, inquiry skills and reasoning processes

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	-	35,3	26,5	35,3
Latvia	-	-	13,3	43,3	43,3
Lithuania	-	2,0	34,0	42,0	22,0
Portugal	-	2,0	10,2	36,7	51,0
Romania	-	8,1	16,2	50,0	23,0
Turkey	4,0	4,0	10,0	52,0	30,0

Participants' responses to the question that asked how often children in their classrooms had the opportunity to engage in activities that strengthen their problem-solving, inquiry skills and reasoning processes revealed that 88% of Portuguese, 87% of Latvian teachers, 82% of Turkish teachers, 73% of Romanian teachers, 64% of Lithuanian teachers, and 62% of Greek teachers provided such activities regularly in their practice.

34. having plenty of opportunities to communicate what they have learned

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	2,8	19,4	36,1	38,9
Latvia	-	-	3,3	26,7	70,0
Lithuania	-	4,0	22,0	44,0	30,0
Portugal	2,0	2,0	2,0	24,0	70,0
Romania	1,4	6,8	10,8	39,2	39,2
Turkey	2,0	-	6,0	28,0	64,0

Participants' responses to the question that asked how often children in their classrooms had the opportunity to have plenty of opportunities to communicate what they have learned revealed that this was the case in majority of the participants' classrooms (97% of Latvian teachers, 94% of Portuguese, 93% of Turkish teachers, 78% of Romanian, 75% of Greek teachers, and 74% of Lithuanian teachers).

35. being encouraged to be creative

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	2,8	2,8	13,9	77,8
Latvia	-	-	-	16,7	83,3
Lithuania	-	2,0	6,0	42,0	50,0
Portugal	-	-	8,2	18,4	73,5
Romania	-	1,4	1,4	14,9	79,7
Turkey	2,0	-	2,0	32,0	64,0

Creativity was also appreciated and supported by the participants in general. 92% of Greek teachers, 100% of Latvian teachers, 92% of Lithuanian teachers, 92% of Portuguese, 95% of Romanian, and 96% of Turkish teachers regularly encouraged children in their classrooms to be creative.

36. talking and exchanging ideas with each other during activities

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	5,6	8,3	25,0	61,1
Latvia	-	-	6,7	13,3	80,0
Lithuania	-	2,0	8,0	38,0	52,0
Portugal	-	4,1	10,2	24,5	61,2
Romania	-	-	5,4	20,3	71,6
Turkey	2,4	-	2,4	23,8	71,4

Participants in general reported that children in their classrooms were given plenty of opportunities to talk and exchange ideas with each other during activities. 86% of Greek teachers, 93% of Latvian teachers, 90% of Lithuanian teachers, 86% of Portuguese, 92% of Romanian, and 95% of Turkish teachers allowed dialogue among children during activities.

37. being taken to field trips

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	14,7	47,1	29,4	8,8	-
Latvia	-	40,0	50,0	6,7	3,3

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Lithuania	8,0	40,0	26,0	16,0	10,0
Portugal	4,2	29,2	31,3	22,9	12,5
Romania	12,2	36,5	29,7	13,5	5,4
Turkey	6,3	16,7	29,2	20,8	27,1

Participants' responses to the question about the frequency of field trips showed that for a significant portion of teachers field trips were not something they regularly kept in their agendas. In fact, 62% of Greek teachers, 40% of Latvian teachers, 48% of Lithuanian teachers, 33% of Portuguese, 49% of Romanian, and 23% of Turkish teachers reported that they never or rarely organized field trips.

38. given ample time to engage in what they explore and manipulate concepts/ideas with keen interest.

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	11,4	37,1	25,7	22,9
Latvia	-	3,3	33,3	30,0	33,3
Lithuania	0,0	16,0	32,0	36,0	16,0
Portugal	2,0	6,0	28,0	44,0	20,0
Romania	-	2,7	10,8	44,6	39,2
Turkey	2,2	4,3	19,6	32,6	41,3

Participants in general reported that children in their classroom were given plenty of time and opportunities, and materials to follow their interests, continue with their explorations, and develop their social skills.

39. being provided many daily opportunities for developing their social skills (i.e., cooperating, helping, talking) with peers in the classroom.

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	5,6	33,3	58,3
Latvia	-	-	-	20,0	80,0
Lithuania	-	-	8,0	20,0	72,0
Portugal	2,0	2,0	4,1	26,5	65,3
Romania	-	1,4	8,1	23,0	64,9
Turkey	2,0	-	6,0	18,0	74,0

40. engaged in activities that are responsive to individual children's interests.

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	16,7	27,8	30,6	25,0
Latvia	-	-	6,7	26,7	66,7
Lithuania	-	-	8,0	42,0	50,0
Portugal	2,0	-	8,0	22,0	68,0
Romania	-	-	4,1	29,7	63,5
Turkey	2,0	2,0	12,0	40,0	44,0

41. being provided plenty of materials to engage in and explore

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	11,1	30,6	13,9	38,9
Latvia	-	3,3	10,0	33,3	53,3
Lithuania	-	4,0	20,0	54,0	22,0
Portugal	-	6,3	10,4	29,2	54,2
Romania	1,4	4,1	14,9	37,8	39,2
Turkey	2,0	-	18,0	32,0	48,0

42. being assessed for their development and learning using alternative assessment methods (portfolios, observations, anecdotes, record keeping etc.)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	27,8	27,8	13,9	25,0
Latvia	3,3	30,0	23,3	16,7	26,7
Lithuania	-	6,0	10,0	24,0	60,0
Portugal	2,0	6,0	4,0	36,0	52,0
Romania	-	1,4	12,2	31,1	52,7
Turkey	2,0	8,0	8,0	34,0	48,0

Responses to the question about how often children in their classrooms are assessed for their development and learning through the use of alternative assessment methods (portfolios, observations, anecdotes, record keeping etc.) revealed that 33% of Greek teachers and 33% of Latvian teachers never or rarely used alternative assessment methods while for a high percentage of the teachers from other countries

it was a regular practice (88% of Portuguese, 84% of Lithuanian teachers, 84% of Romanian, and 82% of Turkish teachers).

Provision of developmentally inappropriate practices

Analysis of the data also showed that a very large group of teachers also delivered inappropriate activities. There were a significant number of teachers who relied on commercially prepared phonics books. Use of worksheets and flashcards, cut and paste activities, teacher directed whole-class activities, and ability grouping were common practices among the participants. Fortunately, inappropriate disciplinary strategies including separation of children from their friends or putting them in time-out in order to maintain classroom order seemed not to be practiced by the majority of the teachers.

Of Greek teachers, 40% regularly used commercially prepared phonics books; 43% regularly practiced ability groupings; 43% frequently used worksheets and 37% used flashcards, 6.7% regularly engaged children in rote counting, 23% in handwriting, and 45% in cut and paste activities; 77% regularly had teacher directed whole-class activities; 19% made children sit quietly for a long period of time; 11% used time-out and 16% practiced removing children from the group for disciplinary purposes.

Of Latvian teachers, 50% regularly used commercially prepared phonics books; 90% regularly practiced ability groupings; 43% frequently used worksheets and 83% used flashcards, 65% regularly engaged children in rote counting, 50% in handwriting, and 57% in cut and paste activities; 63% regularly had teacher directed whole-class activities; 3% made children sit quietly for a long period of time; 10% used time-out and 7% practiced removing children from the group for disciplinary purposes.

Of Lithuanian teachers, 47% regularly used commercially prepared phonics books; 74% regularly practiced ability groupings; 75% frequently used worksheets and 74% used flashcards, 83% regularly engaged children in rote counting, 68% in handwriting, and 64% in cut and paste activities; 87% regularly had teacher directed whole-class activities; 35% made children sit quietly for a long period of time; zero used time-out and 8% practiced removing children from the group for disciplinary purposes.

Of Portuguese teachers, 40% regularly used commercially prepared phonics books; 49% regularly practiced ability groupings; 30% frequently used worksheets and 48% used flashcards, 64% regularly engaged children in rote counting, 49% in handwriting, and 41% in cut and paste activities; 88% regularly had teacher directed whole-class activities; 22% made children sit quietly for a long period of time; 8%

used time-out and 13% practiced removing children from the group for disciplinary purposes.

Of Romanian teachers, 20% regularly used commercially prepared phonics books; 84% regularly practiced ability groupings; 88% frequently used worksheets and 76% used flashcards, 72% regularly engaged children in rote counting, 49% in handwriting, and 78% in cut and paste activities; 97% regularly had teacher directed whole-class activities; 39% made children sit quietly for a long period of time; 8% used time-out and 19% practiced removing children from the group for disciplinary purposes.

Of Turkish teachers, 36% regularly used commercially prepared phonics books; 62% regularly practiced ability groupings; 79% frequently used worksheets and 72% used flashcards, 46% regularly engaged children in rote counting, 77% in handwriting, and 82% in cut and paste activities; 85% regularly had teacher directed whole-class activities; 29% made children sit quietly for a long period of time; 12% used time-out and 19% practiced removing children from the group for disciplinary purposes.

43. using commercially-prepared phonics activities

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	13,9	19,4	30,6	22,2	13,9
Latvia	3,3	10,0	36,7	40,0	10,0
Lithuania	18,4	12,2	26,5	26,5	16,3
Portugal	6,3	14,6	39,6	29,2	10,4
Romania	8,1	16,2	48,6	17,6	6,8
Turkey	14,9	8,5	38,3	19,1	19,1

44. working in assigned ability-level groups

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,7	5,7	45,7	28,6	14,3
Latvia	-	-	10,0	26,7	63,3
Lithuania	2,0	14,0	10,0	56,0	18,0
Portugal	14,3	6,1	30,6	34,7	14,3
Romania	-	1,4	12,2	50,0	33,8
Turkey	10,0	8,0	20,0	18,0	44,0

45. circling, underlining, and/or marking items on worksheets

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,7	11,4	40,0	34,3	8,6
Latvia	3,3	-	13,3	46,7	36,7
Lithuania	4,1	4,1	16,3	36,7	38,8
Portugal	22,0	18,0	28,0	22,0	10,0
Romania	-	4,1	5,4	33,8	54,1
Turkey	-	-	20,4	36,7	42,9

46. using flashcards with ABCs, sight words, and/or math facts

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	25,7	34,3	22,9	14,3
Latvia	-	-	16,7	33,3	50,0
Lithuania	4,0	4,0	18,0	48,0	26,0
Portugal	6,0	14,0	32,0	34,0	14,0
Romania	2,7	4,1	14,9	40,5	35,1
Turkey	4,0	2,0	22,0	38,0	34,0

47. participating in rote counting

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,9	8,8	23,5	35,3	29,4
Latvia	56,7	23,3	13,3	6,7	-
Lithuania	2,0	8,2	10,2	36,6	46,9
Portugal	-	8,0	28,0	28,0	36,0
Romania	1,4	4,1	20,3	47,3	24,3
Turkey	10,4	18,8	22,9	25,0	22,9

48. practicing handwriting on lines

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	13,9	16,7	41,7	22,2	5,6
Latvia	30,0	6,7	13,3	36,7	13,3
Lithuania	12,0	8,0	12,0	30,0	38,0
Portugal	20,4	14,3	16,3	36,7	12,2

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Romania	9,5	8,1	16,2	29,7	33,8
Turkey	4,1	6,1	12,2	42,9	34,7

49. coloring, cutting, and pasting pre-drawn forms

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	11,1	19,4	22,2	25,0	22,2
Latvia	6,7	20,0	16,7	46,7	10,0
Lithuania	2,0	8,0	26,0	36,0	28,0
Portugal	14,3	18,4	26,5	22,4	18,4
Romania	2,7	1,4	14,9	37,8	40,5
Turkey	-	4,0	14,0	36,0	46,0

50. participating in whole-class, teacher-directed instruction

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,9	2,9	14,7	29,4	47,1
Latvia	-	3,3	33,3	43,3	20,0
Lithuania	0,0	2,0	10,2	44,9	42,9
Portugal	-	6,1	6,1	16,3	71,4
Romania	-	-	-	17,6	79,7
Turkey	2,0	2,0	10,2	44,9	40,8

51. sitting and listening for long periods of time until they become restless and fidgety

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	41,7	19,4	19,4	11,1	8,3
Latvia	36,7	30,0	30,0	3,3	-
Lithuania	19,6	19,6	26,1	17,4	17,4
Portugal	30,0	20,0	28,0	12,0	10,0
Romania	8,1	24,3	25,7	21,6	17,6
Turkey	25,0	22,9	22,9	16,7	12,5

52. receiving rewards as incentives to participate in classroom activities in which they are reluctant participants

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	38,9	33,3	19,4	2,8
Latvia	3,3	23,3	43,3	23,3	6,7
Lithuania	13,6	29,6	27,3	20,4	9,1
Portugal	43,8	20,8	16,7	12,5	6,3
Romania	21,6	16,2	27,0	14,9	17,6
Turkey	8,0	6,0	28,0	26,0	32,0

53. getting placed in time-out (i.e., isolation, sitting on a chair, in a corner, or being sent outside of the room)

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	37,1	34,3	17,1	5,7	5,7
Latvia	50,0	23,3	16,7	3,3	6,7
Lithuania	76,0	12,0	12,0	0,0	0,0
Portugal	64,6	18,8	8,3	6,3	2,1
Romania	68,9	12,2	8,1	5,4	2,7
Turkey	46,0	20,0	22,0	6,0	6,0

54. getting separated from their friends to maintain classroom order

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	13,9	33,3	36,1	2,8	13,9
Latvia	56,7	16,7	20,0	6,7	-
Lithuania	64,0	12,0	16,0	6,0	2,0
Portugal	58,3	12,5	16,7	6,3	6,3
Romania	37,8	25,7	14,9	8,1	10,8
Turkey	33,3	25,0	22,9	8,3	10,4

Teaching 21th Century skills

As far as promotion of 21th Century skills, it appears that, overall, teaching about sustainable development, environmental issues, critical thinking, language skills, human rights, care & empathy have become a widespread practice while providing regular experiences to teach

children about multiculturalism, intercultural skills, and media literacy was largely ignored.

Responses to the questions about how often the participants taught about critical 21th Century skills revealed that 37% Greek teachers regularly taught about sustainable development; 55% regularly provided environmental education; 31% regularly taught about multiculturalism; 44% regularly incorporated activities to support intercultural skills, 89% regularly incorporated activities to support critical thinking, 41% regularly supported children to gain media literacy, and 83% regularly provided activities supporting language skills; 53% regularly taught about human rights; 94% regularly helped children develop care and empathy for others.

Of Latvian teachers, 57% regularly taught about sustainable development; 70% regularly provided environmental education; 37% regularly taught about multiculturalism; 17% regularly incorporated activities to support intercultural skills, 83% regularly incorporated activities to support critical thinking, 37% regularly supported children to gain media literacy , and 83% regularly provided activities supporting language skills; 67% regularly taught about human rights; 93% regularly helped children develop care and empathy for others.

Of Lithuanian teachers, 57% regularly taught about sustainable development; 84% regularly provided environmental education; 28% regularly taught about multiculturalism; 30% regularly incorporated activities to support intercultural skills, 70% regularly incorporated activities to support critical thinking, 56% regularly supported children to gain media literacy, and 98% regularly provided activities supporting language skills; 64% regularly taught about human rights; 86% regularly helped children develop care and empathy for others.

Of Portuguese teachers, 67% regularly taught about sustainable development; 80% regularly provided environmental education; 63% regularly taught about multiculturalism; 66% regularly incorporated activities to support intercultural skills, 94% regularly incorporated activities to support critical thinking, 74% regularly supported children to gain media literacy , and 92% regularly provided activities supporting language skills; 68% regularly taught about human rights; 97% regularly helped children develop care and empathy for others.

Of Romanian teachers, 75% regularly taught about sustainable development; 85% regularly provided environmental education; 37% regularly taught about multiculturalism; 43% regularly incorporated activities to support intercultural skills, 85% regularly incorporated activities to support critical thinking, 59% regularly supported children to gain media literacy , and 91% regularly provided activities supporting

language skills; 76% regularly taught about human rights; and 93% regularly helped children develop care and empathy for others.

Of Turkish teachers, 56% regularly taught about sustainable development; 98% regularly provided environmental education; 42% regularly taught about multiculturalism; 51% regularly incorporated activities to support intercultural skills, 77% regularly incorporated activities to support critical thinking, 49% regularly supported children to gain media literacy, and 100% regularly provided activities supporting language skills; 96% regularly taught about human rights; 100% regularly helped children develop care and empathy for others.

Sustainable Development

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	14,3	17,1	31,4	22,9	14,3
Latvia	-	6,7	36,7	30,0	26,7
Lithuania	4,1	6,1	18,4	38,8	32,6
Portugal	-	6,1	26,5	36,7	30,6
Romania	-	4,1	18,9	41,9	33,8
Turkey	9,3	18,6	16,3	23,3	32,6

Participants' responses to the question that asked how often children in their classrooms had the opportunity to learn about sustainable development revealed that 37% of Greek teachers, 57% of Latvian teachers, 57% of Lithuanian teachers, 67% of Portuguese, 75% of Romanian, and 56% of Turkish regularly the topic in their teaching.

Environmental issues

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	5,6	38,9	38,9	16,7
Latvia	-	3,3	26,7	20,0	50,0
Lithuania	0,0	6,0	10,0	38,0	46,0
Portugal	-	2,0	18,0	28,0	52,0
Romania	-	1,4	12,2	41,9	43,2
Turkey	-	-	2,0	38,8	59,2

Participants' responses to the question that asked how often they provided environmental education revealed that 55% of Greek teachers, 70% of Latvian teachers, 84% of Lithuanian teachers, 80% of Portuguese, 85% of Romanian, and 98% of Turkish regularly addressed the topic in their teaching.

Multiculturalism

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	13,9	52,8	22,2	8,3
Latvia	3,3	30,0	30,0	23,3	13,3
Lithuania	10,0	32,0	30,0	24,0	4,0
Portugal	2,1	8,3	27,1	31,3	31,3
Romania	5,4	17,6	39,2	23,0	13,5
Turkey	4,0	22,0	22,0	22,0	20,0

Participants' responses to the question that asked how often they provided multicultural education revealed that 31% of Greek teachers, 37% of Latvian teachers, 28% of Lithuanian teachers, 63% of Portuguese, 37% of Romanian, and 42% of Turkish regularly addressed the topic in their teaching.

Intercultural skills

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	22,2	27,8	33,3	11,1
Latvia	3,3	40,0	40,0	10,0	6,7
Lithuania	8,0	32,0	30,0	24,0	6,0
Portugal	2,0	2,0	30,0	42,0	24,0
Romania	2,7	12,2	40,5	32,4	10,8
Turkey	6,4	25,5	17,0	29,8	21,3

Participants' responses to the question about how often they taught intercultural skills revealed that 44% of Greek teachers, 17% of Latvian teachers, 30% of Lithuanian teachers, 66% of Portuguese, 43% of Romanian, and 51% of Turkish regularly provided intercultural skills training.

Critical thinking

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	8,3	25,0	63,9
Latvia	-	-	16,7	53,3	30,0
Lithuania	2,0	8,0	20,0	38,0	32,0
Portugal	-	2,1	4,2	31,3	62,5
Romania	-	5,4	8,1	50,0	35,1
Turkey	-	4,3	19,1	34,0	42,6

Participants' responses to the question that asked how often they taught critical thinking skills revealed that 89% of Greek teachers, 83% of Latvian teachers, 70% of Lithuanian teachers, 94% of Portuguese, 85% of Romanian, and 77% of Turkish regularly provided opportunities for the children to improve their critical thinking skills.

Media literacy

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	5,6	11,1	41,7	27,8	13,9
Latvia	-	30,0	33,3	23,3	13,3
Lithuania	2,0	6,0	36,0	32,0	24,0
Portugal	2,0	2,0	22,0	34,0	40,0
Romania	4,1	9,5	25,7	43,2	16,2
Turkey	4,3	10,6	36,2	25,5	23,4

Participants' responses to the question that asked how often they provided education on media literacy revealed that 41% of Greek teachers, 37% of Latvian teachers, 56% of Lithuanian teachers, 74% of Portuguese, 59% of Romanian, and 49% of Turkish regularly addressed the topic in their teaching.

Language skills

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	2,8	13,9	16,7	66,7
Latvia	3,3	6,7	6,7	33,3	50,0
Lithuania	0,0	2,0	0,0	24,0	74,0
Portugal	-	2,0	6,1	34,7	57,1
Romania	-	1,4	5,4	28,4	63,5
Turkey	-	-	-	26,0	74,0

Participants' responses to the question that asked how often they provided activities to support language skills revealed that 83% of Greek teachers, 83% of Latvian teachers, 98% of Lithuanian teachers, 92% of Portuguese, 91% of Romanian, and 100% of Turkish regularly provided opportunities for the children to improve their language skills.

Human rights

	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	2,8	11,1	33,3	22,2	30,6
Latvia	-	10,0	23,3	46,7	20,0
Lithuania	0,0	10,0	26,0	36,0	28,0
Portugal	4,0	2,0	16,0	20,0	58,0
Romania	2,7	6,8	13,5	36,5	39,2
Turkey	-	-	4,0	32,0	64,0

Participants' responses to the question that asked how often they taught about human rights showed that 64% of Greek teachers, 67% of Latvian teachers, 64% of Lithuanian teachers, 68% of Portuguese, 76% of Romanian, and 96% of Turkish regularly included the topic in their teaching.

Care & empathy

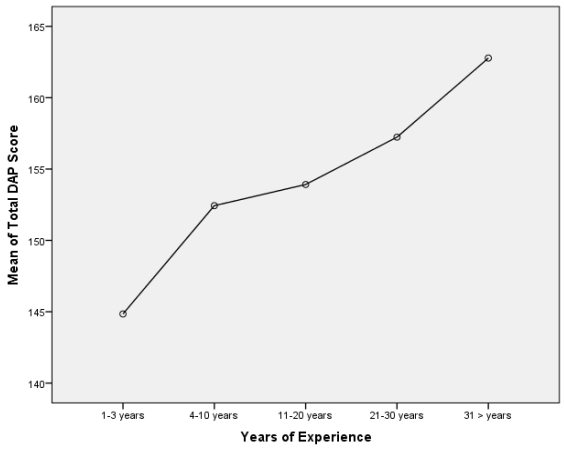
	1 Almost never	2 Rarely	3 Sometimes	4 Regularly	5 Often
	%	%	%	%	%
Greece	-	-	5,6	27,8	66,7
Latvia	-	-	6,7	10,0	83,3
Lithuania	-	4,0	10,0	18,0	68,0
Portugal	-	-	2,0	8,2	89,2
Romania	-	1,4	4,1	10,8	82,4
Turkey	-	-	-	14,0	86,0

Participants' responses to the question that asked how often they engaged in effort to cultivate care and empathy in children showed that 94% of Greek teachers, 93% of Latvian teachers, 86% of Lithuanian teachers, 97% of Portuguese, 93% of Romanian, and 100% of Turkish regularly addressed the topic in their classrooms.

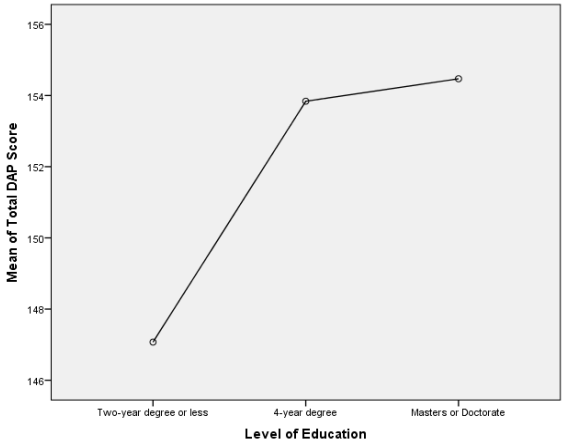
Comparisons of Classroom Activities Scores

Teachers' years of experience. Two-way ANOVA was conducted to examine whether there were significant differences in the total classroom activities scores and teachers' years of experience. A significant difference was found between practices scores of teachers with more experienced groups and those with less experiences ($F(4,235)=7.183$, $p=.000$). Results showed that teachers with over 30 years of experience ($M=162.8$, $SD=13.7$) had significantly higher scores than those with less experience including novice teachers ($M=144.85$, $SD=16.7$), those with

4-10 years of experience (M=152.44, SD=13.8), those with 11-20 years (M=153.92, SD=12.3), 21-30 years (M=157.23, SD=13.7). Teachers with 21-30 years of experience also had significantly higher scores than novice teachers.



