

ERD 2019
Education, Reflection, Development, Seventh Edition
**TEACHERS' PERCEPTION OF DEVELOPING PROBLEM-
SOLVING SKILLS IN PRIMARY EDUCATION**

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Abstract

Recommendation of the European Parliament and of the Council from 18 December 2006, on key competences for lifelong learning urges EU governments to include teaching and learning of key competences in their lifelong learning strategies. The recommendation identifies eight key competencies that are fundamental to each person within a knowledge-based society. In an increasingly globalized world, people need a wide range of skills to adapt and thrive in a rapidly changing environment. The original lifelong learning program was designed to provide people with learning opportunities at all stages of life. The work is based on the idea that problem solving is part of the thinking process and is considered as the most complex of all intellectual functions, being considered a higher order cognitive process. It occurs when the body becomes stuck and does not know how to proceed from the current state to the desired state. It is part of a larger process, which includes identifying a problem and formulating it. Therefore, in school it is absolutely necessary to pay more attention to the process of developing problem solving skills, within projects and beyond. The purpose of our research was to discuss with the teachers and to analyze their experiences regarding their own ways of guiding the development of the resolving skills for the students in the primary education.

2357-1330 © 2020 Published by European Publisher.

Keywords: Teachers, primary education, problem solving skills, difficulties, competences.



1. Introduction

Most people would agree that 21st century skills are those skills that are or will be needed to succeed in the workplace and life in this century. According to UNICEF (2004), "Life skills" are defined as psychosocial skills necessary for adaptive and positive behavior, which enable individuals to deal effectively with the demands and challenges of daily life. They are grouped into three broad categories of skills: cognitive skills for analyzing and using information, personal skills for personal agency development and self-management, and interpersonal skills for effective communication and interaction with others.

The World Economic Forum (2019) recently published a report outlining the skills that will be considered indispensable in the workplace by 2020. The most important ones are considered the following: solving complex problems, critical thinking, creativity, human resource management, coordination with other colleagues, emotional intelligence, judgment and decision making, social and professional orientation, negotiation and cognitive flexibility. Teams in the workplace are becoming more and more diverse, which means that we need to be more and more sensitive to the way we communicate to each other and the way we contribute to solving the problems that arise, which implies the involvement of the group. Consequently, rethinking the value and importance of these skills, to the detriment of accumulating information, is an essential process.

A new trend is affirming more and more and it refers to the way in which traditional education is broken down from larger packages of knowledge in smaller segments, which can be combined and adapted to personalize learning process to the needs of each potential student. Therefore, in addition to teaching the disciplines, we, as teachers, need to help students to develop their creativity, communication skills, problem solving skills, emotional intelligence and critical thinking skills, even if, at first glance, this may seem a little discouraging and provocative for teachers. It is also necessary to capitalize on the elements of community identity in the school, in order to better anchor our students in the reality that surrounds him (Scridon & Ilovan, 2015, 2016) and, also, to have a better knowledge of the benchmarks on which the didactic activity is based (Dulamă, Ilovan, Bagoly-Simó, & Magdaş, 2019).

The ability to solve problems that have arisen is always necessary, both in the long term, for the purpose of professional integration, but also in the short and medium term, in order to obtain an increased degree of autonomy in school and society. From a professional point of view, in the workplace, employees are always put in 3 similar situations: either solve a problem for a client (internal or external), or support them in finding solutions for those who have discovered problems in the work process, or discover themselves new problems which need solutions. Also, the ability to overcome problems efficiently and creatively is just as important for a fulfilled personal life, for harmonious personal and social relationships, as for a successful career.

Primary education cannot be considered a premature moment for stressing actions that support the process of developing problem solving skills, because, even in the absence of a remarkable life experience, children begin to want to become independent and gain autonomy, as a sign of their development.

2. Problem Statement

Children face various problems daily: at home, at school or in the social environment in which they relate. Moreover, as they grow older, problems become more complex, harder to solve, and they are less time-consuming in the presence of adults they know they can rely on. As a family, close friends or teachers we cannot always be there to solve them. problems that arise and this is not necessary. On the contrary, it is harmful, because it contravenes our purpose of assisting in the gradual attainment of personal and social autonomy. An uncertain child, who always asks for the help and approval of the mother or father and who needs constant support, will be dealing much harder in life compared to a bold, energetic child, able to overcome uncertainty, mistakes or frustrations and come up with creative solutions. The purpose of this study is to analyse the strategies that teachers use when are taking in consideration the development of problem-solving skills for primary school students and how they can create an environment that favours problem solving process.