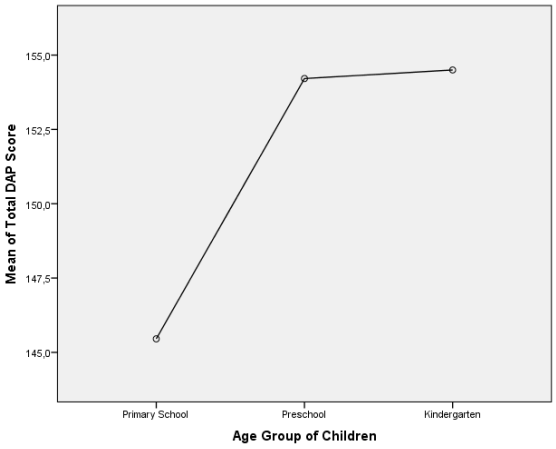
Level of education. Two-way ANOVA was conducted to examine whether there were significant differences in the total classroom activities scores and teachers' level of education. A significant difference was found between practices scores of teachers with a two-year-degree or less and those with a bachelor's degree and master's and doctorate ($F(2,234)=3.04$, $p=.05$). Results showed that teachers with a bachelor's degree (M=153.84, SD=13.4) and master's or doctorate (M=154.47, SD=15.2) had significantly higher scores than those with a two-year degree or less (M=147.074, SD=17.7).



Location of school. Two-way ANOVA was conducted to examine whether there were significant differences in the total classroom activities scores of teachers from urban and rural schools. A significant difference was found between practices scores of teachers who work for an urban school and those who work for a rural school (F(234)=.22, p=.05). Results showed that teachers from urban schools (M=154.18, SD=14) had significantly higher scores than those from rural schools (M=149.84, SD=14).

Public or private school. Two-way ANOVA was conducted to examine whether there were significant differences in the total classroom activities scores of teachers from public and private schools. A significant difference was found between practices scores of teachers from public schools and those who worked for a private school (F(235)=.757, p=.05). Results showed that teachers from public schools (M=154.125, SD=13.6) had significantly higher scores than those from private schools (M=149.16, SD=17).

Age group of children. Two-way ANOVA was conducted to examine whether there were significant differences in the total classroom activities scores of teachers who work with different age groups. A significant difference was found between practices scores of teachers who work with primary children and those who work with preschoolers and kindergartners (F(2,235)=5.414, p=.005). Results showed that preschool teachers (M=154.21, SD=16.3) and kindergarten teachers (M=154.5, SD=12.9) had significantly higher scores than those who teach primary grades (M=145.45, SD=11.8).



Discussion

The aim of this study was to explore how teachers of young children provide education in their classrooms in the countries participated in Erasmus+ KA project titled Experiential Education Competence (EXPEDUCOM) including Greece, Latvia, Lithuania, Portugal, Romania, and Turkey. More specifically, attention was paid to reveal to what degree developmentally appropriate practices were implemented in pre-k to primary programs.

A total of 237 early childhood and primary school teachers from Greece, Latvia, Lithuania, Portugal, Romania, and Turkey participated in the study. A expanded version of The Instructional Activities Scale with an addition of ten more questions that were developed based on NAEYC's recommendations for developmentally appropriate practices was administered to measure how often developmentally appropriate and inappropriate practices occur in classrooms. Participants were also asked questions about how often they addressed 21th century topics and skills.

Descriptive analysis of the data showed that it is a, reportedly, common and regular practice for the teachers participated in the study to offer developmentally appropriate activities including building with blocks, freedom to choose from a variety of learning areas, activities, and projects, experimenting with writing by drawing, copying, and using their own invented spelling, playing with games, puzzles, and construction materials, singing, listening and moving with the music, working with art materials, integration of subjects, inquisitive skills, social skills, plenty of materials to explore and work with, communicating what they have learned, creativity, dialogue among children, given plenty of time, individual interests. Children's work was displayed in the classrooms. Teachers did not have much hesitation on using alternative assessment techniques.

However, data also showed that some other important elements of developmentally appropriate practices were not as regularly included in teaching even though they are critical in realization of the main goals of early education. A significant portion of the participants reported missing on those opportunities including hands-on math and science activities, structured gross motor activities, engagement with manipulatives, teaching about people with special needs and adapting materials for children with special needs, parent involvement, providing experiences to instill care for each other, use of media and technology, and organizing field trips. Similar findings were also reported by other researchers (Bilton, 2010; Bredekamp, 2004; Buysee, Wesley,& Keyes, 1998; Sarama & Dibiase, 2004; Wilson, 2008).

Even though the teachers in the study widely reported that they provided appropriate activities regularly from their answers to the questions about inappropriate practices it seems that a significant group of teachers also delivered inappropriate activities. There were a significant number of teachers who relied on commercially prepared phonics books. Use of worksheets and flashcards, cut and paste activities, teacher directed whole-class activities, and ability grouping were common practices among the participants. Fortunately, inappropriate disciplinary strategies including separation of children from their friends or putting them in time-out in order to maintain classroom order seemed not to be practiced by the majority of the teachers.

As far as promotion of 21th Century skills, it appears that teaching about sustainable development, environmental issues, critical thinking, language skills, human rights, care & empathy have become a widespread practice. Care and empathy received the most attention and seemed to be in the majorities' agenda. However, it is unfortunate that in today's ever globalizing world bearing serious immigration crisis as societies become more and more diverse the participants failed on providing regular experiences to teach children about multiculturalism and intercultural skills. In this globalized economy with electronic and social media have become widespread and largely accessible, media literacy has become a key skill to be acquired for the generations of the new century. Participants' inattention to cultivating media literacy skills in their students have the potential to interfere with such other important subjects as care and empathy, human rights, and critical thinking they seemed to care.

Parallel to the finding by Fei (1995), this study showed that as teachers gain more experience their provision of developmentally appropriate practices increases. Also, as it was reported in McMullen & Alat's (2002) study, educational levels of teachers had a positive relationship with the appropriateness of their teaching. Teachers with only a two-year-college-degree engaged in developmentally appropriate teaching less than those with a bachelor's or advanced degrees. But unlike what McMullen & Alat found, having an advanced degree did not make any difference when comparisons were made between those with a bachelor's degree and those with advanced degrees. Again, congruent with previous research findings (McMullen, 1999), it was found that preschool and kindergarten teachers were more involved in developmentally appropriate practice than primary school teachers. Also, teachers who worked for public schools offered more appropriate activities than those from private schools. Finally, teachers who worked

for urban schools were more committed to appropriate practices than those who worked for rural schools were.

The findings of this study prove that some major issues in teaching young children still persist in the new millennium. Despite decades of research providing a solid framework for effective pedagogies, there appears to be a broken link between theory and practice. Educational reform does not occur over night. It is essential that both practicing teachers and teacher candidates be given opportunities to gain experience in quality environments where developmentally appropriate practices are endorsed and realized. Teacher educators and administrators should design professional development trainings based on empirical evidence that describes in detail what makes a teacher training program work. Ongoing teacher training, effective mentorship, collaboration between the universities and schools, and easy access to resources could help teachers make the connections between the theory and practice.

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Annex

TEACHER PRACTICES QUESTIONNAIRE

Your answers to this survey are confidential. Reports of findings will not use your name or schools.

Please tell us about yourself:

- Age _____
- Gender: ____ Male _____ Female
- Educational level completed

☐Middle school	☐High school	☐Two-year college	☐Bachelors	☐Master	☐Doctoral

- College Major _____

Please tell us about your teaching career:

- How many total years have you taught? _____ years
- What age group/grade do you currently teach? _____
- Where is your school located? Urban area_____ Rural area_____
- Is your school a) Public : _____ b) Private : _____

For the following questions, please think about how often children in your classroom do the following activities.

1. Almost Never (less than monthly) 2. Rarely (monthly) 3. Sometimes (weekly) 4. Regularly (2-4 times a week) 5. Often (daily)

1.	build with blocks	1	2	3	4	5
2	select from a variety of learning areas and projects (i.e., dramatic play, construction, art, music science experience, etc.)	1	2	3	4	5
3.	have their work displayed in the classroom	1	2	3	4	5
4.	experiment with writing by drawing, copying, and using their own invented spelling	1	2	3	4	5
5.	play with games, puzzles, and construction materials (e.g., Thinker Toys, Bristle Blocks)	1	2	3	4	5

6.	explore science materials (e.g., animals, plants, wheels, gears, etc.)	1	2	3	4	5
7.	sing, listen, and/or move to music	1	2	3	4	5
8.	do planned movement activities using large muscles (e.g., balancing, running, jumping)	1	2	3	4	5
9.	use manipulative (e.g., pegboards, Legos, and Unifix Cubes)	1	2	3	4	5
10.	use commercially-prepared phonics activities	1	2	3	4	5
11.	work in assigned ability-level groups	1	2	3	4	5
12.	circle, underline, and/or mark items on worksheets	1	2	3	4	5
13.	use flashcards with ABCs, sight words, and/or math facts	1	2	3	4	5
14.	participate in rote counting	1	2	3	4	5
15	practice handwriting on lines	1	2	3	4	5
16.	color, cut, and paste pre-drawn forms	1	2	3	4	5
17.	participate in whole-class, teacher-directed instruction	1	2	3	4	5
18.	sit and listen for long periods of time until they become restless and fidgety	1	2	3	4	5
19.	have the opportunity to learn about people with special needs (e.g., a speaker or a character in a book)	1	2	3	4	5
20.	receive rewards as incentives to participate in classroom activities in which they are reluctant participants	1	2	3	4	5
21.	see their own race, culture, language reflected in the classroom	1	2	3	4	5
22.	get placed in time-out (i.e., isolation, sitting on a chair, in a corner, or being sent outside of the room)	1	2	3	4	5
23.	experience parents reading stories or sharing a skill or hobby with the class	1	2	3	4	5
24.	engage in child-chosen, teacher-supported play activities	1	2	3	4	5
25.	draw, paint, work with clay, and use other art media	1	2	3	4	5
26.	solve real math problems using real objects in the classroom environment that are incorporated into other subject areas	1	2	3	4	5
27.	get separated from their friends to maintain classroom order	1	2	3	4	5
28.	engage in experiences that demonstrate the explicit valuing of each other (e.g., sending a card to a sick classmate)	1	2	3	4	5
29.	work with materials that have been adapted or modified to meet their needs	1	2	3	4	5
30.	do activities that integrate multiple subjects (reading, math, science, social studies, etc.)	1	2	3	4	5
31.	use variety of media and technology	1	2	3	4	5
32.	build on their informal learning experiences and knowledge	1	2	3	4	5
33.	engage in activities that strengthen their problem-solving, inquiry skills and reasoning processes	1	2	3	4	5

34.	have plenty of opportunities to communicate what they have learned	1	2	3	4	5
35.	are encouraged to be creative	1	2	3	4	5
36.	talk and exchange ideas with each other during activities					
37.	are taken to field trips	1	2	3	4	5
38.	are given ample time to engage in what they explore and manipulate concepts/ideas with keen interest.	1	2	3	4	5
39.	are provided many daily opportunities for developing their social skills (i.e., cooperating, helping, talking) with peers in the classroom.	1	2	3	4	5
40.	are engaged in activities that are responsive to individual children's interests.	1	2	3	4	5
41.	are provided plenty of materials to engage in and explore	1	2	3	4	5
42.	are assessed for their development and learning using alternative assessment methods (portfolios, observations, anecdotes, record keeping etc.)	1	2	3	4	5

For the following questions, please think about how often the topics below become a part of your teaching?

1.	Sustainable development	1	2	3	4	5
2.	Environment	1	2	3	4	5
3.	Multiculturalism	1	2	3	4	5
4.	Intercultural skills	1	2	3	4	5
5.	Critical thinking	1	2	3	4	5
6.	Media literacy	1	2	3	4	5
7.	Language skills	1	2	3	4	5
8.	Human rights	1	2	3	4	5
9.	Care and empathy	1	2	3	4	5

PART C

EXAMPLES OF EXPERIENTIAL BASED LEARNING DEVELOPED IN DIFFERENT COUNTRIES

CHAPTER 6

CASE STUDIES ON EXPERIENTIAL EDUCATION IN KINDERGARDEN (FOR CHILDREN AGED 3 TO 6)

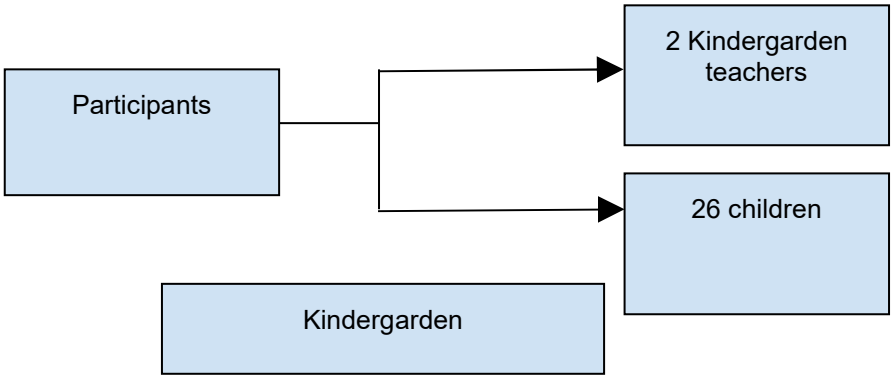
Alphabetical Country Order:

Case Study no.	*Country*	*Title of the case-study*
1	Greece	*Teaching Mathematics In An Experiential Way*
2	Latvia	*Three Little Piglets And A Wolf*
3	Lithuania	*Magic Scissors*
4	Lithuania	*Volcano*
5	Lithuania	*Experiential Learning Project "Friendly Vegetables"*
6	Lithuania	*Experiential Learning Project "I Care About Our Nature"*
7	Lithuania	*The Smart Games*
8	Lithuania	*Experiential Learning Activity "Math Outdoor"*
9	The Netherlands	*Enrich Outdoor Education By ICT*
10	Portugal	*Winning The Race*
11	Portugal	*Germinating Seeds*
12	Romania	*Experiential learning project in early childhood education: Floating Raisins*
13	Romania	*Geometrical Shapes Through Outdoor Learning*
14	Romania	*Experiential learning project in kindergarden: Invisible Ink*
15	Turkey	*Healthy Life Style*

6.1. TEACHING MATHEMATICS IN AN EXPERIENTIAL WAY

Athena ALEXOPOULOU, Eleftheria BETEINAKI, Xrysa DERZEKOU,
Moscha KAPSALI, Marina TZAKOSTA[1]

Context and participants



The topic dealt with in our preschool classes was the teaching of mathematics, more specifically geometry and size. The reason we opted for this topic was because, on the one hand, mathematics is so abstract that preschool and early primary school teachers try to avoid to deal with, and, on the other hand, our experience is that mathematics "is everywhere" and highly contributes to experiential learning. The teaching intervention presented here has been applied in 2 public kindergartens (kind1 – N = 16, kind 2 – N = 10). Two kindergarten teachers were present as moderators when needed.

Pedagogical approaches

For the design of our teaching intervention we took the principles of child-centered teaching, globalization, actuality, supervision and experiential education into consideration. Then, we tried to produce experiential activities following the axes underlying EXPEDUCOM. The theories we opted for in the design of our materials are:

- The Project approach (cf. Knoll 1996, 1997)
- Constructivism (cf. Jacobsen, Eggen & Kauchak, 2006)

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- Multimodality (cf. Kendrick et al. 2006)
- Political education in school (cf. Kalantzis & Cope, 2013)
- Vygotskian Theory (cf. Vygotsky 1962)
- Multiple intelligences (cf. Gardner 1983, 1993, 1999, 2004, 2006)
- Experiential Education (cf. Kolb 1997, 1981, 1984)

Given the difficulty behind teaching mathematics to preschool children and following Andersson & Gullberg (2014), we decided to use children's earlier and previous experiences in order to better design our teaching intervention. Therefore, we interviewed the children in order to understand the mathematical topics they themselves were interested in.

Finally, we opted for an infantile and easily accessible way of teaching mathematics. Therefore, the best way to unfold our ideas was through a child-directed story accompanied by physical activities which enabled preschool children understand geometry. Finally, we sang a song about geometrical shapes and made a poster with children's relevant drawings.

Teaching and learning experience (description)

a. Preparations – teaching design

i. Interviews

Our teaching was developed in two phases realized in one whole school day. During the first phase we interviewed the children one-by-one aiming to record their earlier impressions regarding mathematics and their learning needs. Interviews were videotaped and lasted for approximately 5 minutes.

- Do you know what mathematics is?
- Is mathematics important?
- What would you like to learn more about mathematics?

What children found most interesting was working with numbers, sizes and shapes. Therefore, we decided to develop a teaching intervention which would combine the teaching of all threee mathematical aspects, following the project approach (cf. Knoll 1996, 1997).

ii. Writing the story

We wrote a story which would serve as the main tool for the teaching of mathematics and geometry. Our central idea was related to the importance of recycling. The major characters, i.e. the gometric shapes, were looking for the right bin they should be placed in. Geometric shapes could talk, dance, play and have fun, just like children. Children's stories maintaining magic elements are attractive to children and pedagogical/ education are disseminated more effectively (cf. Strauss, 1996).

iii. Organizing the psychokinetic (physical) activity

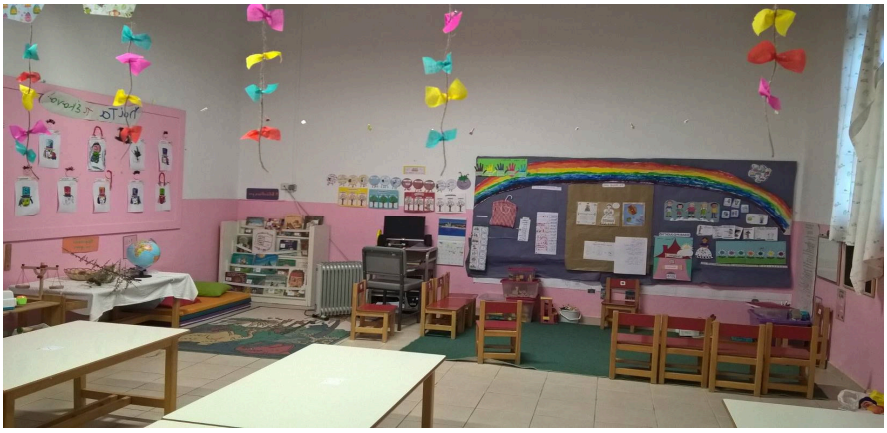
The fundamental philosophy for the design of the psychokinetic (physical) activity was to help children realize what methematics and geometry are, perceive their importance for everyday life, and apply them in real life according to their needs.

b. Teaching intervention - implementation

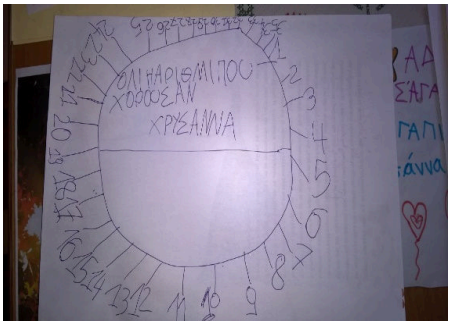
Our teaching intervention started with story-reading and story-telling. Various geometric shapes were looking for their bins, since people were placing them in the wrong bins of the wrong sizes. Then, we had a 10 minutes discussion with children during which we made some comprehension / understanding and consolidation questions. We further asked children to find similarities and differences between various geometric shapes.

Subsequently, children participated in the physical activities. The experimenters and the moderators associated different geometric shapes with different musical pieces. Then, they also showed children that distinct geometric shapes should be placed in different recycling bins. The bin associated to each geometric shape was marked by a specific color. However, since each geometric shape could appear in different sizes, these shapes of different sizes should be placed in different pins. Therefore, we made various bins of the same color.

As a result, children had to pick up the ‘correct’ geometric shape associated to the music children were listening to. Then, they had to put each shape in the correct bin. When these activities were completed, children counted the number of shapes placed in each bin. In addition, they tried to figure out the shapes of different objects found in their classes.



Finally, children were asked to draw different geometric shapes and make a poster with them in order to inform our parents and friends about our newly acquired knowledge.



c. Aims of the designed activities

- Language
  - *Oral communication*

Children are expected to be able to a) describe, b) to be able to explain and interpret facts

- *Reading*

Children are expected to be able to understand/ comprehend and retell a story, b) to draw information from written speech.

- *Writing*

Children are expected to understand the importance of writing as a means of communication and to produce their own written texts.

- Environment

Children are expected to a) detect similarities and differences between different geometric shapes, and, b) develop their language, communication skills and use of ICT.

- Expression

Children are expected to a) try to interpret mathematics and geometry through arts, b) express themselves through acting, playing and co-operating.

Findings & discussion - reflection

The pre-teaching interviews showed that there was little information regarding the use of geometric shapes in everyday life. During the teaching intervention, children were deeply interested in the topic and fully engaged in the activities. There seems to be some differentiation between younger and older children; in other words, the older the preschooler the better they scored with the geometric shapes recognition. Parents reacted positively regarding our teaching methodology and the materials we used in it.

Using in other contexts and age groups

The case study presented here was designed for the needs of preschool classes. However, our teaching could also be applied in all primary school classes as long as the necessary modification – so that our teaching could me incorporated in the primary school curriculum - took place.

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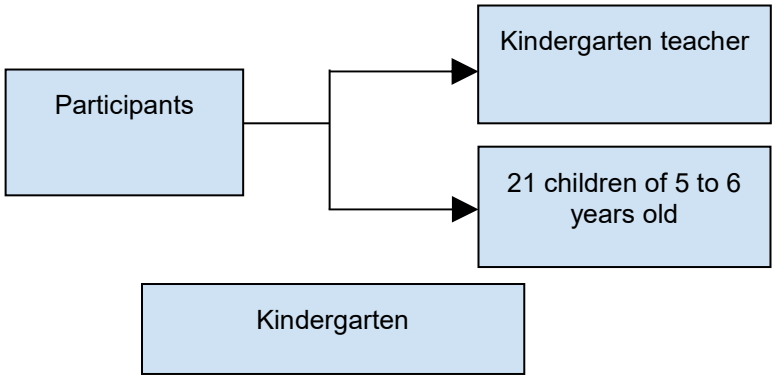
6.2. THREE LITTLE PIGLETS AND A WOLF

Marija TOLPEŽŅIKOVA[1], Dace BRINKA[2], Daniela Anda POSTŅIKOVA[3], Anete PLŪME[4],

Context and participants



Pedagogical approaches

Fairy tale telling gives children the opportunity to explore story and understand better its content. Children can better understand characteristics of characters in the story and understand their action if they had experienced the story for themselves during retelling and play.

Learning process through personal experience is very important for development of cognitive competence and understanding the subject.

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Experiential learning based on learning allows connecting children's previous experience with activity, and during activities each children can learn according to his/her development.

Let children to explore different situations and change activity if necessary, avoid too long activities, consider the fact, that preschool child can turn attention to one continuous activity.

Teaching and learning experience (description)

The activity was developed with a group of 5-6 years old. In this activity children compare different materials which can be used for building a house and observe the influence of air and water to the stability of the structures and properties of materials. The activity also improves the quality of communication skills and group cohesion.

Materials: puppets (5 piglet hand puppets, 1 wolf hand puppet), 5 balloons, straws, branches, paper, scissors, Legos, sugar cubes, water sprayer.

Planification of the experimental work

1st Step: Fairytale about 3 piglets and a wolf is used as a base for experiment to connect children's experience with learning situation and creates motivation for work. Children know the fairytale and are keen to experience it in the reality.

2nd Step: Teacher has a discussion with children about different materials. They try to build houses for piglets from Lego bricks, branches, sugar cubes, paper and straws. Children have opportunity to explore materials - touch them, smell them, compare size and weight.

3rd Step: Children can observe and understand the differences between building materials. They can learn which material is more stable by using practical experiment. Children are divided in groups to work with any material.

4th Step: All five groups of children begin their activity. They decide together how to build the house. They can get teachers help, if necessary. They realize that some houses can be faster done than the others. The house which is more stable and strong will take more time to build.

5th Step: Children are actors now and they are telling the story. The wolf goes from house to house and tries to blow the house down.

Main findings or discussion

6th Step: Children have a discussion about the results of the experiment. Children realized how difficult it is to build a house. Some

houses take longer time to make, some are really easy to make. Each group expresses their discoveries in some sentences about the stability of construction and the properties of materials.

Reflection

During the experimental work:

- The children learned how to work in a team;
- Observed difference between different building materials;
- The teacher was involved in the process, so the children learned how to participate in every activity;
- The children were encouraged to participate in the fairy tale as actors.

Using in other contexts and age groups

This storytelling situation can be successfully used in different age groups. It is necessary to know children's age and cognitive skills level. During experiential learning teacher more and more takes place as advisor and observer.

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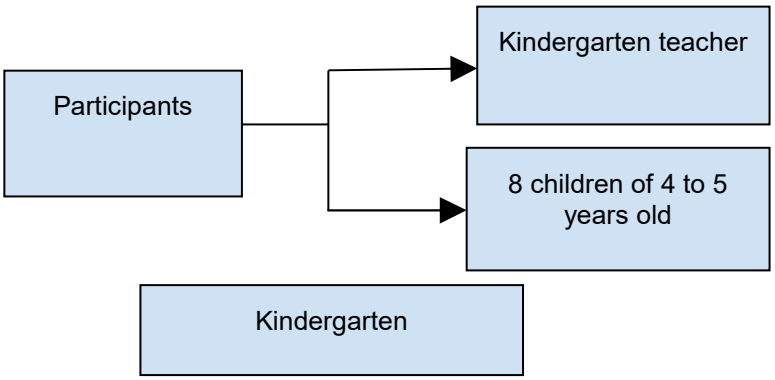
6.3. MAGIC SCISSORS

Raimonda SADAUSKIENĖ[1], Asta KOCHANSKIENĖ[2],
Lina VAIŠVIDIENĖ[3]

Context and participants



Pedagogical approaches

Child's education through exploration, experiments and discoveries is very important for the development of child's cognitive competence. It is achieved when children are actively participating in various activities. During exploration, experiments and discovery a child accumulates experience, discusses, focuses his/her attention, reasons out, thinks critically, solves the problems, remembers, understands, perceives, develops the senses (sight, touch, hearing), develops hand – eye coordination and attention, learns to concentrate, develops curiosity, is able to retain attention, tries one's potention. During the testing and exploration, the learner perceives dependence and causal processes, child experience joy of knowledge and discovery. According to the findings of many researchers, education through exploration and experiments has many advantages:child's development is fully nurtured; skills of working in a team and concentration are developed, children become more attentive and more inventive, more active and more orderly, develop their vocabulary; grow and expand the stages of

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knowledge and alongside with them grow the basics of discursive thinkingsupported by the intellectual growth, which has a significant impact on the conceptual learning.

Teaching and learning experience (description)

The activity has been developed with a group of children of 4-5 years old. With this activity we want children to experiment and discover the properties of magnetized objects, to find out how to magnetize objects and to where magnets are used.

Planning of the experimental work

1st Step: There aretwo different coloured plastic buckets with water on the table. The teacher encourages children to guess whether the iron screws dropped in the buckets will drown in water or will float on the surface.

- Do you think that these screws can float on the surface of water like a paper boat?
- Why do think so?
- Let's test. Maybe other screws will not drown?
- Perhaps, the fact that the screws have drowned is due to the color of the bucket?
- Let's try to do the same thing in another bucket.

By experimenting children discover that the iron screws are drowning in water regardless of the color of the bucket.

2nd Step: Children think whether it is possible to remove the iron screws from the bucket with dry hands? While testing the specific screws pulling out of the water ways, children are experimenting, speculating, trying, joking and eventually discover that this is really difficult to do.

Experimental Work

3rd Step: The teacher offers to pull out the screws with the help of the scissors. Children do not know yet, that the educator's scissors are magnetized, so they are very surprised to see that the screws in the water stick to the scissors. Little researchers are offered to do the same with their own scissors: possibly, the scissors are designed not only for cutting but they are great fishing tool as well, only nobody could understand that? Children are surprised that the screws don't stick to their scissors. They remain in the water.

Main Finding or discussion

4th Step: The secret of the teacher's scissors is disclosed to the children. Children are showed how to magnetize the objects. Children explore the features of magnetized objects trying to remember where they saw magnets used at home:

- "The magnets are on my truck to adhere the trailer", says Pijus.
- "My brother has a magnet; he sometimes carries it to school. I do not know what he does with it there", says Karina.
- "Dad affixed the magnet to the kitchen cabinet door. The door sticks to it and doesn't open", says Austėja.

5th Step: The teacher suggests children to ask their parents, what they know about magnets and their use, and the next day to share with the friends about new discoveries. In such a way parents are involved into children's experimental activity.

Reflection

During the experimental work children found out that:

- iron objects drown regardless of the color of the vessel which is filled with water.
- By testing and comparing children got familiarized with the properties of the magnetized objects; they were surprised to learn how to electrify the objects.
- Remembered where they saw the magnets used in a real-life, systemized already gained knowledge and experience.
- Parents were engaged in children's explorations and group peers' cooperation was initiated.
- During the experiments, children revealed their individuality, different level of knowledge and abilities. Children were inspired to observe, notice and explore the objects in the close environment which surprised them with still unfamiliar features.

Using in other contexts and age groups

Although the experiment, which fostered children to discover the properties of magnetized objects, to learn how to electrify objects and to search for supplementary information together with the family, described in this paperhas beendeveloped under thepre-school education, transferability of separate parts of the experiment is possible forall levels of education. For example, three year old children can explore the objects/materials that float and sink in the water. In pre-primary level children can not only discover why magnetized objects are used in the household but also try to explain the phenomenon of magnetization; together with a group of friends they can create "new discoveries", being responsible for the whole work.

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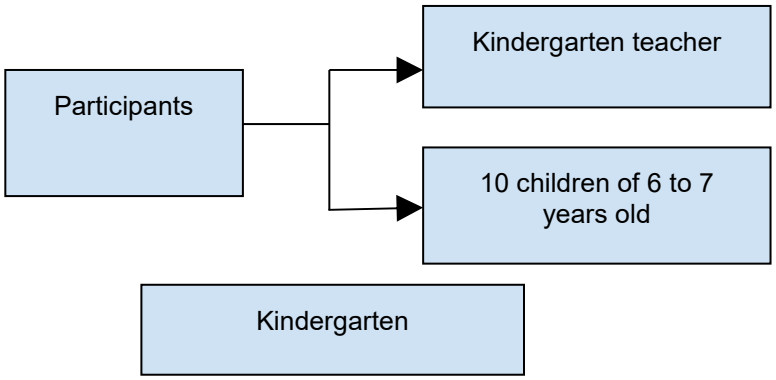
6.4. VOLCANO

Raimonda SADAUSKIENĖ[1], Asta KOCHANSKIENĖ[2], Lina VAIŠVIDIENĖ[3]

Context and participants



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Pedagogical approaches

Exploration, experimentation, discovery is one of the most important ways of accumulation experience of preschool children which helps to extend their knowledge and skills, to acquire new competencies, to attain maturity for school. By experimenting and experiencing children learn to compare, systematize, classify, summarize. They are not afraid to make mistakes, try again, try something different. Children learn to reflect, to express their opinions,to search for the necessary information. Children learn to hear their friends and cooperate.

Teaching and learning experience (description)

The activity was developed with children of 6-7 years. With this activity children familiarize themselves by experimenting with the new natural phenomenon (volcano), the properties of liquid and bulk materials by transferring them from a wider vessel to a narrower. Together with their parents children search for new information and share their discoveries with the friends.

Planification of the experimental work

1st Step: Walking in the yard, children talk to the teacher about what volcano is. It turns out that even though the children have heard this name, but just Augustas manages to tell a little bit about it:

- Who can tell me what the volcano is? - This is a mountain, where lava is, and then it runs out – says Augustas.
- How does lava get out of there? Maybe let's try to find it out right now?

2nd Step: Children bring the tools for the experiment from the group, which have been developed by the educators: empty bottles (0.5 liter), flow cups, plastic mugs, plastic spoons, a dish filled with baking soda, 3 liters' container which is filled with gouache colored vinegar.

Experimental Work

3rd Step: The experiment takes place in the yard on a pile of sand. Children pour baking soda with the plastic spoons into the plastic mugs. Then they try to transfuse baking soda from the mugs into the bottles. It turns out that it is not as simple because the bottle neck is narrower than the mug and part of baking soda passes through. Children discuss how to simplify the work. They find a funnel among the tools. The funnel is inserted into the bottle and it helps easily to pour baking soda from the

cup into the bottle. The halffilled bottles with baking soda are closed are buried into the sand. Sand around the bottle is poured into a hill and flattened. Only the bottle caps are seen out of the sand. Then the bottles are opened again and colored vinegar is poured inside. This experimental phase is carried out together with the teacher. Vinegar, the same as baking soda at the beginning, is poured into the mugs, then using funnels, is poured into the bottles. After a few minutes the sand mountains turn into "volcanoes": in case of baking soda and vinegar reaction “lava” begins to erupt out of the “mountain". By exploring "volcanoes", children discover that they are all different - the washdown, height, color. Children discuss why it happened, despite that all of them used the same materials and tools, "volcanoes" didn’t become identically equal.

Main Finding or discussion

4th Step: Children discover how to pour bulk and liquid materials into a narrow bottle without difficulty. During the experiment they become "little chemists” and observe the reaction of baking soda and vinegar with surprise. They get interested in little - known natural phenomenon and want to learn more about it.

- When I come home, I’ll show my dad how to make the "storm-mountain"- says Nojus.

5th Step: The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions. Teacher offers children together with their parents to search for more information about the volcanoes, and the next day to share new discoveries with the group of friends. In this way, the children are encouraged to engage parents in the experimental work.

Reflection

During the experimental work:

- Was valued the learning by discovery and adopted different practices, focusing on cooperation and respect for the different interests of children.
- Educational opportunities that favored cooperative learning and the involvement of children were created, contributing to the success and learning process of all.
- The kindergarten teacher was an active mediator of learning and development of children being alert to the learning processes and trying to understand the conceptions of children to organize the experimental work.
- The children were encouraged to interact with the world around them, so that their learning could be meaningful to them.
- The child was valued as competent, having the opportunity to expand their knowledge about subjects of their interest.
- The children tested and discovered that it is more convenient to pour liquid and bulk materials from a wider bowl into a narrower bowl by using a funnel.
- They made the experiment with baking soda and vinegar and watched the reaction of the two materials.
- The children found out that all "volcanoes" are different in height, color and the lines of running down. They reflected why these differences occurred, although the substance was the same.
- Parents' involvement in children's exploration and a close participation of peers was initiated.
- During the experiments, children's individuality - different knowledge, different skills were disclosed. Children were encouraged to search for additional information about the new phenomena, unheard things in the sources of literature and on the Internet.

Using in other contexts and age groups

Although the process described in this paper has been developed under the pre-school education, transferability is possible for other levels of education. The procedures developed in the learning experience that include formulating problems, observing, planning, experimenting and discussing the findings, should be encouraged at all levels of education. The teacher's mediating role and the children’s center action are aspects that must be considered in the pedagogical interaction in schools.

In this regard, we believe that with the appropriate adjustment of languages and considering the complexity of the issues and themes, this

activity can be developed in different educational environments and age groups.

Separate parts of the experiment could be extended to other age groups. For example, the 4-5 year-old children can explore the properties of liquid and bulk materials to get familiarized with the funnel features. In primary school children can not only to explore the soda and vinegar reaction, however, and try to explain the volcano phenomenon, together with a group of friends search for information on the Internet, encyclopedias and other sources of information.

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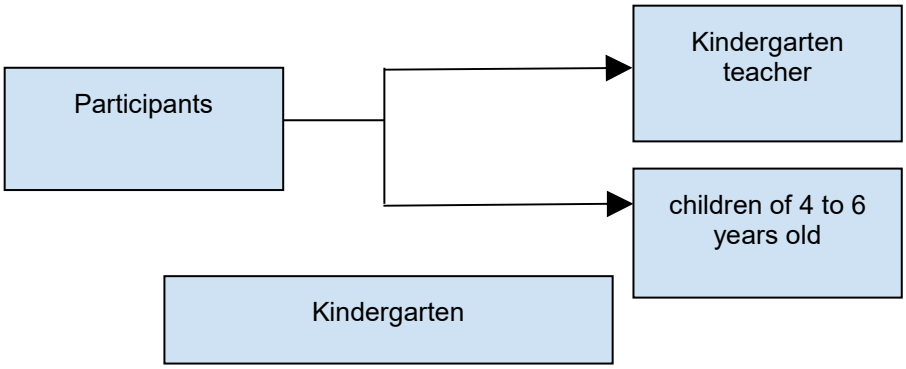
6.5. EXPERIENTIAL LEARNING PROJECT "FRIENDLY VEGETABLES"

Renata GRIGELIONYTĖ[1], Edita MARTINKĖNIENĖ[2]

Context and participants



Pedagogical approaches

Direct experience of the natural world can motivate positive environmental action especially when supported by adults who express and demonstrate care for the environment. To take care of their own

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garden children learn how to apply skills and manage risks in a “real world” setting. Children learn to care about the school grounds and look after them better.

Teaching and learning experience (description)

The activity was developed with mixed age group of 4-6 years for 3 months. The problem of the Project was healthy lifestyle. Children continue to learn new skills and ideas about food when eating away from home, being at kindergarten. Children spent the most part of their day at kindergarten. They have three meals there. It was noticed by teachers and parents that children avoid eating vegetables. The aim of the Project was to make vegetables „friendly meal” for the children. Making meals together can also be an educational and fun activity.

Project progress

1st Step: Project progress accent - an approach that **successful development** depends on the result of the **child's activity** in the educational process.Therefore, the **child** was an **active** participant of the project at all stages. The discussion with the children about the problem “What do I think about vegetables eating?” was instrumental in finding the causes of the problem. Here are some children's reflections:

- Children love cabbage, beets, cucumbers (Mėja)
- Most children love sweets, because they contain a lot of sugar and sweeter (Luiza)
- You need to accustom them to eat vegetables, because their teeth become so small. You need to accustom them to drink water. (Beatričė)
- My mom just bought a cucumbers and I love to eat them with honey. (Saulė)
- I don’t like mixed vegetables with oil. (Tadas)

2nd Step: Program of activities. The program of activities has been developed together with children, their parents and teacher. Here are some ideas:

- Play vegetables theater (Ben’s mother)
- The production of vegetable juice (Marta‘smother)
- Grow vegetables (Luknė)
- Go to the vegetable market (Paulius).

3rd Step: Working Programme

At first our goal was to encourage children to taste the different flavours of the food. The kindergarten teacher organized various activities helping to know a variety of tastes. The main task was to arouse the curiosity of children and to encourage children to be active in using as many senses.

- Exploring the feature of vegetables during the play. Children blindfolded tasted vegetables, described their taste, and experimented by creating vegetable flavour combinations.
- Competing, whom‘s spring onion will grow longer.
- Exploring the feature of vegetables during the cooking, creative activities.

- Herbs sowing inside and outside, taking care of them, exploring and observing.

Reflection

- Children are interested in tasting of different vegetables: they are discussing about the taste of the vegetables, started to differ their tastes;
- They started to notice the differences between vegetables and found the favourite tastes for themselves;
- It was made different meals from vegetables by their offers, and they ate them with positive emotions;
- Vegetable garden differs every year, according children wishes.

Using in other contexts and age groups

After this project it was planned to include different, separate vegetables into the menu, not only vegetable salad.

The project activities encouraged to share the gained experience with other collegues from the other kindergartens, where the educational agendas were supplemented with food making and gardening activities.

The project can be developed with different age groups, including more difficult things to grow, not just vegetables.

Gardens can differ every year with their plants, there can be berries, herbs, flowers and etc.

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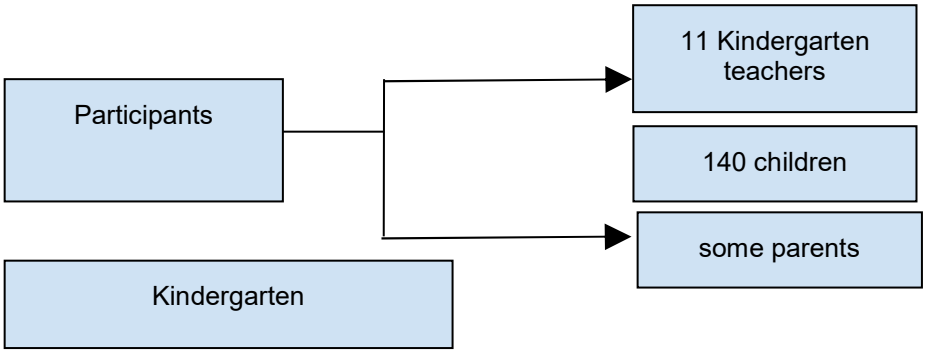
6.6. EXPERIENTIAL LEARNING PROJECT "I CARE ABOUT OUR NATURE"

Edita MARTINKĖNIENĖ[1], Renata GRIGELIONYTĖ[2]

Context and participants



Pedagogical approaches

Outdoor spaces and places can present to develop problem – solving strategies. Children are exposed to far more varied and multifaceted issues and challenges in an outdoor environment. These can be used skillfully to engage them in the application of a wide array of skills and knowledge in response to challenges.

It is said, that children, who spend more time in a natural environment, they have a better knowledge about nature. They want to take care of the nature. Time to observe patterns, sequences and events in the world can develop an understanding of relationships, inter–dependency and cause and effect.

Teaching and learning experience (description)

The aim of the project was eco thinking at preschool. Childhood is the most favorable age for the children's formation of provisions. Environmental pollution problems realize actively acting in the immediate environment. During the project will be developed in various areas of

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children's abilities: observation, exploration, creativity will be developed in various areas of children's abilities problem-critical thinking. Activities will be organized in groups of kindergarten and outdoor surroundings in cooperation with the family.

Project progress

1st Step: The **discussion** about the environmental problems was raised after the educational performance "What the stork was afraid of?" were the teachers were playing the story when the stork came back from Africa and he saw how people are polluting the nature. The children naturally started to evaluate which behaviour was wrong in that performance and the teachers had some problem solving questions for the children to help them to discuss. Some considerations of children was:

- Those people were really bad. The stork could get sick. The rubbish should be thrown in the recycle bin. (Tajus);
- It is not allowed to litter in the forest (Ieva);
- The fishes can die (Gabrielė);
- My mummy always pick up our litters, when we are going home (Mėja);

2nd Step: Program of activities. The program of activities has been developed together with children, their parents and teachers. Here are some ideas:

- To build "the different city" using paper boxes (teacher Edita);
- To set up the recycling containers from the paper boxes in the yard of the kindergarten (Ema's mother);
- To arrange „The fashion show", wher all the clothes would be made of the litter (Lėja's mother);
- To go and clean up the forest (Tadas);
- To create the game by using secondary raw matterials (teacher Renata);
- To write down the rule „It is not allowed to leave the litter in the forest" and to hang it on the tree (Gytė).

3rd Step: Working Programme.

During the project it was held a lot of activities, and implemented some of the parent's, teacher's and childrens' ideas. Every teacher were responsible for their group activities.

▪ It was held the working group called "Many hands big onus can raise", right after the performance. During this activity children, parents

and teachers were picking up the litter in and outside the territory of the kindergarten. Here the children started to fantasize what interesting they could do or make with the litter they found.

- The problem solving thinking, creativeness and cooperation with other children or adults by trying to communicate how to create interesting games, toys and measures was acting important role in the children's' learning when they were creating games and costumes from the secondary raw materials.



- The creating games were adapted not only for the individual play, but also for the small groups or the teams. Than the idea arose to organize the small sport fiesta called “Arise for the second life”

Reflection

- Cooperating with the closest environment children were gained experience about the pollution damage to it. Kids noticed that the small insects, small plants under the litter are dying, children were sad about the people who don’t take care of our nature. It was the main point, which encouraged children to write a letter for those who are polluting the nature. In that letter they were philosophizing about the harming the nature where we live.
- Children were supplementing each other with their own experience and knowledge, by cooperating and collaborating they were learning from each other.
- Children were active and initiative: encouraged and taught the family members and their friends, to accomplish the project ideas at home too.

- Children wanted to recycle the litter during and after the project in the kindergarten and at home.
- After the project most of the groups made the recycle bin for the paper.

Using in other contexts and age groups

The project ideas are planned to fulfill and add into the pre-school group's agendas, every year they will be renewed and filled with the new parent's, children's and teacher's ideas and recommendations.

The project could be held with different age groups adopting it with different tasks and ideas.

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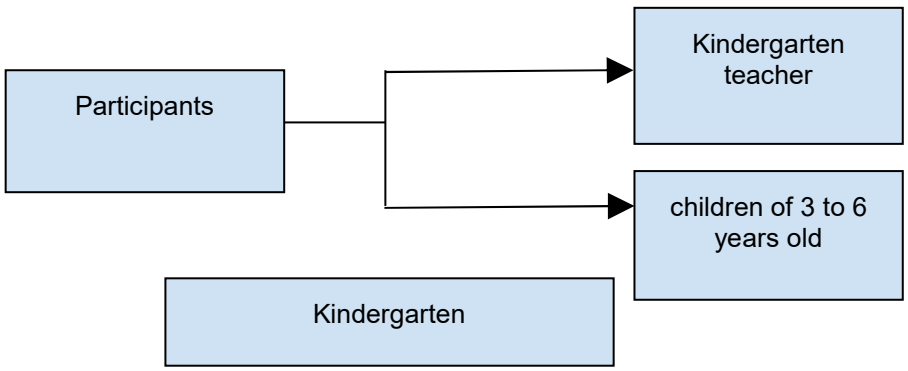
6.7. THE SMART GAMES

Renata GRIGELIONYTĖ[1], Edita MARTINKĖNIENĖ[2]

Context and participants



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Pedagogical approaches

The discussion on the use of the ICT by very young children has given rise to some controversy between those who defend, more or less warmly, the educational benefits of technology and those who object to it for various reasons.

There is now a general agreement amongst different specialists that ICT can support a child's skills as well as can create a developmental appropriate learning environment depending on their needs and the curriculum requirements. Many studies have supported the view that ICT can foster the literature, early mathematics, cognitive, emotional-social, motor skills and enhance the creativity of kindergarten children.

Teaching and learning experience (description)

The activities was developed with the groups of 3 to 6 years. With these activities we want that children be active and integrative in different activities at one time.

Planification of the experimental work

1st Step: These activities arose after the seminar for the pedagogues, where the lector showed how differently the Smart Board could be used in the learning process. Teachers know how much children love to play computer games, and they were looking the ways how to include the games into the learning activities to achieve the goals, which are important for the particular child or for the group of different children.

Teachers made an interview with children, what they would like to do when they are playing computer games. Some children ideas:

- I would like to paint (Ema);
- I want to write my name (Lina);
- I want to hunt some animals (Liudvikas);
- I would love to play guitar (Arminas);
- I want to sing (Aistis).

Considering children's wishes teachers cooperated into small groups and were creating some games using The Smart Notebook 11 program.

2nd Step: It was important to find out the parents opinion about the ICT use in the learning process. There was held a survey, to find out if the children's parents will support this idea, to use ICT in the learning activities. Most of the parents said, that the computer could be used in

the kindergarten if it is used not only for games, but also for the educational aims"

- I like the idea to use computers, cameras, Smart phones or Smart Board in the learning process (Miglė's mother);
- We could give our old computer to create new area in the group, where children could use it only for their games (Tada's parents);
- I would love to learn how to create those games for the children too (Aronas mother);
- We hope you will share the created games, and we could use them at home too (Tajus Mother).