3. Research Questions

The research questions were derived from the study author's desire to look more carefully at how primary school teachers relate to the process of developing problem-solving skills. Thus, we found it useful to find out:

1. Is the period of primary education a suitable one for triggering the process of developing problem solving skills, from teacher's point of view? Why?
2. What strategies do teachers use to develop problem-solving skills?
3. What are the benchmarks for how to build a stimulating environment for problem-solving skill?
4. What are the difficulties encountered by students and teachers in developing problem-solving skills?

4. Purpose of the Study

The purpose of this study is to analyse more closely how primary school teachers relate to the process of developing problem solving skills, as a fundamental skill of the 21st century. We believe that sharing information derived from professional experience, from one teacher to another, can be a fundamental milestone in improving the process of supporting the training of this skill.

5. Research Methods

5.1. Participants

In this study participated, on a voluntary basis, 36 teachers from primary education, participating in periodic vocational training courses. The characteristics of the group are:

- In terms of **gender**, 4 are male and 32 are female
- From the point of view of the **location of the schools** in which they work, 12 are from the urban area and 24 are from the rural area.
- In terms of **seniority in teaching**,

- 11 teachers are between 5 and 10 years old,
- 13 teachers between 10 and 15 years old,
- 7 teachers between 15 and 20 years old and
- 3 teachers are over 20 years old.

5.2. Research methods

We chose to use the Focus group interview, because it is a group interview, focused on a certain topic, strictly delimited, led by a moderator and which is part of the qualitative data collection techniques for analysing perceptions, motivations, feelings, needs and people's opinions (Morgan, 1998). As a result, we considered the most appropriate research formula in this case.

5.3. Procedure

The interviews took place at the beginning of 2019 and consisted of 3 sessions, each lasting 1 hour, each involving a group of 12 teachers, to give them the opportunity to make their opinion heard and to collect data as relevant as possible. The sessions took place at the end of the continuous training course in which they were involved and was based on their voluntary participation.

6. Findings

Prior to conducting the group interview, I established 4 fundamental questions and also left room for additional information, spontaneously obtained from the participant.

6.1. Emerging qualitative results from research question no. 1 - *Is the period of primary education a suitable one for triggering the process of developing the resolving skills? Why?*

Unanimously, the participating teachers considered that the age of the students is the right one to start consciously developing, in class, problem solving skills

6.2. Emerging qualitative results from research question no. 2 - *What strategies do you use in class to develop problem-solving skills?*

To the question regarding the strategies that the teachers use in the classroom to support the process of developing the problem-solving skills, to the students, the respondents mentioned, in the decreasing order of the frequency of the occurrence of the answers

- ✓ Addressing the task to be solved by dividing it into sub-tasks, systematically
- ✓ Anticipating the consequences of the actions, in different situations (at the beginning the students are assisted then, as they gain experience, the level of autonomy in solving this task increases)
- ✓ The habit encouraged by the students to always seek explanations or to generate multiple alternatives for solving a situation;
- ✓ Evaluation of the proposed alternatives and selecting the most suitable one, according to the context of the problem to be solved

- ✓ Actions to identify in advance, by the students, the information needed to effectively solve a problem
- ✓ Replacing the description of the problem and the non-constructive criticisms with the proposed solutions
- ✓ Anticipation by the students, together with their teachers (at the beginning) of the possible obstacles and outline the action plan to prevent them.

We have found that there are some common strategies, which many of the teachers mention, with small particularizations related, rather, to the moment when they choose to give less and less support to the student and to give them more space for action in solving the problem that arose spontaneously. or intentionally built to develop this skill. Even if the actual ways of implementing the strategies differ, we find, in teachers, in many examples, the increased attention paid to the problem solving process.