3rd Step: The games were created considering the children's, parent's and teacher's suggestions. Moreover the created games were adopted to the every group's agenda and the themes on that period of the year. Themes of the games:

- Ecology;
- Spring flowers;
- Forest;
- Princesses and pirates;
- Numbers;
- Letters;
- Fairytales;
- Friendship;
- Etc.

The games were played in the other class, where the Smart Board was, there the group of children could play separately from all of the group. The games were selected for the appropriate group of children, who needed to deepen their knowledge in one or other subject. When the Smart Boar was occupied by other groups, children every time could play the same games on the computer in their group.

Main Finding or discussion

4th Step: the games were created by different activities:

- Older children were learning to know and recognize the names of the flowers, compare them by the different features. Children could count and manipulate with numbers or geometrical figures. Kids learned to understand the amount, figures set in the space. There were the notes in every game, so children could recognize the letters, they could try to read. With the help of these games children started to recognise the connection between the written word and the picture.

- Computer games helped to include passive children into the learning activities. For those who don't like to be with group of children, teacher suggested to play some game on the computer, later on including a child into the group of children, where they are finding similarities between each other's, sharing their experience in playing computer games.
- Every child wants to play with the Smart Board, so there were developed their cooperation and collaboration. Children had to accept the rules and create them while playing with the Smart Board, it was important to deal by themselves, who will be the first, the second and etc.
- The situations, created in the games encouraged children's critical thinking, they had to make decisions and chose the wright or wrong thing to make the situation go on.

5th Step: The games are reused more times. It depends on teachers and children creativity. Every time teacher can create different rules for the same game, or add more tasks to make it more difficult and encouraging children's critical thinking.

Reflection

Observing the activities with the Smart Board, we noticed that children:

- Had an opportunity to be creators, gained courage to take risks, fatasize and interpretate what they see on their own way;
- Were educating the ability to consult, negotiate and coordinate with each other, express their oppinion, don't criticize and accept the different point of view.
- Enriched their experience about the surrounding world, gain new knowledge and skills.

Using in other contexts and age groups

The described process has been developed with the kindergarten children, it is possible for other ages too, just adjusting the games or tasks by their age. Teacher should be more observing than acting in those activities. Teacher creates games and tasks by the children's needs and abilities, but the children can interpret them on their own too.

These activities became the part of our educational agenda.

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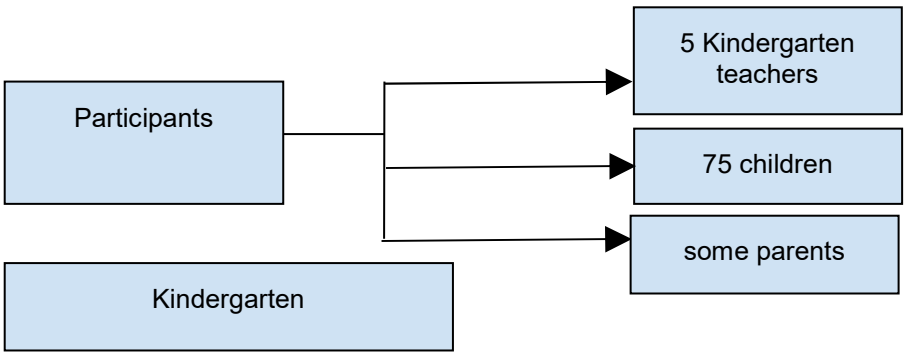
6.8. EXPERIENTIAL LEARNING ACTIVITY "MATH OUTDOOR"

Renata GRIGELIONYTĖ[1], Edita MARTINKĖNIENĖ[2]

Context and participants



Pedagogical approaches

It is usual to educate mathematical children's thinking inside in the kindergarten. Children are suggested to play some mathematical games, tasks, but the teacher should find some new, interesting and interactive ways to involve children into the mathematical activities. The world is a mathematical place. Everywhere there are angles, shapes, moving objects, patterns to behold, numbers to count and investigations to be undertaken. It is a creative, challenging and wondrous way of looking at life and exploring any outdoor space.

The outdoor environment is natural experimenting laboratory. The unpredictable nature of the outdoors encourages resourcefulness in both children and practitioners. Maths helps make sense of the world in which we live and understand both the order and certainty and well as random

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events and their chances of happening. By exploring the size, quantity, shape and patterns outside us learn so much more about our immediate surroundings in an interdisciplinary way.

Teaching and learning experience (description).

The activity was organized with the pre-school children (3-6 years) outside. It was oriented to educate children's mathematical skills by using the natural outdoor environment. The planned activities were for calculating things, for understanding the amount, for measuring, for cognition of the geometrical figures ant for the orientating in the space.

Planification of activity

1st Step: looking for the ideas in the literature, on the internet and collecting the natural materials. The families were involved into this preparation process, they were looking for the natural materials in the forest, park or anywhere outside. The families collected leaves, cones, sticks, stones etc.

2nd Step: The activity was organised for the children individually and for the groups. Some of the ideas:

- To fill in the cup with the chosen natural materials till half, till full etc. Children were sharing their experience with their friends after the activity: they were counting the things which were in the cup, were comparing the amount of the collected items with each other.
- The teamwork – to lay down the natural materials into the contour of the painted geometrical figure. To fantasize with the friends which things they could create from that figure.
- Maths integrated with the arts. 1. To create the sun by using the stones, where the 5 stones would consist one sunbeam. 2. To decorate the tree by using berries. Every tree stick should have one more berry than the one before.





- Measuring the objects which are outside the kindergarten (trees, sticks, gaming equipment, etc.): by width, length and height, using your body (fathoms, spans, feet) or natural materials. These activities had to be done together with the friends.




3rd Step: During the activity, the teacher was asking some provoking, children‘s curiosity and problem solving encouraging questions, which were requiring to analyze, summarize and to solve the problems:

- Who collected more/less/ the most?
- How many units more?
- What to do to have more?
- Why there are more items in Jonas ‘cup, while both cups are the same size?
- Which object is the thickest/longest/widest?
- Why the bag with the chestnuts is lighter than the bag with the stones, if the amount of them is the same in the both bags?
- Let‘s guess, how many children can enclasp the oak?
- Etc.

Reflection

- The outdoor environment was filled with the natural materials, which made the possibility to create manipulating games during the free or organized children’s activities in the future.

- During these activities children were satisfying the children's social – emotional needs, strengthened the personal children's skills and let to share their own mathematical skill experience with others.
- The activity was integral: children were fulfilling not only their mathematical but cognitive, social, creative, problem solving and experimental skills too.
- The tested activities were suggested for families, to implement them at home too.

Using in other contexts and age groups

The ideas which were tested and used in our kindergarten are planned to share with the other kindergartens too. It is planned to extend the boundary of the activity, transferring them by organizing excursions to the woods, parks etc. Parents can be involved into the mathematical material's creating process: they could make the weighing – machine, wooden rulers, dishes with the measuring scale etc.

References:

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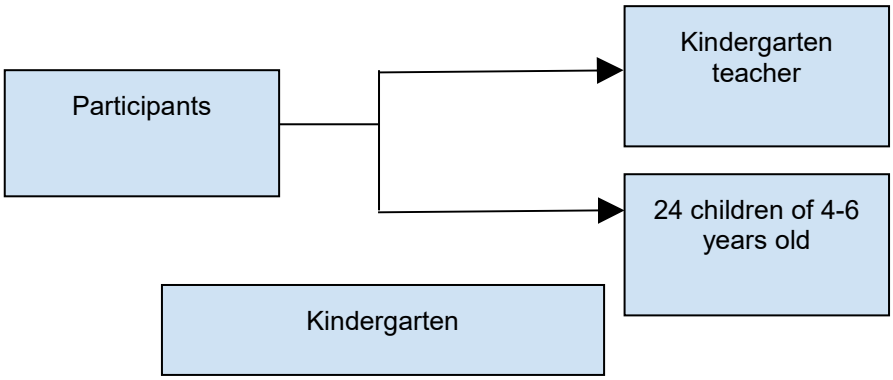
Monkevičienė O. and others., (2014). *Ikimokyklinio amžiaus vaikų pasiekimų aprašas*, Švietimo ir mokslo ministerijos švietimo aprūpinimo centras ISBN 978-609-460-102-6.

6.9. ENRICH OUTDOOR EDUCATION BY ICT

Frank van HERWAARDEN[1],

Context



This teaching experiment started end of 2013 as a proposal for an innovation project of Kennisnet, the Dutch public organization for Education & ICT (https://www.kennisnet.nl/about-us/). Together with schools, Kennisnet develops, makes sense of and distributes knowledge on the effective and efficient use of ICT as a preparation on 21st century skills. The teacher training colleges of the Marnix Academy, Utrecht, experiments with mobile learning in the environment outside to see what a tablet does for (future) teachers and their learners.

The project was based on three observations:

1. ICT in primary school is in many cases limited to showing the outside world through a digital projection screen. It claims to enrich the learning environment, but because it is deprived of any experiential learning it, in fact, has hardly impact on the learners;
2. Much attention in education and teacher training colleges is given to the "what" (content), "how (teaching methods) and “why” (aims and objectives) of teaching. But rarely the 'where'-question is discussed: Where can learning outcomes be acquired best?
3. Almost all students nowadays have experience of using a tablet or smartphone. But that does not mean that they make the link to meaningful use of such devices and apps in (environmental) education.

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The Marnix Academy wanted to explore the value of learning in the real world. “Bringing the world to a digital board ... that is a false solution that will quickly lose its appeal. If you want to learn about the world you should go into and explore this real world. ICT can support that learning process very well."

Since then students design in groups of approximately 4 students an outdoor activity for children in the vicinity of their trainee school, using modern technologies, tablets and apps. At their disposal for each group is an iPad Mini with applications during the exercise and design phase, and 8-10 iPad Mini’s with apps during the implementation phase.

Apps that were being used, involve: Augmented Reality (Aurasma); QR-code; Geocaching; Navigation (KliKlaKlu, EveryTrail Pro, CoRider); Timing and orientation (SunSeeker); determination keys (BoomId, Birds of Europe); History time lapse (HistoryPin); Reporting (iMovie, photo and text apps); Creativity (ComicBook, PuppetPal HD)

Pedagogical approaches

Many children nowadays have become estranged from nature, just by technology and media. The competition for 'going out' is increasing: computer games, television, etc. This project wants the best of both worlds: meeting with the real world along with media orientation.

Children learn from what they experience and perceive through sight, hearing, smell, touch and taste. They learn Hands on (application), Brains on (cognition), Hearts on (affection). That is the value of environment education, every teacher recognizes the value of learning in the real environment.

Rather than seeing ICT as the enemy of experiential learning, the challenge is to apply ICT in a 21st century way to enhance the teaching and learning experience of outdoor teaching: as an aid for navigation an orientation, having a digital encyclopaedia at hand, being able to report about their experiences in a creative way through multimedia solutions (film, photo, comic book, digital wall paper, prezi, drama, song) and enriched by augmented and virtual realities.

Since the start of the project approximately 30 groups of students have designed outdoor activities for their learners, ranging from cultural inheritance, natural experience bucket lists, time lapse in a WW II concentration camp to simple assignments in a children’s animal farm. All of these projects have one thing in common: the application of ICT has proven to be an enrichment of the outdoor activities enhancing the involvement of the learners. In the remainder of this case study focus will be on the last example.

Teaching and learning experience (description)

Mobile learning suits learning in the 21st century. Students, as the teachers to be, should become familiar with the technological possibilities of ICT indoors as well as outdoors. By experimenting and 'playing' with the use of iPads during their teaching practice they finally dare to make educational use of ICT in such a way that their learners achieve more thorough understanding, experience learning in the real world with more fun and report their experiences in a more creative way.

Students are expected to promote "deeper learning" with the potential of ICT. With ICT tools, more didactic variation is possible. For example, it is easier to challenge multiple intelligences in children and satisfy different learning styles, in this way giving children the chance to gain different experiences.

The main condition to succeed is to ensure that the digital addition does not disturb the richness of the real world and the experience of the project. The device is no substitute for the reality but an amplifier of that reality. The digital enhancement, as well as the educational content, of the traditional field work is exciting.

24 kindergarten children in Gorinchem, the Netherlands, in the age of 4-6 year went with the student teachers to a children's animal farm. Each group of learners was given an iPad mini with several apps. Because the children's farm was fenced off it was a safe environment and few adults were needed to monitor the kids. Basically the only instruction given was how to switch between some few apps: a QR-code reader, a photo-app, a film app, etc.

At different places in the children's farm the kids found QR-codes displayed. By reading the code with the iPad, automatically a YouTube movie was started. The students had prepared these movies in advance playing out small dialogues with hand puppets, explaining simple assignments to the learners. Some few examples of the tasks for the learners were:

- Here you can smell the poo of a pig; go hunt for other types of poo and make photographs of your collection.
- All animals have their own footprints. Go hunt for them. Leave your own foot print, here in the sand pit.

- Here is a cow. A cow produces milk. Make your own drawing of the ‘route’ of milk from cow to supermarket.
- Here in the hut you find all types of animal food. Feel, smell and look for differences. Try to match the food with the different animals in the farm.
- Here you can see chicken with their chicks. Can you put the flash cards in their proper order?
- In this meadow you can stroke all the animals that you dare. Which one is your favourite?
- In this box you find pieces of pelts of different animals. Can you name them?

Of course the possibilities of using the iPads in this setup was a bit limited by the age and capabilities of these learners. They did hardly use the iPads in a creative way, only limited to making photographs. But with help from iPads, learners performed the tasks with no further directions from their teacher, independent from input and assistance from adults. The iPad increased the involvement of the learners in their tasks, without these gadgets becoming the centre of attention.

Learning in the outside environment and during the excursion program was much more efficient and effective. Learners learned and experienced much more in different areas of interest, independent of adults.

Reflection

Some few reflections of students involved:

“*Yesterday we carried out our outdoor activity, it was in one word ‘fantastic’. We want to let you know that our Special Education learners, enjoyed the activity tremendously. Kids were incredibly involved and appreciated the different apps. We were so impressed that one boy, who cannot get along with the 'normal' curriculum, somehow was completely ‘in his element’. He produced one picture after the other on the screen and found even a way to make a movie. It thus appears that maybe for these kids to work with an iPad, has a positive effect to handle the curriculum and achieve learning in a different way. We therefore hope that you are really getting more resources from the Marnix to make this kind of education in our teacher training lessons for other students. It was a super day!*”

"*Working with the iPads is new to the children, it evokes wonder and ensures a high level of involvement. The iPads are a nice addition to the rich learning environment of the children. They provide the additional information and clarification of assignments by the various applications*

that we use. But the gadget never dominated attention for the real world: the look, smell, feel of the real things around them. Involvement was high, but nog geared at the gadget itself, but on the tasks behind it."

Using in another contexts and age groups

From present experiences it shows that the above described approach is powerful in many different contexts and among all age groups. Of course the outcome is determined by things such as:

- The application of Higher Order Thinking Skills (Synthesize, Analyse, Create);
- The level to which creativity of the learners is addressed;
- The creativity of the teacher and his willingness to go out of his comfort zone;
- The application of Technological Pedagogical Content Knowledge (TPACK);
- The way the theme of the activity fits the social cultural background and age of the learners.

However, the outcome is rarely determined by the iPad-skills level of the learners. So far it proves that the use of the iPads is so easy and intuitive that it is picked up by the learners without any hindrance. They use it to report their experiences in a creative way, express their ideas in an interactive manner, with a high level of self-direction. It is only the start of an evolutionary process in which technology can be used in an unobtrusive manner to enhance learning experiences indoors, but most of all outdoors in the Real World!

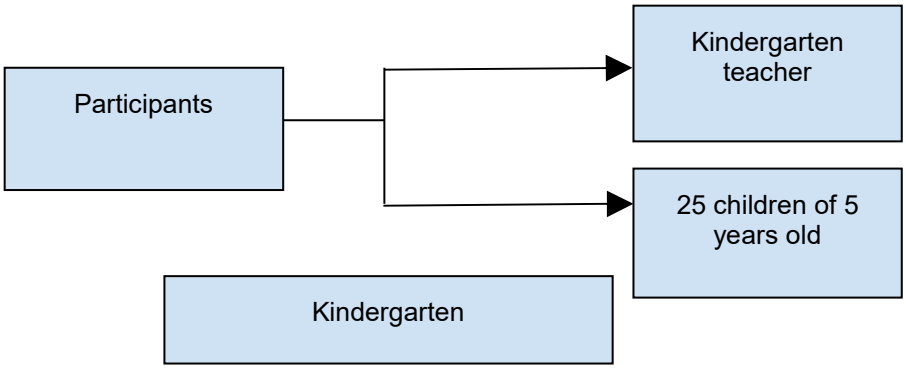
References:

https://www.kennisnet.nl/about-us/
http://www.tpack.org

6.10. WINNING THE RACE

Alice ALVES[1], Cristina MESQUITA[2], Maria José RODRIGUES[3]

Context and participants



Pedagogical approaches

Science activities provide opportunities for cooperation, negotiation, rules following, rights and duties understanding, group learning involvement, and education for citizenship. These are essential skills for critical thinking and to create, conscious, participatory and supportive autonomous citizens.

The learning experiences developed in kindergarten constitute an excellent way to use procedures and skills such as: observating, recording, measuring, comparing, counting, describing, and interpreting. These skills are not exclusive of science; these are capabilities that enhance a holistic worldview. In this study we describe an experimental activity, in the scope of chemistry, associated with viscosity of liquids. This subject is present in the everyday life of children and the discussion of these issues enables them to understand the world.

Teaching and learning experience (description)

The activity was developed with a group of 5 years. With this activity we want that children observe and compare the speed of fall of a marble in liquids with different viscosities.

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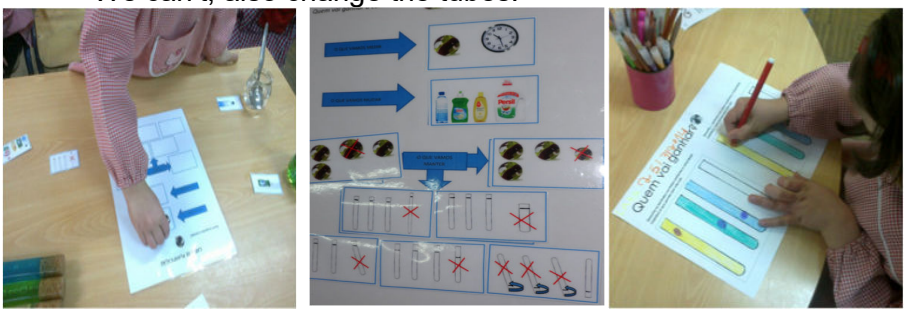
Planification of the experimental work

1st Step: This activity in particular, arose from a situation experienced by children when they washed their hands, noting that water and liquid soap had different behaviors.

In order to identify the previous ideas of children, Kindergarten teacher questioned them, about what they thought about: the difference of movements of liquids; the way they are stirred by the spoon and trickle down, when they are poured.

2nd Step: The next step in the experimental process was to complete the plan.

- What will we observe?
- We will see how long takes the marble to get to the bottom of the tube. - Leonor
- What are we going to change?
- The kind of liquid – Jessica
- What we can't change?
- The marbles have to be all equal, none can't be bigger or smaller than the others – Marlene
- We can't, also change the tubes.



Experimental Work

3rd Step: The four tubes was distributed by four children, and all of them took into account the experiential rules defined previously to control the variables. During the experimental process, children verified which was the faster marble. They realized that if the liquid contained in the tube was less viscous the marbles get faster to the bottom of the tube.

Main Finding or discussion

4th Step: The discussion of the observed data was focused on the difference in the speed that each marble had to slide in the liquids (viscosity) and in the relationship between this and the viscosity. Some conclusions of children was:

- The yellow liquid is more viscous because it makes more strength and because of that the marble doesn't fall fast - Leonor
- Who will win the race will be the marble of the transparent liquid, then the blue ... – Marlene; Then the green ... and the last will be the yellow – Samuel
- In the transparent tube there are only water, such as does not make strength the marble fall faster. I think it's not viscous – Amir

5th Step: The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions and the teacher translates with appropriated language the results.

Reflection

During the experimental work:

- It was valued the learning by discovery and adopted different practices, focusing on cooperation and respect for the different interests of children;

- Educational opportunities that favored cooperative learning and the involvement of children were created, contributing to the success and learning process of all;
- The kindergarten teacher was an active mediator of learning and development of children being alert to the learning processes and trying to understand the conceptions of children to organize the experimental work.
- The children were encouraged to interact with the world around them, so that their learning could be meaningful to them;

The child was valued as competent, having the opportunity to expand their knowledge about subjects of their interest.

Using in other contexts and age groups

Although the process described in this paper has been developed under the pre-school education, transferability is possible for other levels of education. The procedures developed in the learning experience that include formulating problems, observing, planning, experimenting and discussing the findings, should be encouraged at all levels of education. The teacher's mediating role and the children's center action are aspects that must be considered in the pedagogical interaction in schools.

In this regard, we believe that with the appropriate adjustment of languages and considering the complexity of the issues and themes, this activity can be developed in different educational environments and age groups.

References:

Martins, I., Veiga, M. L., Teixeira, F., Tenreiro-Vieira, C., Vieira, R. M., Rodrigues, A. V., Couceiro, F. e Pereira S. (2009). *Despertar para a ciência – actividades dos 3 aos 6*. Lisboa: Ministério da Educação, Direcção-Geral de Inovação e Desenvolvimento Curricular.

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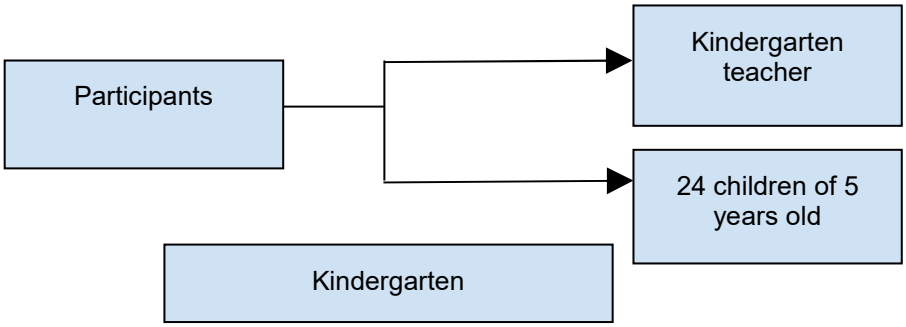
6.11. GERMINATING SEEDS

Alice ALVES[1], Cristina MESQUITA[2], Maria José RODRIGUES[3]

Context and participants



Pedagogical approaches

Science activities provide opportunities for cooperation, negotiation, rules following, rights and duties understanding, group involvement learning, and education for citizenship. These are essential skills for critical thinking and to create, conscious, participatory and supportive autonomous citizens. The learning experiences developed in kindergarten constitute an excellent way to use procedures and skills such as: observing, recording, measuring, comparing, counting, describing, and interpreting. These skills are not exclusive of science; these are capabilities that enhance a holistic worldview. In this study we describe an experimental activity, in the scope of botany, associated with the conditions that allow seeds to grow. This subject is present in the everyday life of children and the discussion of these issues enables them to understand the world.

Teaching and learning experience (description)

The described learning experience is part of a broader project, developed over several months, called "Everything is different!”

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Contextualization

During a visit to the park, the children gathered different materials (branches of trees and shrubs, leaves, stones, seeds ...). By observing the collected seeds, children found that there were several differences between them. To respond to the questioning of children, the teacher suggested to explore some activities that allow them to:

- Realize the diversity of seeds concerning its features;
- Verify that the germination of a seed originates a new plant;
- Recognize that even under the same environmental conditions, germination time is not the same for different kinds of seeds;

The experimental procedure is synthetized in table 1.

Table 1. Summary of the teaching-learning experience

Contextualization	Visiting the park, children observed and collected different materials (branches of trees and shrubs, leaves, stones, seeds ...). By observing the seeds, children found that there were several differences between them. They observed and described that differences.
Question	Do different kinds of seeds take the same time to germinate under the same environmental conditions?
Didactic exploration	**1st step:** Exploring and completing the planning letter **2nd step:** experimental activity (sensorial exploration of the soil and seeds – smell, texture and color). Choose the amount of water needed and the recipients; **3rd step:** data collection (3 weeks, measurement of stems and leaves, photographic record or graphical representation to put on the record sheet); **4th step:** conclusion on the evidence observed.
Systematization of learning	Different kinds of seeds are not all alike. Seeds come in different sizes, shapes and colours. All these differences mean that seeds germinate differently. Seeds of different species do not take the same time to germinate.

With the seeds they found, and with others that the kindergarten teacher took to the classroom (tomato, pumpkin, beans, broad bean, peas, watermelon, nuts, almonds, chickpeas, lettuce, watercress), children classified, compared and weighted the seeds, discovering that

they were different, even within the same species. Children found that some seeds were bigger than others, have different color and different textures.


Fig. 1. Sorting seeds according to their features

During the exploration the teacher asked about what would happen if those seeds were swon:

John: Plants will grow!

Kindergarten teacher: What kind of plants?

Rita: Different plants.

Because of that, the kindergarten teacher suggested that they should investigate on the internet and in books the plants corresponding to each seed.


Fig. 2 Research for corresponding plants

Research question

After this the kindergarten teacher asked: Do different species of seeds take the same time to germinate under the same environmental conditions? The children replied:

- Yes. If we sow all today, all of the plants will appear at the same time.

- No! This one will appear first (referring to the bigger bean). It is bigger than the others and it has the strength to pierce the ground.
- The first to grow will be the one that will get the root first. It will then start to open the leaves.
- My mother puts her plants in the sun to grow. She told me that if the plants have a lot of sun, they grow healthy.
- Considering the children's responses the kindergarten asked?
- What do you think about doing an experience with different seeds to see what happens?
- All the children agree with that.

Planification of the experimental work

1st Step: in the experimental process children completed the plan. They tried to answer the following questions

- What will we observe?
- Which seed will grow first?
- What materials are needed for the experiment?
- We need soil, water, sunlight, pots and seeds.
- What will change?
- We will change the seeds. We have to put different seeds in each pot. In the pots we put the tomato, corn, beans, watermelon and pumpkin seeds.
- What do we keep?
- We will put the same amount of soil in the pot.
- We will always sprinkle with the same amount of water, measured with this cup. We will always water them in the same day.
- We will put them in the same place.
- Where should we put the pots?
- There, in the window, to have light.

Fig. 3. Planning Process

Experimental Work

2nd Step: The children put the soil in the pots, exploring its smell, texture and color. Then they labeledeach pot with the picture of the corresponding seed. They put the seeds into the soil and watered them with the same quantity of water. They registered that in the grid. During three weeks, they continued the observations and took notes and pictures about the growing process of the seeds.

Fig. 4. Experimental Work

Main Finding or discussion

3rd Step: In a large group the children and the kindergarten teacher discussed what they have observed and verified in order to answer the question they posed.

- This broad beans deceived me! It looked so strong and took a long time to stick to the ground.
- Me too! Corn was the one who won this race.
- A tomato seed is so tiny but did grow a strong plant with beautiful leaves.
- The corn plant was so high that Vânia had to take it into her garden.
- A watermelon seed is similar to pumpkin, but it took longer to grow.
- Bean took too long to be born, but it was so big that we had to go get a stick for it not to fall down.
- I think that it doesn’t matter whether the seed is large or small. They know when to grow. It's like my sister that is in my mother's belly. Only she knows when she wants to get out.

Fig. 5. Checking the results

4th Step: The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions and the teacher translates with appropriated language the results. Children found that there is a wide variety of seeds. That the seeds do not take the same time to germinate, noting that the first seed to germinate was corn and the last pumpkin. They also found that the plant had different roots. The plant that grew the most was beans. Thus they realized that seed size does not determine the size of the plant and the seeds germinate and grow in different ways.

Using in other contexts and age groups

Although the process described in this paper has been developed under the pre-school education, transferability is possible for other levels of education. The procedures developed in the learning experience that include formulating problems, observing, planning, experimenting and discussing the findings, should be encouraged at all levels of education. The teacher's mediating role and the children's center action are aspects that must be considered in the pedagogical interaction in schools. In this regard, we believe that, with the appropriate adjustment of languages and considering the complexity of the issues and themes, this activity can be developed in different educational environments and age groups.

References:

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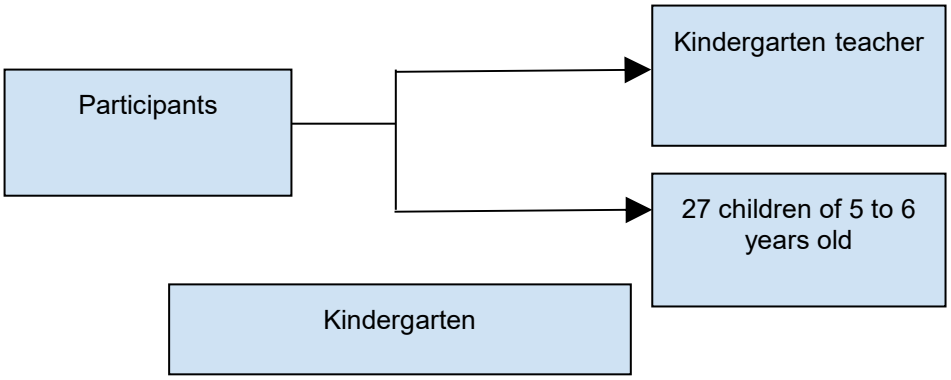
6.12. EXPERIENTIAL LEARNING PROJECT IN EARLY CHILDHOOD EDUCATION: FLOATING RAISINS

Gianina-Ana MASSARI[1], Elena LUNGU[2],

Context and participants



"... children easily forget what they said or what they were told, but not what they did or was done." (Rousseau, 1973, 77).

Pedagogical approaches

Valuing the role of child's personal experience has it in learning process even if it is not a new principle in pedagogy (1762 - J.-J. Rousseau, 1938 - J. Dewey; 1947 - K. Lewin, 1969 - C. Rogers, 1970 - J. Piaget, 1984 - D. Kolb; 1987 - P. Jarvis), it still tends to be essential in education.

Children start asking recurrent questions when they can not explain the events and phenomena around them. The explanations received help shape a meaning. But the explanation is not sufficient, as the rich experience of adults does not automatically become their experience, no matter how explicit it is transposed into words! Meaning occurs when the child experiences himself phenomena and life situations, observing them in a reflective manner, integrating information in conceptual structures that subsequently allow their adaptation to new relevant contexts.

Curiosity is a fundamental characteristic of the small child's personality, but for a child to understand the world in which he lives, his

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teacher must create real opportunities for active exploration of the environment. Planning, organizing and conducting a wide range of activities based on concrete actions and encouraging reflection on the experiences are necessary actions undertaken during the preoperational time of early education. This behavior can effectively support the educational process of transition from concrete-intuitive thinking of the child to operative thinking and determines the adequacy of operational behaviors associated with real life in certain circumstances.

The potential longer term benefits for using the experiential learning spaces could be reflected at least at three levels: 1. teacher training: increasing transversal competence of future and actual early childhood education and primary school teachers and making the classroom surroundings more appropriate to the children needs; 2. child development: developing a pro-learning attitude of children as future learners will help them to express or develop a sense of ownerships and tend to be more active and engage in direct learning; and 3. social context: increasing the social responsibility of future and actual teachers and parents to make a more secure and creative world for children (G.A. Massari, F.M. Miron, 2016).

In this study we describe an experimental work from the field of physics: a solid body floating on the surface of a liquid is determined by the relation between the densities of the two substances.This topic is important as an application to protect human life and safety both in the context of learning how to swim and in major force on the water.

Teaching and learning experience (description)

The activity was conducted with a group of children aged 5 to 6 years. Through this activity we wanted preschoolers to observe and understand what is happening with a few raisins (solids with a mass less dense than water) when immersed in turn in plain water, then salty water and then in highly sparkling water. The process described in this paper is rather one designed to draw their attention to children that floating is easier in the seawater compared to water in the pool and it is necessary to use an inflatable object prior to the acquisition of swimming skills and / or sometimes in other critical situations of life (F.M. Miron, 2014).

Planification of the experimental work

1st Step: This work originates from the discussion that took place between two preschoolers: the first was complaining that he is afraid of deep water since he had a bad experience - had fallen into a pit of water

relatively deep-, the other was proudly stating that he knows how to swim.

In order to identify previous ideas of the children, the teacher asked them whether they had fears about deep water or what they liked and what they felt was happening to their body during the experiences they've had.

The series of questions has been extended to all children in the classroom: what can I say about water, what is it, if you know how to swim, where they learned to swim if they have hovered ever on the water, where it seemed easier – in the pool or in the sea - if they have benefited from objects that support them to remain at the surface and what were these objects. Also, we updated the children's knowledge acquired in a previous experiment on the states of aggregation of water, reminiscing the notions of solid, liquid and gas.


2nd Step: A second phase of the experimental process was to draw up a plan:

a. What do we see?

- Children are summarized the purpose of the experiment and I verify if they memorized the explanation. (*Let's see what happens to the raisins in each glass of water* - Miruna)

b. What materials will we need?

- We'll need three tall glasses.
- Why do the glasses must be tall? (*To have time to see if the raisins float.* - Miruna; *Because the pit that Victor fell in was also deep ...* - Răzvan; *To accommodate plenty of water!* - Nathalie)
- What do we put in the glasses? (*Water! – John;Water and raisins!* - Matthew; *All of them!* - Ioana)
- What kind of water do we put into the first glass? (*Plain water*! - Ioana)
- But in the second? (*Saltwater! I swallowed salt water when I was at the seaside*! - John)

- How do we obtain saltwater? (*Put salt in the water!* - Matthew I.; *Yes, and mix*! - Ioana)
- What kind of water do we put in the third glass? (*Sparkling water!* - Smaranda)
- What else do we have on the table? (*Three bunches of raisins* - Iasmina)
- How many raisins are in each lot? (*Four* - Nathalie)

c. What do we already know about the materials we work with?

- What kind of substance is water if it flows? (*If flowing, it is liquid* - Matthew)
- Are raisins also flowing? Then how can we call them? (_? _; *They are thick* – Dragos; *So they are solid* - teacher)
- Is the air liquid or solid? Does it flow? It is hard? (*Does not flow but also doesn't sit still like the raisins*. – Matthew; *Air is light and rises up like steam from a pot of food* - Cati; *No, those are the vapors!* – David; *Air enters everywhere* - Filip)
- What happens if salt is placed in water? (*The water becomes salty* - Mateiaş; *The salt dissolves!* - Ilinca)

d. What will we change? (*Water*!) How much water will we pour into each glass? (*Up to the sign drawn on each glass.*)

e. What can we not change? (*Raisins! There must be the same number of raisins in each glass!* - David)

f. Why must they be placed equally in each glass? (_? _; ...; *For there are three cups and three groups of raisins.* - Matthew D.; *In order to see if the same thing happens to all.* - Filip)

Experimental Work

3rd Step: There are three tables in front of the class, and on each there is a transparent glass and four raisins. Two children and the teacher take turns in pouring liquid into glasses as follows:

a. Plain water is poured in the first glass until it is three quarters full and four fresh raisins are sprinkled on the surface. ***The raisins are sinking.***

b. The second glass is half filled with water, then 5 tablespoons of salt are gently mix (without fully dissolving the salt), plain water is then added until the cup is three quarters full, carefully, mixing the composition as little as possible. ***Raisins only sink halfway.*** (If on each of the first and third glass works only one child, in this case, the teacher will prepare the mixture as the desired result is only achieved if the two types of water do not interfere completely, respectively the salt does not entirely dissolve.)

c. In the third glass, highly carbonated water is poured up to three quarters and the 4 raisins are sprinkled. ***Initially the raisins will sink***

to the bottom of the glass, and then they are lifted by the air. The process continues until all of the air leaves the water.

Main Finding or discussion

4th Step: The discussions that followed the observation activity did not aim directly for the theory of the relationship between the densities of the two substances, preschoolers can not yet differenciate between mass and weight (some of them having specific problems related to understanding conservation quantity).

The focus was on verbalization of the observation, the teacher asking questions like: What was the purpose of our work? What happened in each glass? Everyone has noticed the same thing? Why do you think it happened? How do you explain that raisins have behaved differently? What helped them to not sink or float? What did you like? What did you not like?

We present just one of the findings of the children that will be the starting point of a future experiment:

- *The raisins are not light*! - Ioana

- *If raisins were made of iron, the air could not raise them.* - John

- But the boats are made of metal, how they float? - Teacher (*They have engines!* - David)

- And when the engines stop, do they sink? (_? _) Ships hold air inside, air that helps them float. - educator

Also, after completing the practical experience, the teacher guided the children so that they can make logical connections between issues seen and their own life experiences, and retain information that can serve them with future interactions with the environment: *What I learned from what I noticed?; How do we call this phenomenon?; Have you encountered similar situations? People can float on water? What objects helps us float on the water surface when we want to learn to swim or play in the water?; What are inflatable objects filled with? Are there any differences between the ease of floating / swimming at the pool and the way we do at in the sea? Is seawater salty enough so that we do not need to take protective measures? What are the consequences if we did not do so?*

5th Step: Children were encouraged to issue some conclusions based on the reflections on what they observed in the experiment, and the teacher systematized these conclusions:

1. (*Raisins are heavy and sink in plain water!* - Răzvan) Thanks to 'weight' (mass denser than liquid), the raisins in the first cup sink to the bottom.

2. (*In salt water sink less, not completely to the bottom* - Iasmina) When raisins reach the water surface of the second glass, they sink in clear water, but they will stop halfway in the cup, where they "bump" into the saltier layer of the liquid.
3. (*Air helps raisins to go up, to float* - Nathalie).

When the bubbles (carbon dioxide) "stick" to the surface of raisins, the fruits are propelled to the surface, where the fizzy bubbles burst. Without being supported by "air", raisins plunge again to the bottom of the cup.

Also, the teacher encouraged the children to verbalize the meaning / usefulness of what they have previously observed and discussed in their subsequent interactions with the environment: (*In non-saline water, like in the swimming pool, it's more difficult to float and we must use floaties or pads, otherwise we sink to the bottom*. - Matthew)

(*At the sea it's easier to float because the water is salty, but still need to have inflatable cushions because there are waves and it's dangerous*. - David)

Reflection

The experiment resulted in the exercise of the habit of voluntary concentration of attention on issues of the surroundings, relevant to children's interests, and favored reflections on the necessary security measures in the children's lives in the aquatic environment.

By using the method of systematic observation and learning through discovery, analyzes were supported, comparisons and synthesizer and heuristic conversation facilitated in the orientation of thinking and acting of the children to clarify the information conveyed.

The Reflective observation and the knowledge transfer exercise in different contextual situations contributed to some extent to the understanding and establishing causal relationships between objects and phenomena.

Using in other contexts and age groups

If the teacher understands experience as a continued exchange between the subject and the environment in which it lives and values his role of mediator in this process, he creates timely educational contexts, sufficient to assist the child to understand why and how things happen around him and which are the ways to adapt to the acquisition of appropriate behavior towards objects, phenomena, situations.

In this sense, this experiment can be a part of a long series, we can consider observations on the floating / sinking of other solids in water (paper, cork, wood, plastic, stone, pieces of metal, etc.), more so as to lower ages thinking peculiarities limits the understanding of the phenomenon as a whole.

It is expected that the understanding (at first rather intuitive and minimal) on the phenomenon of objects floating on the water and the conditions under which it occurs to induce the practice of prudent behaviors, desirable at the age of egocentrism.

Although the preschooler can learn things in an individual manner, it is recommended that experiential activities take place in groups, discussions betewwn childern of the same age and group cooperation support the learning process.

As for the aspects of the relationship between the densities of two substances, issues concerning gravity, of clarifying confusion on the concepts of mass and weight of the bodies can be discussed and analyzed at adulthood, so other learning activities towards our study ares not only necessary, but are imposed.

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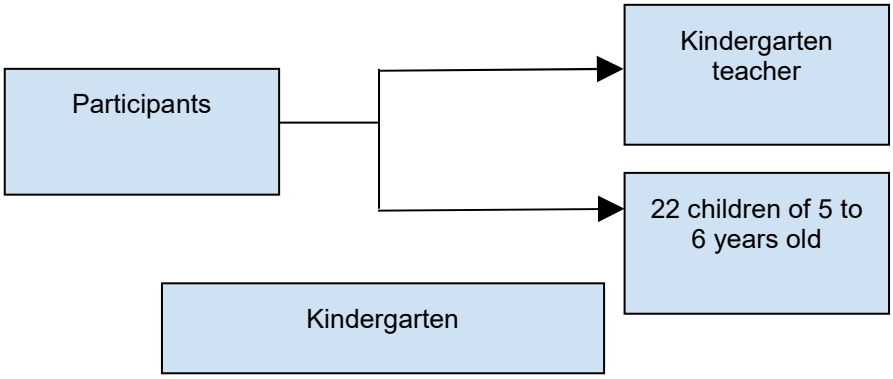
6.13. GEOMETRICAL SHAPES THROUGH OUTDOOR LEARNING

Gianina-Ana MASSARI[1], Liviu-Alexandru CALFA[2]

Context and participants



Pedagogical approaches

Learning activities, focused on sensory senses, is a way of learning through doing, the process when young learners obtain knowledge and skills via personal experience, like being creative, flexible, able to analyze, think critically etc. (G.A. Massari, F.M. Miron, 2016).

So far, geometry enjoys a high appreciation for its practical character, and also for the contribution that it makes to the personality development in general and rationality in particular.

Using specific geometry activities in nature can help develop students' rationality since it is well known that students perceive the surrounding nature, acquire knowledge, they acquire a certain attitude

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towards various natural phenomena. Nature attracts with its beauty, its variety and the multitude of colors, shapes, smells and sounds (F.M. Miron, 2014).

Teaching geometry aims at enriching students with knowledge that is clear and precise about real world objects' shape, size and properties, and also aims at forming and developing spatial representations skills in pupils, aplying in a practical way their knowledge of geometry measurements, establishing sizes and distances, calculating areas or volumes.

A trait of kindergarten and primary education is that teaching geometry is primarily focused on students forming sharp and clear images of geometric figures and supplementing these images with basic concepts that will provide a report to teaching the following classes of the systematically geometry course and a basis for the development of reasoning (Petrovici, 2014).

Teaching and learning experience (description)

Through this activity students can observe similarities and differences between certain geometric figures and make connections between them.

Planification of the experimental work

First step: The activity presented was meant as an activity that gives the student the opportunity to explore and investigate ways of drawing a geometric figure scientifically correct.
As a specific activity for children 6-7 years, in classroom activities they usually failed to correctly draw geometric figures.

2nd Step: What do we want?
The main objective:
Improving the drawing technique of geometric shapes by making geometric figures using small / large sticks;
The secondary objective:
To identify the number of geometric figures in drawings;
To specify components of a geometric figure (angle, side, top).

Experimental Work

Materials: colored chalk, large / small sticks, small cubes

3rd Step:
Explanation:

- Establish a perimeter for the activity.
- Verify if in the default zone there are sticks of different sizes (12 big sticks and 12 small sticks for each group).
- Each group will get colored chalk and cubes of different colors.
- The groups must seek 12 large sticks and 12 small sticks in the established area.
- Each group must draw on the pavement using geometric figures.
- Using a code that was previously presented, students will identify the components of a geometric figures and mark them with colored chalk.
- Each group must prepare the ground and materials for making the drawing.
- In the composition of the drawing, children must use as many figures as possible.

Main Finding or discussion

4th Step: After making the drawing, will discuss with each group about the geometric figures used to make the drawing presented and how many they used.

On a board students will observe a few letters and symbols. Using colored chalk, groups must identify through colors and codes, different attributes of geoemtrice figures.

A - Angles
S -Side
T - Top

P - Parallel sides
R - Perpendicular sides

Reflection

This activity aimed to raise awareness of geometry and build self-confidence.

By using objects and changing environment, the concepts have been understood and internalized, the students managed to correct themselves in terms of geometrical figures on paper drawing technique.

Using in other contexts and age groups

The activity could continue in a gaming way, students must approximate how many students could enter inside a geometric figures.

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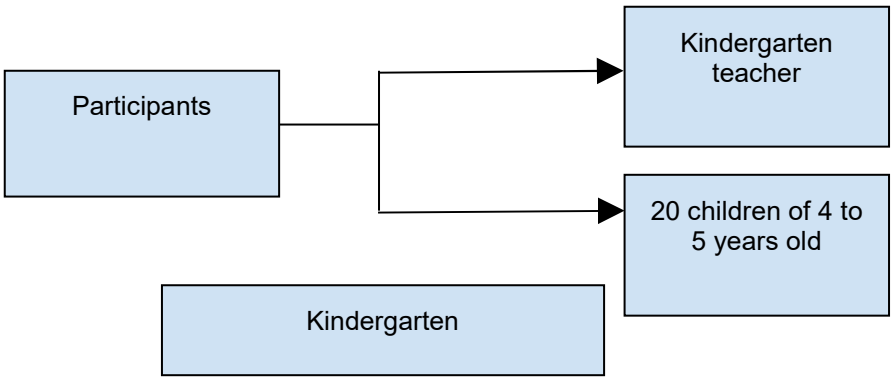
6.14. EXPERIENTIAL LEARNING PROJECT IN KINDERGARDEN: INVISIBLE INK

Florentina Manuela MIRON[1], Maria-Alexandra BUDĂU[2],

Context and participants



Pedagogical approaches

The long term benefits for using the experiential learning activities could be reflected in child development through developing a pro-learning attitude of children as future learners which will help them to express or develop a sense of ownerships and tend to be more active and engage in direct learning (G.A. Massari, F.M. Miron, 2016).

Science activities provide opportunities for cooperation, negotiation, rules following, rights and duties understanding, group learning involvement, and education for citizenship.

The learning experiences developed in kindergarten constitute an excellent way to use procedures and skills such as: observating, recording, measuring, comparing, counting, describing, and interpreting (Massari, 2014).

In this study we will describe an experimental activity based on how to create and use invisible ink. Invisible ink activity combine science with fun and is a great way to encourage fine motor growth and peak interest in education.

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Teaching and learning experience (description)

The activity is developed with a group of preschool children. This type of activity is helping children to foster curiosity, promote creative and critical thinking, to explore the real world (Massari, 2013). They will test and play, and they will learn through questions and hands-on experiments.

Planification of the experimental work

This activity only require a few supplies:

- Lemon juice
- A Q-tips
- a heat source (e.g.: a light bulb)
- sheets of white paper.

We have to pour the lemon juice into a small bowl. This will be our ink. Then we will dip the Q-tip into the ink and use it like a pen to write on the paper. Once we have finished we will let the message dry. Once dry, it disappears until you hold it up to a heat source like a light bulb. Then the writing turns a brownish color.

1st Step: This activity is based on the fact that kids are natural tinkerers. The purpose of this process is to encourage their curiosity and creative thinking.

2nd Step: The second step in the experimental process is based on the following items:

- reactions of the children when using invisible ink
- their thoughts and explanations while writing on the white paper
- their reactions while holding the paper to a heat source
- their thoughts about the whole experiment

Experimental Work

3rd Step: Children will have to pay attention at the changes produced during the experimental process.

Main Finding or discussion

4th Step: The discussion of the observed data is focused on the before and after differences.

5th Step: The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions.

Reflection

During the experimental work children are valued by:

- the learning by discovery;
- the involvement in the process;
- their explanations about the whole experimental process.

Using in other contexts and age groups

Although the process described in this paper has been developed under the preschool education, transferability is possible for other levels of education. The procedures developed in the learning experience that include formulating problems, observing, planning, experimenting and discussing the findings, should be encouraged at all levels of education.