6.3. Emerging qualitative results from research question no. 3 - *What are your benchmarks on how to build a stimulating environment for developing resolving skills?*

From the discussions with the teachers, within the focus groups, we recorded the following data regarding the characteristics that an educational environment must have in order to be considered as an incentive for the development of the problem-solving skills.

Thus, it was mentioned that:

- ✓ An incentive environment is an environment in which problem solving is done thinking aloud, to facilitate understanding of the process itself;
- ✓ Mistakes are accepted and valued as an additional step towards achieving progress. They are normal in the evolution towards the right solution
- ✓ The *what if* type scenarios are permanently present in the classroom
- ✓ Mutual encouragement and support are common practice, both in the case of the teacher-child relationship and children-children.
- ✓ The sources of information in the most diversified fields are permanently at hand, either through technology or physically present in the classroom.
- ✓ An incentive environment is one in which students are permanently involved in decision-making, not only those of their age, but also of those that are rather specific to adults, in order to motivate them.
- ✓ Appreciation of the child's actions is performed permanently, for each additional step in the direction of solving the problem, not just for solving it in its entirety.
- ✓ The multitude of solutions is an absolutely necessary element in the class
- ✓ Any problem arising will be considered a learning opportunity, and it is essential to keep calm and guide the child with tact and appropriate strategies to his age and level of development.

6.4. Emerging qualitative results from research question no. 4 - What are the difficulties encountered by students and teachers in developing problem-solving skills?

Regarding the difficulty question, we considered it appropriate to conduct the discussion within the group towards their separate mention, regarding teachers and students, and then to make a comparative analysis of the existence of similarities between the two categories.

6.4.1. Difficulties related to students - here were mentioned aspects such as:

- ✓ Lack of student life experience;
- ✓ Lack of the habit of taking some decisions, against the background of a parental behaviour marked by the desire not to expose the children to the confrontation with problematic situations
- ✓ Difficulties caused by insufficient development of social skills and interpersonal communication
- ✓ The extended period of time required to develop critical thinking skills
- ✓ Low stress resistance at this age
- ✓ Difficulties related to the level of tolerance to frustration
- ✓ Poor relationship with colleagues in projects based on problem solving

6.4.2. Difficulties regarding teachers - during the group interviews, the teachers considered the difficult aspect as:

- ✓ Lack of sufficient time to constantly carry out activities with the students, in order to develop the resolution skills
- ✓ Own gaps in knowing in detail how these skills can be developed
- ✓ Lack of an adequate material base, necessary to carry out this process
- ✓ Reduced access to technological facilities, in rural schools
- ✓ The lack of a school counsellor to support the students in the development and maturation process
- ✓ Insufficient continuity of school activities in the family environment, too little support from parents
- ✓ Excessive emphasis on school performance and the less important role of competences not correlated with the immediate school results.

6.5. Other results

During the three group discussions sessions held with the teachers involved, besides the established questions, there were also moments to share participant s professional experiences, in order to enhance the successful practices in developing problem solving skills. Whether from the teaching experience or from the analysis of the specialized literature or from the experiences told by third parties, not necessarily teachers in primary education, the teachers gained access to less familiar techniques or to unread bibliographic resources. We consider that these discussion sessions offered, besides the role of research also the possibility of educational networking, in order to familiarize teachers with new experiences.

7. Conclusion

According to the World Economic Forum (2019), in 2020 the ability to solve complex problems will become the most important skill an adult needs in a career. Therefore, teachers have the obligation to teach according to the documents that provide the key competences formed for living in the 21st century. The continuous training for teachers implies the development of certain professional competences, but also of certain transversal competences (Jucan, 2017). We also consider important to emphasize the fact that creativity fuels the ability to solve problems, the ability to innovate and to explore new and unusual areas. Reflective thinking, on the other hand, has benefits for learning also (Andronache, Bocoş, Bocoş, & Macri, 2014) It is a cornerstone of ingenuity that leads to success in the world of art, but also in science and technology. Even though the field of e-learning is becoming more and more contoured (Dulamă, Ilovan, Ciascai, & Maroşi, 2015), it is the fineness of human perception that we consider it will continue to be the main element in the problem-solving process. The purpose of this study was to analyse the strategies that teachers use it when considering developing problem solving skills in primary school and the practical way in which they manage to create an environment that favours problem solving process.

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