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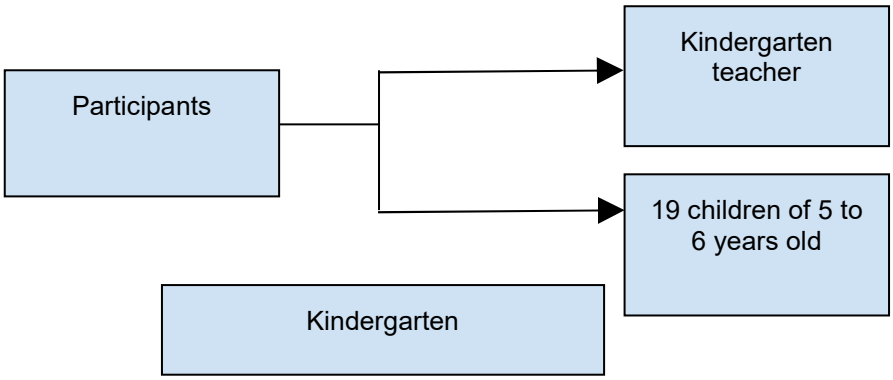
6.15. HEALTHY LIFE STYLE

Kazim ALAT[1]

Context and participants



Turkish children living in urban areas are physically less active than their counterparts living in rural areas. Teachers generally tend to focus on art activities and academic skills and give less emphasis on free play and physical activities. A recent research on Turkish preschool teachers' views on outdoor activities revealed that the teachers were not including outdoor activities in children's daily schedule (Alat, Akgumus, Cavali, 2012).

The participants of this case study consisted of 19 children (5 and 6 year old) who were attending to a public kindergarten program in Samsun, Turkey. During regular teaching hours the classroom has one teacher and one teacher trainee.

Pedagogical approaches

Young children are capable of engaging with the objects around them, explore, observe, hypothesize, experiment, make interpretations, and construct their own knowledge (NAEYC, 2009). Throughout the day, children engage in different kinds of activities that aim to improve them in all areas of development including cognitive, social, emotional, language, and physical activities. Among these physical activities can help children build and maintain healthy bones and muscles thus contributing their overall health.

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Through activities teachers provide children opportunities to define problems, observe, hypothesize, experiment, compare, make inferences and associate with real life. In this case study we describe an experimental activity that focuses on healthy life style.

Teaching and learning experience (description)

Before starting the activity we talked about how to stay healthy, things to do for living healthier, and what healthy lifestyle means. Through this discussion we wanted to explore children's existing knowledge about healthy lifestyle. During the discussion children expressed:

- Exercising is important for staying healthy (Ahmet)
- Eating vegetables, fruits, tomato (Çisem)
- It means to drink milk (Berk)
- We need to pay attention personal hygiene (Sema)
- To wash our hands, to brush our teeth (Yunusemre)

Planning of the experimental work

1st Step: We started with warm up exercises with music. We have chosen this activity to help children develop physical skills and learn the importance of exercising in their life for staying healthy.

2nd Step: The class was divided into 2 groups and each group were given two baskets: One basket for healthy foods, and another basket for unhealthy foods. We put some junk foods, vegetables and fruits on the table. Then we asked children to separate healthy and unhealthy foods into different boxes. After they finish to separate foods we checked over baskets which foods are in healthy box and which foods are in unhealthy box. At the end of the activity we picked all lemons and children made their own lemonade. Through this activity we aimed at creating awareness on healthy foods.



Experimental Work

3rd Step: In this step we wanted to demonstrate the importance of brushing our teeth through an experimental setup. The class was divided into 4 groups, containing 4 or 5 children in each group. Each group were given 4 jars, 4 eggs, and 4 different types of liquids (coffee, tea, coke, and water). And they put one egg into each jar then poured liquids separately into each jar. We kept waiting few days to observe what will happen if we don't care brushing our teeth. After one week later each group observed their own experiment and they discussed about how eggshell looks like. Later, each group compared their eggs with other eggs that were in different liquids. Each group were given one tooth brush and toothpaste and asked to brush eggshells with toothpaste. During the experimental process, children observed that the color of teeth (eggshell) was getting darker in some liquids, and in other liquids eggshells were getting softer.


Main Finding or discussion

4th Step: We asked children to compare their results of the experiment. After comparison we asked the pupils:

- What are the similarities between teeth and eggs?
- How it will affect our teeth if we always drink coffee, coke, or tea?
- Why the eggshell inside water did not change its color while others have changed their colors?
- What have you learned about protecting your teeth?

Reflection

During the experimental work:

- Children found chance to learn about healthy and unhealthy foods
- Through experiment they also learned the importance of brushing their teeth
- In addition, children overall learnt that for being healthy not only exercising, eating healthy foods, brushing their teeth but also necessary is continuing these activities in daily routine.

Using in other contexts and age groups

These activities can be easily adapted to different age groups. For example, instead of using real life samples of foods, for higher age groups teachers can use pictures or drawings of these props. Elementary school pupils can be asked to prepare a poster by cutting pictures of unhealthy foods from newspapers and magazines or we can let them to prepare a poster by themselves. Teachers can ask children to use a tooth brush chart to monitor their behavior on a daily basis both at school and home.

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Alat, Z., Akgumus, O., & Cavali, D. (2012). Okul öncesi öğretmenlerinin açık hava etkinlikleriyle ilgili düşünce ve tutumları [Outdoor activities: Early childhood teachers' beliefs and practices]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi, 8*(3), 47-62.

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CHAPTER 7

CASE STUDIES ON EXPERIENTIAL EDUCATION IN PRIMARY SCHOOL (FOR CHILDREN AGED 7 TO 12)

Alphabetical Country Order:

Case Study No.	*Country*	*Title of the case-study*
1.	Greece	*How the "refugee issue" helps children become citizens of the world*
2.	Latvia	*Three little piglets and how they built their houses*
3.	Lithuania	*A beautiful world. Noun plurals*
4.	Lithuania	*Happy geometrical shapes*
5.	The Netherlands	*From people planet prosperity towards involved citizenship*
6.	Portugal	*Researching about space, astronauts, planets and stars*
7.	Romania	*Experiential Learning Project In Primary School: Let's Count Outdoor!*
8.	Romania	Architectural and Environmental Issues As Experiential Learning Activity
9.	Romania	*Experiential Learning Project In Primary School: Bean's Diary*
10.	Romania	*Experiential Learning Project In Primary School: Build A Parachute!*
11.	Turkey	*Experiential learning project in primary school: Wind power*

7.1. HOW THE "REFUGEE ISSUE" HELPS CHILDREN BECOME CITIZENS OF THE WORLD

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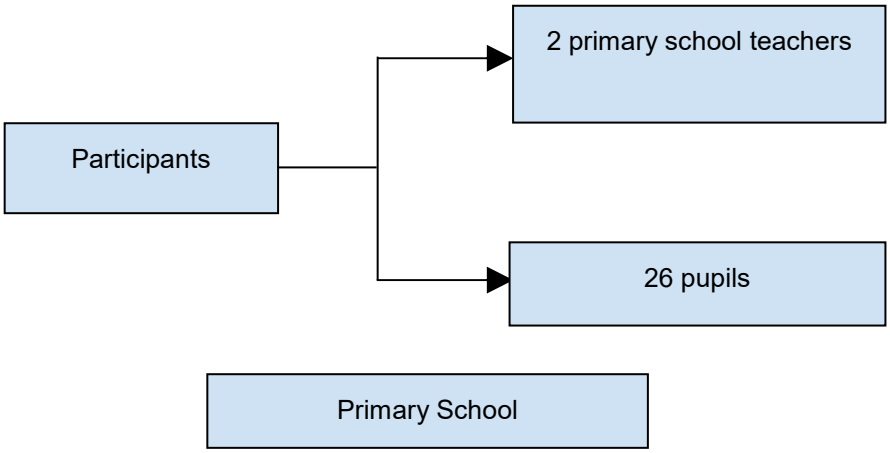
Xrysa DERZEKOU[3], Moscha KAPSALI[4],

Context and participants



The topic dealt with was the refugee issue and our aim was to make children sensitive to the problem. The reason we opted for this topic was because, on the one hand, the Greek community has continuously experienced the vast flow of (mostly Syrian) refugees. The country has not been prepared to confront such a deep humanitarian crisis. In addition, the country is considered to cope with its own problems, mostly stemming from its financial problems. On the other hand, we aim to help children coming from countries which do not experience the refugee issue to develop empathy towards people in need. We firmly believe that not only does the lack of accurate information not improve peoples' impression about the refugee issue, it also causes extreme negative reactions. We decided to investigate how we can help people in need both at a personal and team level. We overcame the fear that dealing with the refugee issue is a 'difficult' topic

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due to the emotional load it may cause to children. As it will be shown below, our persistence was rewarded by the children's positive reaction.

The teaching intervention presented here has been applied in one public primary school (N = 26). Two primary school teachers were present as moderators when needed.

Pedagogical approaches

To design the teaching intervention we took the most principles of child-centered teaching, globalization, actuality, supervision and experiential education into consideration. Then, we tried to produce experiential activities following the axes underlying EXPEDUCOM project. The theories we opted for in the design of our materials are: the Project approach (cf. Knoll 1996, 1997), constructivism (cf. Jacobsen, Eggen & Kauchak, 2006), multimodality (cf. Kendrick et al. 2006), political education in school (cf. Kalantzis & Cope, 2013), Vygotskian Theory (cf. Vygotsky 1962), multiple intelligences (cf. Gardner 1983, 1993, 1999, 2004, 2006), experiential education (cf. Kolb 197, 1981, 1984). Since such a 'delicate' topic like the 'refugee issue' needs to be dealt with in an infantile and easily accessible way. Therefore, the best way to unfold our ideas was through a child-directed story and a puppetry (doll-theater). In addition, a red-cross volunteer talked to the children, showed them means through which volunteers helped the refugees and interacted with him. The fundamental difference between the application of our teaching intervention between kindergartens and primary schools are the following: a) the psycho-kinetic (physical) activity was not applied in the primary school, b) the linguistic activities primarily were in written form.

Teaching and learning experience (description)

a. Preparations – teaching design

i. Writing the story

We wrote a story which would serve as the main tool for the teaching of the 'refugee issue'. Children's stories maintaining magic elements are attractive to children and pedagogical/ education are disseminated more effectively (cf. Strauss, 1996). The story's heros are fairies which preserve some of the refugees' main characterstics.

ii. Making the puppets

We, then, produced the dolls to be used in the puppetry. Dolls were made of newspapers, plasticine, stucco, glue, plastic colors, hand-knitting threads. Dolls' clothes were also handmade.



After, we created the puppetry scenery and chose the sound effects used during the puppetry.





iii. Interviews

Interviews were not taken individually. We assumed that primary school pupils were already acquainted with the refugee issue and the situation in Greece. Instead, we decided to have a discussion with the whole group of pupils in class.

The questions asked in class were the same as those asked to proeschool inidividuals and were phrased as follows:

- What do children need in order to grow up properly and be happy?
- What do refugees were on boats? Why do they wear those?
- Do you have any idea how a refugee feels?
- This child is a refugee. What does this mean?

b. Teaching intervention - implementation

Our teaching started with storytelling through the puppetry. Then, we had a 10 minutes discussion with children during whic we made some comprehension/ understanding and consolidation questions. We further asked children to find parallels between the situations of the past and the present. Our story/ puppetry was open-ended; fairies wished there are no refugees in the coming year. Therefore, we asked children to give an end depending on their wishes and hopes regarding the refugee issue. We further asked children to give the story a title (the story was deliberately untitled when we produced it).

The next step of our teaching intervention was the visit the red-cross volunteer paid to the school. The volunteer talked about his experiences while he was showing relevant photos and videos to the children.

Finally, children were asked to draw their feelings and how they would help refugees.

c. Aims of the designed activities

– Language

- *Oral communication.* Children are expected to be able to a) describe, b) to be able to explain and interpret facts
- *Reading.* Children are expected to be able to understand/ comprehend and retell a story, b) to draw information from written speech.
- *Writing.* Children are expected to understand the importance of writing as a means of communication and to produce their own written texts.

– Environment. Children are expected to a) develop their self-esteem, b) develop their feelings of love and support towards all beings, c) detect similarities and differences from other people, to learn to respect them, be interested in other people's problems and agonies, d) develop their language, communication skills and use of ICT.

– Expression. Children are expected to a) try to interpret human environment through arts, b) express themselves through acting, playing and co-operating.

Findings & discussion - reflection

The pre-teaching interviews showed that there was inaccurate and imperfect information regarding the refugee issue although children had a positive attitude towards people in need in general. During the teaching intervention, were deeply interested in the topic, were troubled regarding the situation of the refugees. Therefore, the post-teaching interviews displayed a better performance regarding children's empathy and knowledge as well as their language development. There seems to be some differentiation between younger and older children; in other words, the older the preschooler the more they focus on the emotional state of the refugees.

Parents reacted positively regarding our teaching methodology and the materials we used in it.

Using in other contexts and age groups

The case study presented here was based on the teaching intervention initially designed for a preschool class. However, our teaching was modified so that it could be applied in all primary school classes.

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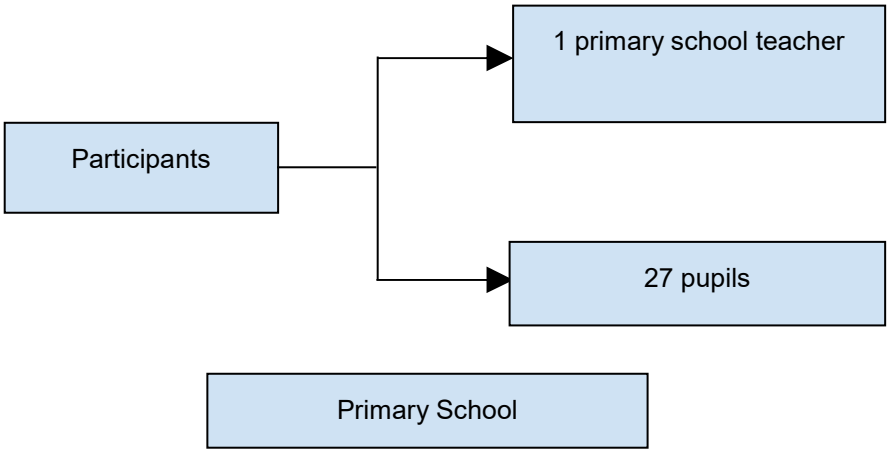
http://www.lifo.gr/articles/society_articles/85362

7.2. THREE LITTLE PIGLETS AND HOW THEY BUILT THEIR HOUSES

Marija TOLPEŽŅIKOVA[1], Dace BRINKA[2], Daniela Anda POSTŅIKOVA[3], Anete PLŪME[4],

Context and participants



Pedagogical approaches

Many educators (J.J. Rousseau, C. Rogers, M. Montessori) emphasize the idea that children learn better by doing. That's why teacher will tell children a well-known story about the wolf and little

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piglets and through the practical experience they will go through house building steps and decide which house will be the best – which will be more stable in wind and rain.

David A. Kolb considers: "…learning process must be reimposed with the texture and feeling of human experiences shared and interpreted through dialogue with one another." This means that children in classrooms need not only write and read about subject but also work together to explore it, to understand it better and develop communication skills necessary in 21st century.

When children are encouraged to work independently and teacher is working beside children as an assistant not a leader, children have the opportunity to learn from their own experience and mistakes, they feel free to experiment and try new ways how reach the goal. In that way children's critical thinking skills are developed.

Teaching and learning experience (description)

The activity was developed with a group of 7-8 year olds.

The main objective: Observe the differences between materials: straw, branches and Lego, discuss their strength and durability in strong wind and rain.

The secondary objective:

- Improve the quality of communication skills and group cohesion,
- Use research skills to find the best structure of building that can be durable in wind and rain,
- Improve critical thinking skills by observing disadvantages of each house structure.

Children tell the story about 3 piglets by themselves in chosen roles. After this activity, children are divided in 5 groups and each group will discuss and do research on different styles of buildings from materials they are working with. The materials are previously prepared by teacher with children's help, but children need to find necessary materials independently from all accessible materials in the classroom.

Then children try to build a house from previously learned information and after finishing test its stability and durability. This activity helps children to develop critical thinking skills and encourage learning from their experience.

Planification of the experimental work

1st Step: Storytelling. 4 children are chosen to tell the story of 3 little pigs and a wolf by using stage setup and hand dolls. Children are given text before to prepare and refresh the story in their memory.

2nd Step: Discussion which can help to find the best house building technique.

Experimental Work

3rd Step: Children are divided in 6 groups. Each of two groups will work with the same materials, but in different building techniques.

a. Straws;
b. Branches;
c. Legos as a replacement for bricks.

4th Step: Each group explores materials and techniques which are used in house building, decide of the best technique and consults with teacher about their choice in house building. Teacher's task is to organize activity in the following way - groups who work with the same material don't work with the same technique.

- Groups have the opportunity to use trays with soil to stabilize house structure.
- Dry paper towel is placed in each house in order to test water resistance in house.

5th Step: After finishing the houses all children come together. Each team tells about their house and building style. All children observe effects of each house done by hair-dryer and water sprayer.

Main findings or discussion

6th Step: Reflection and discussion which technique of building is better to be stable in extreme wind and rain. What could be done to improve each of the buildings?

Reflection

During the experimental work:

- Children took active part in learning process by doing individual research in groups and information selection for necessary materials;
- Children improved communication skills by working in groups to reach one goal;
- Teacher was successful mediator and offered advice to groups, but did not involve in experiential process by letting children to be more involved in self-learning process;

- In conclusion children developed new ideas how to improve the house structures and developed their critical and practical learning skills.

Using in other contexts and age groups

This storytelling situation can be successfully used in different age groups. It is necessary to know children's age and cognitive skills level. During experiential learning teacher more and more takes place as advisor and observer.

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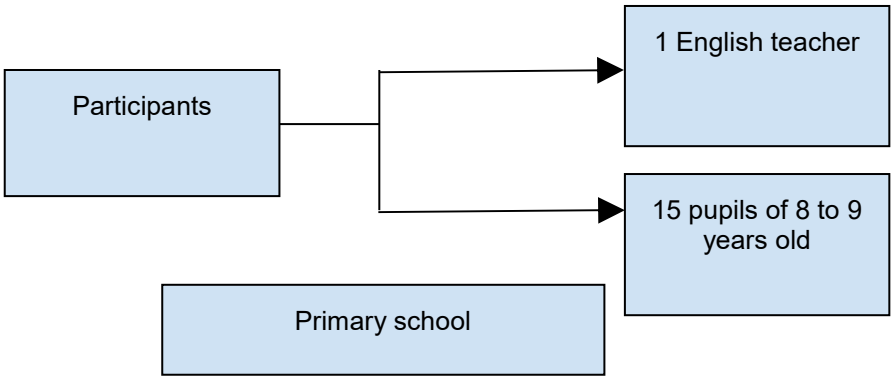
7.3. A BEAUTIFUL WORLD. NOUN PLURALS

Neringa MARCINKEVIČIENĖ[1], Aušra BURBIENĖ[2]

Context and participants



Pedagogical approaches

In the 21st century education beside the main aim of foreign language teaching – to foster an understanding of and to encourage a

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respective attitude towards people of other cultures and languages, with another way of seeing the world – should be one more added – to raise the language acquisition to such an extent that it would develop in children the confidence and competence to communicate effectively in foreign language (namely English) in a world-wide context as well as understanding and processing information from a wide range of sources (digital ones especially). The latter competence undoubtedly leads to a social competence of becoming a worthy and valuable member of world citizenship.

English language learning in a primary school is broadly experiential and contextual and increasingly through analysis becomes more conscious. The child has to be and is immersed in the orality of the language within the contexts of the lesson, most of which are conducted in English. A wide range of language activities – verbal exchanges (greetings, question and answers to everyday situations), speech exercises (reciting verses and poems, counting rhymes, skipping chants, singing and playing games), reading, writing, listening, discussion of grammar points, doing project works – engage children and carry them in the stream of the language.

Teaching and learning experience (description)

The educational process was developed with fifteen third-formers (age 8-9) during the period of 6 lessons (2 weeks: 3 lessons per week).

The 21st century education requires from the teacher to be competent in creating the teaching content innovatively. The following description is an example how one may teach noun plurals making through the experience of children themselves and make them to apply their critical thinking skills as well as to encourage their creativity.

It should be stated that grammar teaching/learning shouldn't take longer than 20-25 minutes of the lesson. The rest time of the lesson children should be provided with other kinds of activities on phonics and vocabulary.

Planing of the teaching/learning process

1st Step. Going into the new grammar topic. Teacher may start the lesson from showing the children a short video on Youtube – a playful song on making noun plurals with the ending –s (Learn Singular and Plural Talking Flashcards). The playful mood and the simplicity of words make children join singing alongside the video. This action should be encouraged by the teacher her/him singing together. Then teacher asks

what was the song about. As children learnt the main rule of plural in the second form, so their answer comes immediately.

2nd Step. Getting acquinted with other rules of plural forming. Now teacher explains children that there are more ways and rules of making plurals and they are going to learn them all. They are going to watch short videos on each rule and the earlier selected classmates are going to explain them in their own words in their native language.

P.S. In order to make the process of learning plurals experiential teacher asked 4 children, highly competent at English, to prepare short projects on A4 format sheets of paper, explaining the rules of plural making, and assigned them one rule each.

After the videos are watched and the selected pupils have explained them, teacher asks children to name the four rules of plural making. Here is their answer: a) plural ending with –es, b) plural ending with –ies, c) plural ending with –ves, d) irregular plurals.

At this point of the lesson children are set homework: to choose one rule of plural making and prepare a short project, explaining the rule. Here come some examples:

3rd Step. Finding the noun plural forms in the context. The lesson next day starts from the exhibition of children's works and repetition of noun plurals making rules. Then pupils are distributed with the sheets of paper each with the text "A Beautiful World". The text is not unfamiliar to children. They read it much earlier in their class books, when they were learning the word items of fruit and vegetables. The latter variant of the text is expanded and adapted by the teacher herself with the aim of teaching plural nouns and new words from different word families: fruit, vegetables, animals and people. At first, teacher reads the text aloud for two reasons: in order teach children proper intonation styles and help

them understand the text from listening. Then pupils read the text by themselves and have to find all nouns in plural and fill them in the form. For this work children have to find a partner and work in pairs. Teacher warns children that there is a “word cheeter” in the text, which does not have a plural form, because it is uncountable. This “word cheeter” makes a good pretext to talk with children about noun countability some other lesson.

4th Step. Discussion about word families. The next lesson children check their task with the help of the slide prepared by the teacher. Then the teacher starts a discussion about word families. Children explain what are word families themselves, and that there are words from four word families in the text: fruit, vegetables, animals and people. By the way, words from different families are highlighted in different colours in the text. Children have to work in groups and write plural forms in 5 groups according to the word family (the fifth group of words is all the other plurals) and then create a “word map” on the board.

5th Step. Strenghtening of knowledge. In the next lessons children get all kinds of tasks strengthening their knowledge on making noun plurals. For example, writing nouns in plural from the text “A Beautiful World” according to their plural ending in five groups: nouns with –s, nouns with –es, nouns with –ies, nouns with –ves and irregular plural forms. Or completing crossword puzzles with vocabulary words in plural and creating such crosswords by themselves. Or doing the translation of the text “A Beautiful World” into the native language. Doing a translation is not an unuseful task. It fosters pupils to look for and perceive the syntactical and grammatical structures common to the two languages or

find the counterparts of different ones. Children may be asked to illustrate the text. Such task creates a situation of developing children's imagination and creativity.

Reflection

Main Findings:

1. Children themselves found this way of learning grammar the most interesting and playful and the easiest one. They were very active, joyful and focused in the process.
2. The learning process was child-centered and the teacher played an advisor's role.
3. The teacher managed to create such teaching context, which made pupils to develop their higher order thinking skills, ICT competence, creativity, ability to work alone or with a friend or in a group as well as the linguistic intelligence.

Using in other contexts and age groups

Such way of teaching can be successful in many other contexts (for example, teaching other grammar topics) and in different age groups. When working with older pupils the competent and creative teacher has to be able to adjust the teaching context and kinds of tasks to the age peculiarities and cognitive skills level of the pupils.

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7.4. HAPPY GEOMETRICAL SHAPES

Gitana RACKAUSKIENE[1], Neringa MARCINKEVIČIENĖ[2],
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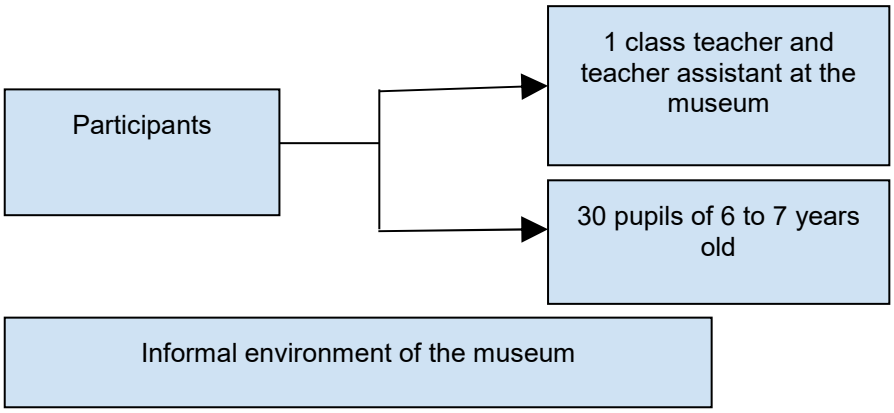
Context and participants



Pedagogical approaches

Kaunas Pranas Mašiotas primary school distinguishes itself for a great amount of educational processes taking place in different informal learning environments. The school community believes that the main requirement for modern education is to combine Art, Science and Religion. Art, Science and Religion are three pillars holding human civilization and especially important for educating young children. Every human being has got three tendencies: wish to understand any science phenomenon, inclination for doing art and need to recall and understand forces that created the world and human being. The best way to help children to perceive and understand Art, Science and Religion is to lead them into the real world, where they can obtain the real experiences of any phenomenon.

Children of today are increasingly active, hyperactive and less subordinate, however, very competent at processing the less information quicker. The mobile teaching/learning may benefit from these peculiarities of children. Learning for example maths in an informal environment – a school yard or a museum – helps children to understand, what maths, such a “dry” science, is for, what value does it

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bring and where it can be applied in reality. Learning maths through games and common creative work fosters children to develop their skills of critical thinking.

Teaching and learning experience

The activity was developed with 30 first-formers (age 6-7). It was the first time when children were learning about geometrical figures. They had to be able to name different figures, count them and make another figure out of them.

Planning of the teaching/learning process

1st Step. *Introductory part*. Teacher started a discussion to find out whether the pupils have any knowledge about the geometrical shapes and what geometrical items can they already name.

2nd Step. *Theoretical part*. With the help of ICT teacher introduced the geometrical figures, starting from the simple ones, and proceeded to the complex ones. Then teacher showed a lot of slides with the various examples of geometrical forms. Pupils had to recognize and name them.

3rd Step. *Practical part*. Pupils got an individual task to make a picture using the figures given by the teacher. Then they had to count how many and what figures did they use. Then pupils exchanged their projects and checked the task and the answers.

4th Step. *Concluding part*. Children presented their works and then followed a reflection of the lesson.

Reflection

Main Findings:

- Children were excited about doing art through geometrical shapes. The Maths lesson was successfully combined with the Art lesson.
- The task was successfully selected, because all the children (with different learning skills) managed to accomplish it.
- It is very important to let children to evaluate their works themselves. Children were very happy presenting their pieces of creative work.
- Learning with unusual means of work (in this case – little paper geometrical forms, in other cases it may be different household devices and things) stimulates children's interest in what they are doing, develops their creativity, skills of discovering, observing, analyzing, synthesizing and drawing conclusions.

Using in another contexts and age groups

Such way of teaching may be easily transferable in other contexts (for example, doing drawings and countings on the tiles of the school yard) and with older children. Taking into account learning skills and age

peculiarities of the children a creative teacher has to manage thinking of appropriate interesting tasks.

References:

The Educational Tasks and Content of the Steiner Waldorf Curriculum ed. by Martyn Rawson and Tobias Richter, Waldorf Resource Books No.4, 2000.

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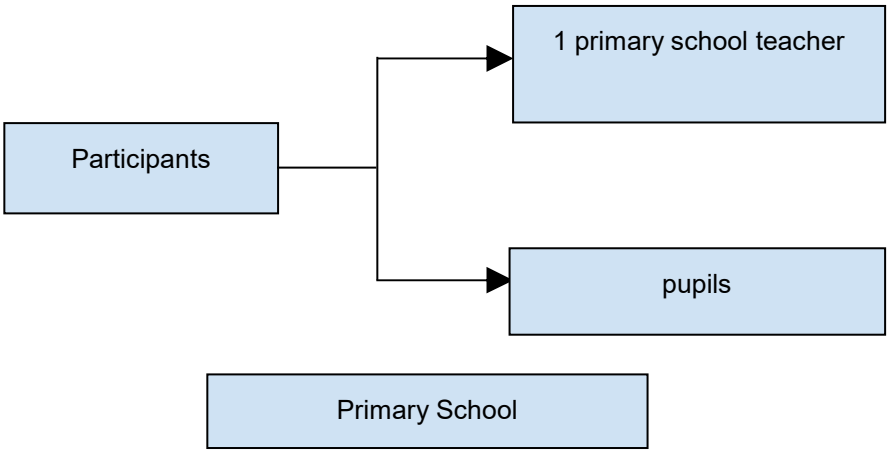
7.5. FROM PEOPLE PLANET PROSPERITY TOWARDS INVOLVED CITIZENSHIP

Gerben de VRIES[1]

Context and participants



An activity to do in our outside school, focussing on thinking about the future, stepwise, supported by 21st century skills, working towards the development of 'involved citizenship'.

This lesson comes from a book '32 lessen voor de toekomst' (32 lessons for the future), published in November 2015 in The Netherlands. Before publishing the lesson is tried out in primary schools (designing the school yard) and teacher training colleges (improving sustainability). An overview with pictures of these lessons is added to the lesson.

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Intro and aims:

Every neighbourhood, area, society differs from another. This is what you notice when, after a long journey, you step out of your boat, bus or plane: 'it's a different world'. And you notice this when you visit your friend, relatives, colleagues: cultures, subcultures differ. In this lesson a plan is offered to look at such a subculture, phenomenon in as structured way. By using the plan you can work with pupils, students on thinking about positive change for the future. In the plan you will work in an integrative way on realizing several aims that are compulsory in Dutch primary education:

- language: pupils learn how to evaluate information in dialogue;
- society: pupils learn how to take care of the environment;
- geography: pupils learn how to compare their surrounding area with areas elsewhere.

Other aims that pupils will work on are:

- pupils are able explore from a multiperspective view, using people, planet and prosperity as viewpoints;
- pupils use dialogue as a way to exchange opinions towards shared solutions;
- pupils think in a structural way about a desired future;
- pupils use 21st century skills in learning processes;
- pupils experience the functionality of involved citizenship.

The teacher uses pedagogical strategies from different disciplines:

- geography;
- sustainable development;
- multiperspectivity;
- 21st century skills, such as cooperative learning, critical thinking and ict literacy.

The lesson plan:

Pupils are challenged to think about the future of the neighbourhood, schoolyard or such. It is important to make this as meaningful as possible. For instance: *'the school board in thinking about changing the school yard; we would like to have your opinions about what should be changed. The headmaster will come later this afternoon to listen to your ideas to take them with her into the school board's meetings'*.

Pupils will do research on the spot (outdoors). They take pictures of situations they would like to change. That can be off all sorts: dog's poo, inappropriate playgrounds, places to sit, fruit trees, school's vegetable gardens, too many stone objects that hurt etc.

This research is done in two rounds. Firstly pupils look individually what subjects might be suitable. These are written down (Ipad or smart phone use). That small groups, three to four, are made. In small groups one subject per pupil is chosen by arguments. A picture is made of each of these chosen subjects (Ipad or smartphone use). The picture is sent to the teacher.

In the classroom, in the small groups, a dialogue takes place on each picture about possible developments ('what can be improves in the future?') prof the tripleP (people, planet, prosperity) perspectives. The results of this dialogue are written down.

As an example: because of all parking places there is less possibility for a big playground. Possible solution: a parking garage at a walking distance from the school, for all cars in the neighbourhood.

- impact on people: safe playing for children, drivers have to walk a certain distance;
- impact on planet: more space for green and playgrounds, big building somewhere in the neighbourhood;
- impact from prosperity: who will pay for the garage?

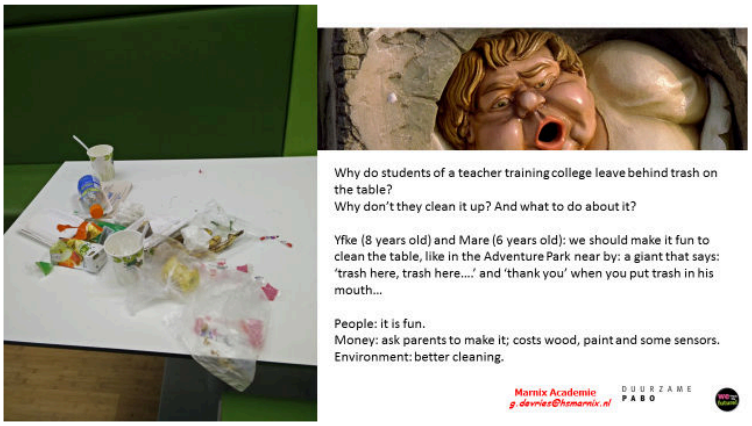
After the brainstorm pupils talk about argumentations: what are real, what not? In the above example the financial challenge will be heavy: a garage is not an option. Pupils have to come up with alternatives, that can be dealt with in the same way.

In the end the group have to come up with an underpinned choice, based on consensus. That 'consensus' makes it difficult: some pupils have to give in…

The result will be presented and discussed by the class, in a plenary session. It is very important that the teacher does this from a positive attitude: there is no right or wrong, there is an argumentation that leads to the chosen solution. In the discussion the focus will be on the outcome (what solution is chosen?) and on the process (how did you get there, how easy or difficult was sit, how did you deal with different viewpoints and opinions, was everybody involved and respected?).

This way of working is according the didactical model of learning for sustainable development (De Vries & De Hamer 2009). It is a generic model: it can be used adaptively in all sorts of pedagogical situations, always working towards visons about future developments: the future of a region, the schoolyard, the EU, becoming vegetarians etc. It is always about multiperspectivity, scenario thinking, choices based on values: what matters for the future?

Lesson try out: design a school yard, children age 8

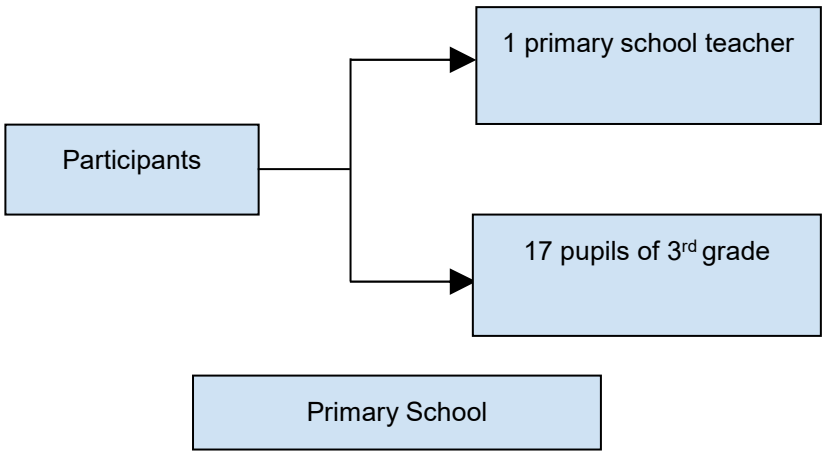


Lesson try out: how to clean the canteen, Yfke (8y) and Mare (6y)

7.6. RESEARCHING ABOUT SPACE, ASTRONAUTS, PLANETS AND STARS

Inês SILVA[1]; Cristina MESQUITA[2]

Context and participants



Pedagogical approaches

The teaching-learning experience described in this case study follows an approach based on inquiries as a base for a problem-solving strategy, involving the use of several procedures. As referred in the perspectives of Dewey (2007) and Bruner (2008, 2015), the inquiry based learning approach emphasizes the participation and responsibility of the child to discover knowledge new to him. This highlights the involvement and the action of children, and also the need to organize it in a clear and sequentially investigational process. This approach aspires to the involvement of children in the knowledge discovery, in an authentic learning process.

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Teaching and learning experience (description)

The teaching and learning experience was developed in a primary school, in a third grade class. It was designed from a problem that emerged from the curiosity of children, sparked after reading a story. It assumed a holistic and interdisciplinary approach, and the action was planned from the ideas and interests that children revealed about the subject.

Contextualization

We started reading the story "One, two, three, planet n.° 20" (Gomes, 1983). We created, in advance, a suitable environment to narrate the story. We dimmed the lights, closed the shutters, projected stars on the ceiling to create the idea of a night sky. We made an expressive reading of the story, projecting the images on the interactive whiteboard. The students were engaged by the reading. The conversation about the story was a great moment of reflection. Many questions were made by the children, and many doubts emerged. This dialogue created the conditions for the development of the research.The procedure is synthetized in figure 1.

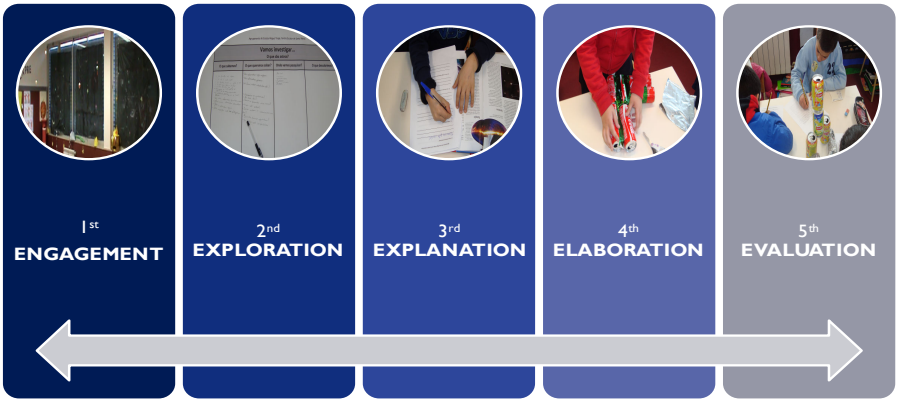

Fig 1. Summary of the teaching-learning experience

1st Step: Research question

The main research questions that arouse were: What are the planets? Who can travel in space?

2nd Step: Exploration

Children wanted to find out the answer to the questions they had about the stars. They were motivated and interested in the investigation.

With the intention of knowing the preconceptions of children, to establish the main research questions, we asked each student to answer a questionnaire with questions such as, among others: what is a planet? what are the stars?

The questionnaire was answered individually and without any kind of help, to establishing a reference for the evaluation process and use it to compare the children knowledge on the subject in the final moment.

3rd Step: Explanation

When they completed the questionnaire, we provoked a large group discussion about their ideas about the space, planets and stars.Then, they suggested what they wanted to know.

Each child set his ideas and questions in his diary and on the placard, previously prepared for the registration of the research questions.

Together we agreed that we would find answers to the questions in books on the topic, in textbooks and on the Internet.

On the next day, starting again from the story, the following question emerged: "Who can travel to other planets?". All the children seemed to realize that only the astronauts could do such activity. Because of that, children also wanted to know how a person can become an astronaut.

We gave each child a guideline, with all the questions they have asked. They should research for answers on books, encyclopedias, on the Internet, following a list of given website links.

4th Step: Elaboration

After completing the researched, children began to build a more clear idea about the issues under study. The next challenge was how could they communicate the knowledge they built to their colleagues.

It was decided that each group would prepare a narrative to show to the others what they had learned.

The teacher made the suggestion to create a narrative in a different way. Some children would create astronauts, others would build spacecrafts and others would create space, galaxies or other environments where the story could happen.

We provide waste materials so that they could build the characters (astronauts, aliens, spacecraft and environments).

Once they finished, we formed sub-groups, each consisting of three children: one that built an astronaut, other with the spacecraft and another with the environment. Based on their objects, each of these sub-groups wrote a storytelling, applying the previously knowledge. When they finished, each group presented it to the class.

5th Step: Evaluation

At the end of the week, after the completion of the research, we asked the children to answer a new questionnaire about the subject, in order to check if the conceptions had changed after. The majority of the children had more meaningful ideas about the subject.

Using in other contexts and age groups

Although developing the process described in this paper with a class of the third grade, transferability is possible to other levels of education. The procedures developed in the learning experience that include involvement, problem solving, exploration, inquiry, communication and evaluation, should be encouraged in all levels of education.

The teacher's mediating role and the children's action are aspects that must be considered in the pedagogical interaction in schools.

In this regard, we believe that, with the appropriate adjustment of languages and considering the complexity of the issues and themes, this activity can be developed in different educational environments and age groups.

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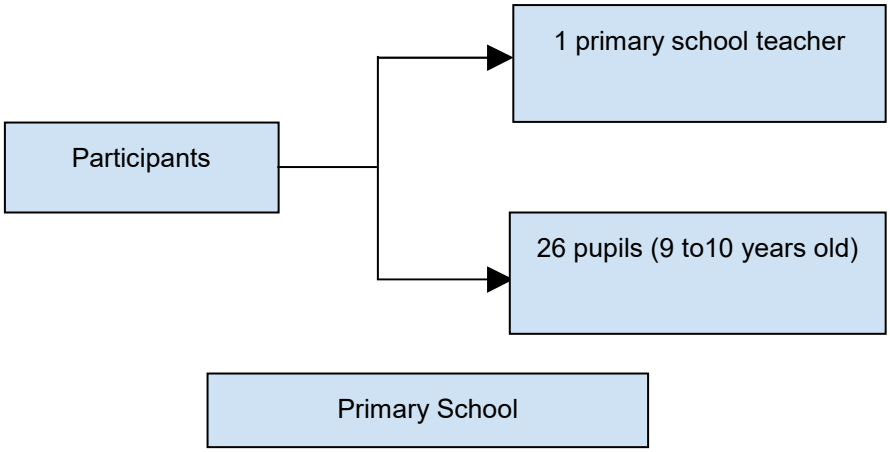
7.7. EXPERIENTIAL LEARNING PROJECT IN PRIMARY SCHOOL: LET'S COUNT OUTDOOR!

Gianina-Ana MASSARI[1], Liviu CALFA[2],

Context and participants



Pedagogical approaches

For enhancing and exploring the variety of each basic sense and to encourage the interaction with the environment through exploring, experimenting, modeling and socializing, all learning projects should be designed to create a safe, diverse and developmentally appropriate learning environments that can stimulate and offer benefits across teaching and learning process, to increase the creativity and to apply curriculum on developmental areas (G.M. Massari, F.M. Miron, 2016).

The methodology of teaching the natural numbers concept is based on the fact that pupils of primary school are still on the concrete operations phase, learning mainly through intuition and direct manipulation of objects. As we move to the fourth grade of the primary school, the gradual lifting of the general and abstract occurs for a better understanding of the reality.

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In fourth grade there will forefocus on stressing that the number sequence could be aknowledged and learned by using natural elements or performing mathematical activities in nature (eg, stimulate pupils to learn to read and write big numbers wich shows how much the Earth weights, the distance between Earth and the moon, counting the trees in a park etc.).

Teaching and learning experience (description)

Through this activity we want to show students that math activities can be enjoyable and useful in any context.

Planification of the experimental work

1st Step: This activity was designed to be done outdoor of the class because students in fourth grade failed to understand the activities performed in the classroom, especially the concept of a number consisting of two or more classes.

2nd Step:What do we want?

The main objective: Reassessing the knowledge of writing, comparing, ordering, rounding numbers less than or equal to 1 000000

The secondary objective:

- Discover an encoded message, converting the numbers written in Roman numerals into Arabic;
- Develop the ability to communicate through mathematical activities.

Concret work

Materials: stickers with numbers, nails, drills, tokens, stickers, flip-chart, markers

3rd Step: Explanation

Procedure: The teacher explains the students that in the area, certain numbers are hidden and that there is one number for each of them. Once they find that number, they will stick it to their clothing and from that moment they represent the number.

The teacher will continue the activity with a sequence of requirements that aim, in fact, assesing if the student is able to operate with numbers.

The sequence of requirements:

- Please sit in ascending order!
- Now, please sit in descending order!
- Number 24 500, which is your predecessor and your successor?
- Number 50 000, which is you predecessor and your successor?

Students are asked to sit in a circle and follow a different set of requirements:

- The lowest odd number written with 4 digits, please take a stepforward!
- The largest natural number written with 5 digits, please take a step forward!

Further, the students who previously formed a circle, will be grouped in two columns, one column would represent the even numbers and the other column odd numbers.

In the following set of requirements, we are pursuing the students ability to compare numbers. The numbers are facing each other, there will be a dialogue between two numbers:

The rules are explained and an example is given:

1- I am number 27 500 and I'm bigger than you because I have more numbers / I am number 6750 and I am smaller than you because I have less figures;
2- 2- I am number 23 320 and I'm bigger than you because I have the hundreds figure bigger / I am number 23 100 and I'm smaller than you because I have the hundreds figure smaller.

Main Finding or discussion

4th Step: During the activity the students were very careful when they had to sit in ascending / descending order, compared with a similar activity that took place in the classroom. It has been shown that

harmonizing mathematics with nature increased the interactions' flexibility between student-student, student / teacher.

5th Step: In this activity, students were encouraged to communicate explaining what the rules are on comparing numbers and then decode a message written in Roman numerals.

Reflection

To understand the concept of numbers, it is important for the teacher to appeal to as many effective strategies designed to put student in concrete situations of learning. It is necessary that the student benefits from rich and varied teaching materials, that several analyzers (visual, tactile, auditory) are trained in order to fully understand the concept of the number, as well as using teaching games outdoors, in a different context.

This activity also contributes to the development of the ability to communicate. Students were excited about it since the environment in which it was done was suitable for this activity. Please see below some stundent's opinion on this activity:

„Today's activity was special and I liked it. We worked as a team and we reviewed what we know. You can learn mathematics anywhere" „Well, I liked chasing chips, conversation between numbers and decipher Roman numerals" „I liked math out because it was fun", "I loved work today it was something else, something new", "Outdoor work is more fun because we can play ", "I liked this activity because we have transformed mathematics in a fun game in the park, outdoors."

Using in other contexts and age groups

This type of activity can be used in grades I-III and also in kindergarten where pupils can operate with lower numbers.

In kindergarten, preschoolers can use leaves, stones, sticks for making crowds so they can learn in a pleasant way the notion of number.

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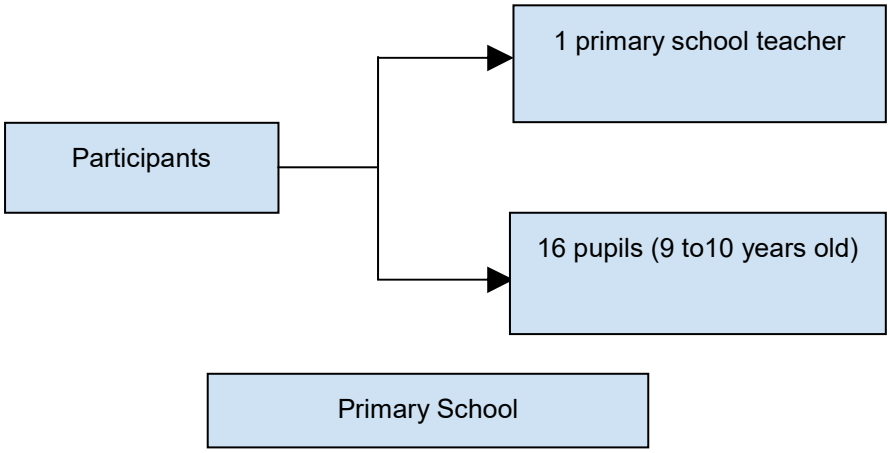
7.8. ARCHITECTURAL AND ENVIRONMENTAL ISSUES AS EXPERIENTIAL LEARNING ACTIVITY

Gianina-Ana MASSARI[1], Liviu CALFA[2],

Context and participants



Pedagogical approaches

The desire for knowledge must be stimulated in children by encouraging them to always ask questions about the worldaround us and must be steered by investigative activities and exploration, in order to facilitate the discovery of the surroundings and solutions for protecting themselves in this environment. The direct approach through bodies'

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properties exploration, examining environmental phenomena and processes, helps the child to take note of their presence, perceive their qualities, recognize them, and get to explain them in intuitive ways.

All didactical materials should be diverse and developmentally appropriate as learning environments which can stimulate and offer benefits across teaching and learning process (G.M. Massari, F.M. Miron, 2016).

Teaching and learning experience (description)

Through this work, we propose that students identify materials used to construct a home, their usefulness and the differences between certain types of materials.

Planification of the experimental work

First step: This activity was done after discussing with the students during Science class about protection norms in case of fire and earthquake, presenting the changes that have occurred since the appearance of mankind until now in terms of constructing buildings that provide safety.

2nd Step:What do we want?
The main objective: Enhancing their knowledge about specific type of housing materials and their processing methods since the beginning of mankind until today.
The secondary objective: Acknowledging other types of construction that is made with the same materials and housing evolution from the man's appearance until now; Improving team working skills.



Experimental Work

Materials: Clay, brick, stone, wood, water, hammer, nails, sand, water, gloves, straw.

3rd Step: Explanation

Procedure: Each team must build a miniature house from: clay, brick, wood and stone. These means of construction represent, in fact, the housing evolution from man's appearance and display the way man has taken everything necessary for his survival from nature and processed it to his best use.

Each group picks a note and finds out what kind of house has to build. It should be explained that groups must choose the right materials for construction, and the team leader must assign the tasks so that each of them participates in the activity.

The rules of labor protection should be explained so that everybody understands them.

The teams begin to realize the works under the guidance of the teacher. After building houses, each team must specify what materials were used for the construction, the risks of disaster based on each dwelling and where we can procure construction materials.

Main Finding or discussion

4th Step: After the activity, students have realized that the world is in constant change, your safety should be put first and we must find asmany solutions as posible so the surroundings are comfortable. The discussions on the activity focused more on building a brick house. Students have concluded that it is more suitable for humans than the others and it is also safer.

5th Step: In this activity students were encouraged to communicate and interact with each other so the product that needs to be done is properly built.

Reflection

Pupils's curiosity was stimulated through this activity. It was focused on practical matters, so that they can find answers to various questions by investigational approach.

Therefore, the activities with investigational character contribute to developing exploring and problem solving skills..

Using in other contexts and age groups

In primary education, visits to museums of history can be organized in order to better observe human evolution (F.M. Miron, 2014) as well as workshops for students for processing certain materials and crafting objects.

In preschool education workshops can be organized using materials such as toothpicks for structural elements, food for structural nodes (cut fruit, gummy candy, etc.), workshops where children must build a house of an imaginary character using the above tools (there may be challenges like: the resulting structure must be solid (make sure it does not fall) to be self-supporting (be independent) or perhaps to be a hanging structure. The final result is more enjoyable since they can taste their creations.

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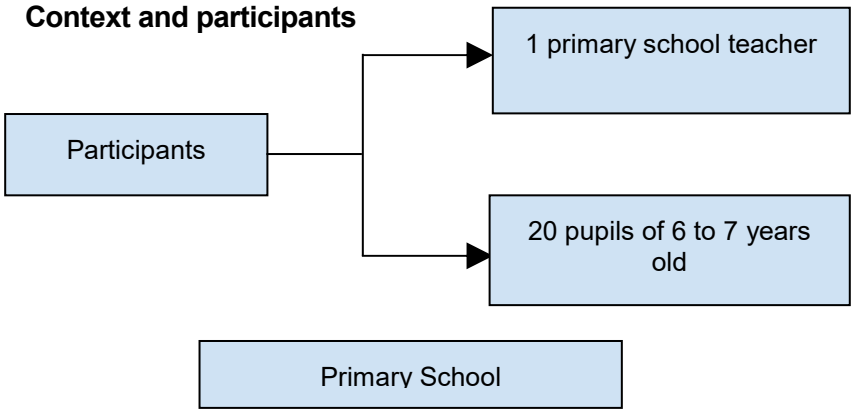
7.9. EXPERIENTIAL LEARNING PROJECT IN PRIMARY SCHOOL: BEAN'S DIARY

Florentina Manuela MIRON[1], Liviu CALFA [2],



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Pedagogical approaches

All experiential learning projects should be designed to increase the creativity and to apply curriculum on developmental areas for enhancing and exploring the variety of each basic sense and to encourage the interaction with the environment through exploring, experimenting, modeling and socializing. (G.A. Massari, F.M. Miron, 2016)

Friendships are extremely important for children in primary school. The ability to socialise with peers, negotiate disagreements and be part of a friendship group is paramount. For children, making and maintaining friendships can be a real challenge. It becomes particularly difficult as children progress through primary school, when there needs to be an increased understanding of reciprocity and awareness of motives, thoughts and feelings of others.

In the early stages of primary school, children learn to share their feelings in words, consider the effects of their actions, reflect on and plan what they feel, do and say. All of this requires an appreciation of the emotions and thoughts of other people, and the language to put this into words. There are opportunities in school and in the playground to play and interact through language, which allows children to develop skills in managing their emotions and behaviour appropriately (Massari, 2013). With developed language skills, children can negotiate their roles in play situations, organise activities, clarify their thoughts to others and make it clear when they are unhappy with a situation.

This type of activity promote critical thinking, the applicability, awakens curiosity for the environment, improve the quality of communication act (Massari, 2014).

Teaching and learning experience (description)

With this activity we want that children observe and understand the importance of following policy in a civilized communication.

Planification of the experimental work

First step: This activity in particular, arose from a situation experienced by children when they didn't know that when we communicate we must respect some important rules: we must'nt yell, we must learn that when someoane talk, the others have to listen. So, we want to see how is the pupil behavior against plants, if there are differences between child behavior towards his peers and child behavior towards plants.

2nd Step: What do we want?

The main objective: to improve the quality of communication act and group cohesion;

The secondary objective: a plant evolutionary stages, conscientiousness and responsibility.

Experimental Work

Materials: beans , three bowls, ground, water

3rd Step: Explanation

Procedure: Pupils have made three bean sprouts. Added of earth covering all grains in each bowl and placed them at the window. Were sprayed with water every day with "different words" beans from the first bowl were nice words said, the second , were at odds, and with the third did not speak at all. It repeated these steps for 10 days, during which the pupils wrote in the "diary beans" what happened in each bowl every day.

Main Finding or discussion

4th Step: The discussion of the observed data was focused on the difference between those three bowls.

Almost all children attention was focused on the first bowl. They didn't want to spray with water the second and the third bowl because they just wanted to take care of the first bowl. Five of them wanted to spray with water only the second bowl. When they were asked why, they said they did not know nice words for the first bowl.

5th Step: In this activity the children were encouraged to express their feelings to a plant, through words, following the pupils to realize the importance of the communication, socialization.

Reflection

Learning by discovery as a method has been instrumental in this experiment.

Through these activities the pupils have noticed how a plant grows respecting all the necessary conditions (water, air, light, earth, warmth, harmony, beautiful words), and following this activity, pupils have realized that to develop properly, people needs all these elements.

It has been ensured that in this experiment pupils has to be responsable, it was observed their involvement in this activity.

This experiment was an effective one because the knowledge and skills that they form are lasting.

Using in other contexts and age groups

The practical activities are those who put the pupils in new situations of learning.

To be more accountable, pupils can receive various tasks. For example they can investigate the burgeoning period of a tree until the fruit formation.

This activity can be achieved in kindergarten and middle school, tasks and difficulty of the experiment is under age.

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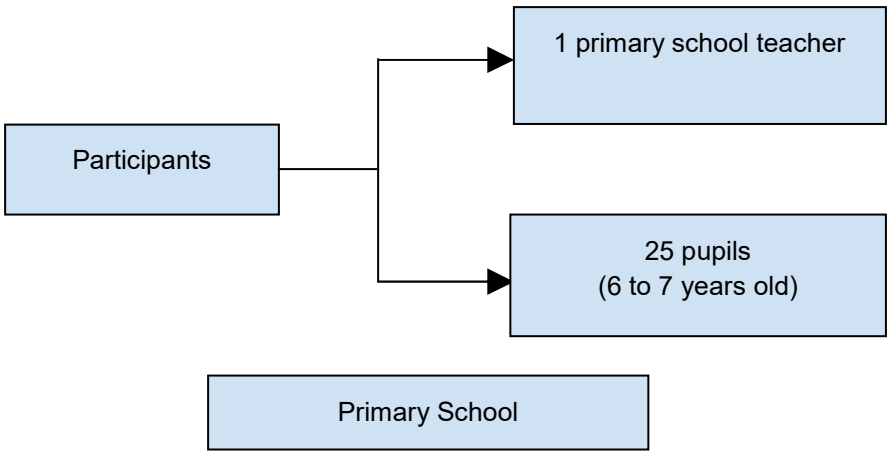
7.10. EXPERIENTIAL LEARNING PROJECT IN PRIMARY SCHOOL: BUILD A PARACHUTE!

Florentina Manuela MIRON[1], Gabriela CERCELARIU[2]

Context and participants



Pedagogical approaches

All learning projects in primary school should be designed to create a safe, diverse and developmentally appropriate learning environments

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that can stimulate and offer benefits across teaching and learning process (G.A. Massari, F.M. Miron 2016).

Experimental scientific activities, both in primary education and in preschool help children acquire new knowledge but also to put into practice the knowledge acquired previously, help them developing their communication and social skills, learning how to follow rules, to express their opinion but also to listen to their team members' points of view.

These things are not only important for the school and its activities but also for the everyday life of the pupil.

Experiential learning enables them to use skills they learned in kindergarten namely: observation, comparison, handicrafts, description and interpretation (Massari, 2014).

This experiment refers to one of the laws of physics, namely: the more an object has a larger surface area in contact with air, the harder the object travels by air.

It is important for students to know this in order to explain various phenomena of the world surrounding them (Massari, 2013).

Teaching and learning experience (description)

This activity was conducted with a group of 6 to 7 years old pupils. Through this activity we want the children to observe and compare the speed with which a parachute made by them descends to the ground, depending on its size.

Planning the experimental work

1st Step: This experiment was made after the teacher was asked various questions about skydiving, how do people fly and how the paratroopers reach the Earth without being hurt.

In order to use knowledge that the children previously acquired, the teacher asked them about the speed with which an object falls when you drop it, which objects fall faster? The light or heavy ones? Then the teacher dropped objects with different weights and sizes to see if the children were right.

2nd Step: The next step in the experimental process was to complete the plan.

- *What will we observe?* (We will observe which parachute descends faster. – Maria)
- *What are we going to change?* (We will change the size of the plastic octagon that makes up the "canvas" of the parachute – Alexandra)

- *What we can't change? (*We cannot change the base weight of the parachute - the pin. – Adina)
- Neither can we change the size of the cord.

Experimental Work

3rd Step: Each team receives 3 nylon bags of different sizes: large, medium and small. Cut a square portion of them, and then cut it over in order to obtain an octagon. Pierce the bag easily with a nail near the 8 angles, to get symmetrical holes on the bag.

Children then inserts a cord in each hole and connects the other ends of the cords together in a tight knot and then push the nail through the knot to have a parachute weight.

Each team then tests the speed of the three parachutes descent and notice that the bigger the size of the plastic parachute, the slower the descent.

Main Finding or discussion

4th Step: Discussions on the experiment focused on the difference in speed of each parachute dropping. Among conclusion I would mention:

- The smallest parachute reached the ground the fastest – Ioana
- The largest parachute reached the ground the hardest– Ana
- The bigger the parachute, the safer the paratrooper. - Daria

5th Step: The activity ends with the systematization of discoveries, where children are encouraged to express their conclusions and the teacher translates with appropriated language the results.

Reflection

During the experimental work:

- Was valued the learning by discovery and adopted different practices, focusing on cooperation and respect for the different interests of children;
- Educational opportunities that favored cooperative learning and the involvement of children were created, contributing to the success and learning process of all;
- The teacher was an active mediator of learning and development of children being alert to the learning processes and trying to understand the conceptions of children to organize the experimental work.

- The children were encouraged to interact with the world around them, so that their learning could be meaningful to them;

The child was valued as competent, having the opportunity to expand their knowledge about subjects of their interest.

Using in other contexts and age groups

Even if the experiment was done in the preparatory class that does not mean it cannot be used and useful in kindergarten or secondary school. Given that the procedures used such as obtaining new knowledge but also putting into practice the knowledge acquired previously, developing communication and skills, following rules, expressing opinions but also listening to the views of others team members are important for all students, this experiment should be done in primary and secondary education as well.

Teacher involvement in mediating the discussions had an important role and it should be highly considered in pedagogical interaction.

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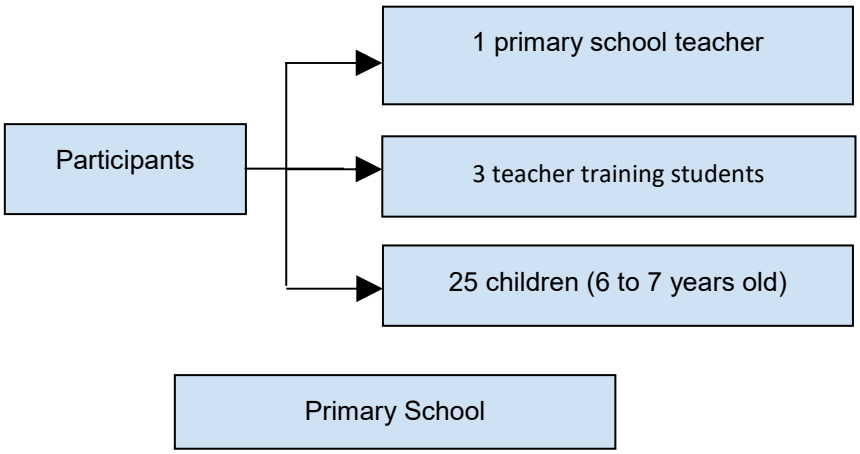
7.11. EXPERIENTIAL LEARNING PROJECT IN PRIMARY SCHOOL: WIND POWER

Zeynep ALAT[1], Kazim ALAT[2]

Context and participants



Pedagogical approaches

Science is a natural part of children's lives as anything in their environment becomes the target of their curious eyes since they first open. As children interact with objects and people in their surroundings they seek answers, raise questions, experiment, evaluate their findings, and develop theories. Inevitability of making errors and facing contradictory experiences makes children engage in a constant revision of their theories. New experiences are built on previous ones. This unquenchable thirst for learning and gaining new skills in young children provides infinite opportunities for caring adults to help children in their journey to better comprehend the world.

It is now a widely accepted fact that quality early science experiences would ensure preservation of this positive attitude and disposition towards science and learning displayed by young children paving the ways for future scientific interest and thinking, and academic success. Within this understanding, it is well acknowledged that children

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are to be surrounded by a stimulating environment rich in materials and resources, choices, and activities that support children in their construction of both physical and logical-mathematical information as well as social one. Children are active in their learning rather than being kept as passive pupils strongly depended on adults to acquire knowledge. Rather, teachers take the role of a facilitator who prepares the educational environment, constantly evaluates children's development and learning to see where they are, provides real life experiences based on individual child's needs and interests, and supports them in their social interactions.

Teaching and learning experience (description)

Our commitment to conceptualization of children as young scientists led us to look for real life opportunities that would instigate much curiosity in children. We did not have to wait long as strong lodos winds (southwest wind) paid a visit to our coastal city making it a challenge to walk let alone play outside. Inevitably, it was the wind that dominated the conversations of students in that fourth grade class. Not wanting to miss on that perfect opportunity, we decided to provide a worthwhile science experience for children. Starting with a desire to respond to their curiosity about the speed of the lodos, as they amused us with their rather engaged discussions about it, we decided to give children a chance to learn about how to measure the speed of the wind. Then, we found ourselves learning about and, in fact, making our own anemometers. Working in small groups, the children not only had a chance to improve their social skills, but also were engaged in scientific processes including hypothesizing, making observations, data collection, measuring, and evaluation.

Planning of the experimental work

1st Step:
Materials (per team):

- 4 plastic cups
- pencil with eraser
- play dough
- cardboard
- staple
- push pin
- scissors
- ruler
- balloon

- A4 paper

We divided the class into six teams, containing four students in each team. We provided each team with materials and a work space. Students examined the materials and then discussed what the materials are, what can be done using the materials.

Children answers:

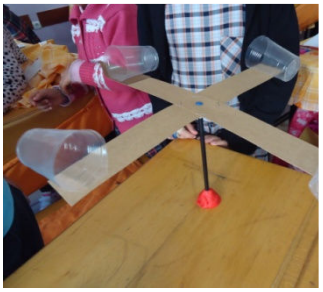
- We will make a project (Rıza)
- we can make a phone (Eren)
- it can be clock (Berra)
- we can prepare puppet (Berfin)
- we can make a propeller (Ece)
- maybe fan (Sare)
- I think it can be castle (Tunahan)

2nd Step: In this step we gave students written instructions to help them through the steps of constructing the anemometer. First they started to cut two same-size cardboard strips. Then they crossed the cardboard strips to make a plus sign. Using a ruler they measured the cardboard strips and found and marked the middle of each strip. Next, they stapled them together in the middle, where they cross, to be sure the anemometer blades are of equal length. After they used the rulers to measure the blades and located the exact center. They marked one direction of strip. Later, students cut mouth of the plastic cups to make them lighter.



3rd Step: Then they stapled plastic cups on edge of the strips facing in the same direction. After attaching plastic cups, they pushed the pushpin through the center of the cardboard cross and attached it to the eraser point of the pencil. They blow on the cups to make sure the cardboard blades spin freely on the pin. After finishing this step they put play dough on the table then they fasten other side of pencil with play dough. We gave them balloon to make wind and asked them to blow balloons in

different sizes then to release the air into the plastic cups. We gave children A4 paper to note measurement results of their experiment, to write how many times wind gauge turned in different sized balloons. Later, we used a portable fan and repeated the experiment.


Main Finding or discussion

4th Step: After the experiment we discussed about the wind gauge. We asked them:

- What is a power that allowing the rotation of cup?
  – Of course wind (Ege)
- What will happen if we close mouth of the cups?
  – Wind gauge will not turn.(Rıza)
  – It will not move.(Hüseyin)
- Have you ever seen something like this?
  – Yes, I saw it on TV (Sefa)
  – I saw this on the street (Kardelen)
- What is the benefit to know blowing speed of wind?
  – We can produce electric energy (Gülçin)
  – It can help clothes to dry faster (Eren)

Reflection

Children had a great time and they enjoyed as they said. When we gave them materials they were so excited and curious. We planned to go outside to do our experiment but there was not wind at the time of experimentation. We decided to stay inside the building and used balloons to generate wind power. Later, we used a portable fan and repeated the experiment. Another problem was stapling strips and cups, some of groups stapled cups wrong side and wrong direction. With the help of their friends for other teams they quickly found out what was the problem with their anemometer.

Using in other contexts and age groups

- Students may take their anemometers outside on a windy day, or over multiple days, to measure the wind speed.
- By taking measurements at different times and days, students can prepare a chart displaying wind speed at different times.
- Students can measure the wind speed at different locations, such as in narrow hallways or an open playing field.

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PART D

INSTEAD OF CONCLUSIONS

CHAPTER 8

ADVOCACY FOR EXPERIENTIAL LEARNING – ABC GUIDELINES TO TEACH FOR EXPERIENTIAL LEARNING

Gianina-Ana MASSARI[1]

A

Aim at child's strong points and fortify them!
Allow time for listening the child!
Always equip yourself with willingness, kindness, and grace!
Arm yourself with a lot of trust, comprehension, and patience!
Attention and affection needs don't keep on age!

B

Be flexible!
Be a good example for your children!
Beware of excessive criticism!
Build up a secure environment!
Build up together a work discipline!
Balance affection and expectations!

C

Chance for developing children's abilities depends on their way of socialize them!
Checking and leadership abilities must be developed for helping the children into their own construction of a strong personality!
Create visual games or creative challenges!

D

Discreetly supervise child's activities!
Demonstrated particularity in resolving tasks must be appreciated!
Develop into child an attitude of responsibility!
Direct the child's resources into a constructive purpose!

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Diversify the opportunities to develop the child's cognitive, artistic, psychomotrics abilities etc.
Don’t criticize children judgements! Analyze them through a positive manner!

E

Encourage the child in taking responsabilities for his actions!
Encourage the child to develop his talent, creativity, imagination and his special abilities!
Encourage the child to respect the others rights!

F

Facilitate more ranges of knowledge!
Fit in the child’s learning style!
Focus on resolving tasks!

G

Give the child a chance or more chances to excel!
Guide the child! He needs a guide!

H

"Horizons" of knowledge are unlimited. Let the child to FLY!
Help the child in acquiring and developing social abilities!
Help the child to have trust into its own person and on his capacities for touching the performance!
Humility is not a solution for rectifying child’s mistakes!
Humour can help the child in talking about touchy problems!

I

Interaction with other children can stimulate the child!
Impress your children through a responsible attitude regarding everything!
Involve your child in as many activities giving him chance to show what he likes to learn/work!

J

Journey of learning could be one of the most interesting experience made it together!
Joy together!

K

"Kilometres" of gathered information during the learning process could be used to build next learning targets!
Keep high standards, but not exaggerated about targets’ establishment on long term and on solving problems!

L

Lead the learning process to maximize their development of their cognitive, affective and motric interests!

Learn children how to socialize without giving up at their personality!

Learn children to use methods of paraphrase regarding the way of assert their points of view!

M

Meaningful is the learning process, not the result itself!

Mentorship can be a source of models!

N

Needs of your children don't confine only at material category or physiological needs!

O

Offer to children as many opportunities and alternatives for maximum development of abilities!

Originality of their ideas must not be neglected!

P

Provoke the induction of opportunities for developing adaptability and sociability capacities!

Proved independence and leadership must be rewarded!

Play with the utility of children's ideas!

Persuade children to end tasks in which their are involved!

Q

Quite different are learning path for each child!

Quite a lot you have to learn not to interfere anytime during your child discovery process!

"Quasars" must be supported by each of us!

R

Respect the child!

Reward the child for obtaining achievements!

Right administration of time must be part of nurturing process for a work system of your child!

S

Support children to participate also at extra-curricula programs!

Show affection!

Stimulate children into touching their ambitions and goals!

Self-esteem might be increased sometimes when you empower your children to achieve their goals!

T

Together determine the learning process!
Transpose into your child place!
Treat your child with tolerance and tenderness!
Talk together about targets, feelings and behaviours!

U

Under your supervision, the child will grow!
Unity level of your family reverberates on life style of your child!

V

Value children's contributions!

W

Work in team and learn children to cooperate!
Weekends can be spend learning in and from the nature!
Worries are reflected in behavior, interests and school efficaciousness!
Worries can be caused by yourself not only by external factors!

X

X-rated is better than none!

Y

You, as teachers/parents, have the chance to learn together with your pupils/children!
Yield point is given by the reflexive assessment!

Z

Zeal, eagerness, vim and trust are some key elements to involve children in learning!

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World tendencies require to educate young learners so that they were creative, flexible, able to analyze, think critically.

This handbook rose from the needs to meet the requirements of the modern world via developing and implementing innovative educational practices related to experience-based pedagogical approach educating children aged 3-12. The outcomes target at strengthening professional profile of already working educators and students - future teachers by developing pedagogical guidelines on experiential education, open educational tools-real life cases, offering training for improvement of professional and communicative skills, improving curricula of pre-school, primary and teacher training institutions.

Experience-based education is the method or way of teaching through doing, the process when young learners obtain knowledge and skills via personal experience. Individuals are involved in a particular activity which they reflect, analyze and that brings higher level of awareness and/or changes in behavior.

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