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**MAKING SCHOOL THE NEXT MUST HAVE-A CURRICULAR  
PERSPECTIVE**

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*Abstract*

The essential competencies that pupils need for their career, college, citizenship status of the 21st century, and the growing discrepancy between them and the school system of education, who have argued that education has been too academically focused, too narrow and too slow to react to the changes of the world it serves. Educational specialists find realistically how today's school, by providing the depersonalized notional curriculum and by developing the preponderance of conceptual thinking, underestimate the student's learning potential at school. We find at the curriculum, at least in the Romanian case, a series of discrepancies. Isolation insufficient, highly fragmented educational disciplines centered on the inventory of artificial content and methodologies is a clear symptom of the gap. In this respect, the transdisciplinary approach becomes necessary. This reflects, in general terms, a unity of knowledge and holistic approaches to education. From the curricular perspective, it aims at merging more disciplines, in the form of curricular integration, with the possibility of creating a new way of approaching knowledge. The present paper focuses on the importance of developing transversal competencies in students by going through an integrated modular program based on the content of sustainable development and trying to find a way to solve the questions "What should a high school graduate know? How should they use what they know? How will they help pupils? What is the right way that school develops transversal skills? "

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## 1. Introduction

The society, under the auspices of postmodernism, along with the new requirements of the labor market, transfers a much wider vision of the complex mission of the school and of the teachers. This is all the more important as most specialists demonstrate discrepancies between teacher generations and student generations. Teachers have to deal with current society demands, generations of pupils that are increasingly different, how to relate to students. All this because the knowledge and communication society demands skills that cannot be formed by teachers who do not.

Dyer, Gregerson and Clayton (2011), the bestseller's "Innovator DNA" book, describe the life of a pupil at the school, on his way to the development of creativity, saying that at very young ages (4-5 years), children are addressing all sorts of questions, curious about the world, sometimes being very insistent with adults. At school, everything changes, students realizing quickly that teachers appreciate a fair answer rather than a question. The situation becomes all the more critical in high school, where curiosity is rarely worthwhile. Once they get to work, graduates spend almost 80% of their time with tasks to execute, compared to 20% of the time they spend, thinking about new ways to solve problems. Obviously, it's not the case with some companies like Apple or Google.

Education serves society in a variety of ways. The purpose of education is to make people wiser, better informed, ethical, responsible, critical and able to continue learning. If all people had such abilities and qualities, the problems of the world would not be solved automatically, but the means and the will to approach them would have been at hand. Education also serves society by providing a critical reflection on the world, especially failures and injustices, as well as promoting greater awareness, exploring new visions and concepts, and inventing new techniques and tools. Education is also the means to disseminate knowledge and develop skills, bring about desired changes in behaviors, values, and lifestyles, and to promote public support for the continued and fundamental changes that will be needed if humanity changes the course, the path leading to growing difficulties and possible catastrophes and the start of more intense concern for sustainability. Education can be a solution for this problem.

To promote such objectives, an education that can promote sustainability, in all forms and subjects, can transform the world in a better. It would require a review of many existing curricula and the development of content objectives and themes as well as teaching, learning, and evaluation processes that emphasize moral virtues, ethical motivation.

Sustainability education requires a balanced approach that avoids unnecessary emphasis on changes in individual lifestyle. It must be recognized that many of the world's problems, including environmental issues, are linked to our paths of life, and that solutions involve transforming the social conditions of human life as well as changes in individual lifestyle. This draws attention to the economic and political structures that cause poverty and other forms of social injustice and encourages unsustainable practices. It also draws attention to the need for students to learn the many processes of solving these problems through a broad and comprehensive education linked not only to the mastery of different subjects but also to the discovery of the real problems of society and the demands of changing them through promoting the development of cross-cutting skills.

Unfortunately, in recent years of educational reforms, it has become increasingly less important what you can do with what you know than what you know. The interest and ability to create new knowledge

to solve problems are the most important skills that students should face in the long run. It is imperative that students filter information and apply them in new contexts, ultimately it is the purpose of education. The problems of today are simply too complex to be solved with the academic instruments specific to a single discipline.

## **2. Problem Statement**

Moffett and Wagner (1992) says that " a curriculum that places the learner in a central role in the learning process instructs him to select and sequentially approach the activities and materials with which he works (individualization); facilitates students to take responsibility and help each other (interaction); such a curriculum combines symbolized and symbolic materials so that the student can efficiently synthesize learned structures (integration)".

Pedagogy in the 21st century refers, first of all, to a set of new skills that teachers have to acquire in order to be able to design productive educational activities. Knowledge and skills to work with new technologies are needed so that they can be best used in teaching.

The 21st-century teacher must be aware of the differences that exist between his generation and that of his students, all the more so since this "gap" that has existed ever since increases his circumference due to the rapid changes of society as a whole.

Despite national and international strategies, a large number of children are facing challenging challenges due to too rapid changes in the Romanian education system. It formally ensures that every child starting school today can successfully adapt to the labor market over 20 years. In order for this to be viable, economic growth and social development should be closely linked to the skills that the population has, it should be an important objective of education. But there is a problem, namely that a large number of future employees will have jobs that have not yet been invented.

This means that in teachers' initial training there must be included courses that use innovative pedagogical methods centered on pupils and a curriculum design aimed at a graduate profile with certain characteristics, adaptable to the labor market future: the graduate is creative, thinks critical, solves complex problems in unexpected situations, is adaptable, etc. Active teaching-learning methods have great efficiency in this respect.

Many researchers conclude that the low or falling interest of students in science is partly due to their presentation as a collection of isolated, uncontextualized and unimportant facts that are not linked to students' own experiences. In this respect, the traditional school sciences are perceived as having difficulties in raising students' curiosity about the natural world, mainly because they do not see their relevance to their own lives and interests.

A potential way to improve students' motivation and interest in this area is to use social and real-life contexts and practical applications as a starting point for developing scientific ideas, in the opinion of Hampden-Thompson & Bennett (2013). This method is referred to as science-based science-based science teaching or science-technology-society (STS) approach. Scott, Asoko and Leach, (2007) emphasizes that, although teaching is a sensitive activity that depends on several external factors, there are some teaching approaches that might be more effective than others; they would be closely related to clear teaching

objectives or involve a motivating activity or challenge the students' thinking in an attractive way or allow students to articulate their developing understanding.

Of course, the approaches described are not mutually exclusive but rather based on each other. There is considerable overlap between them and, more importantly, they are potentially complementary. Harlen (2009), therefore, advocates a combination of these approaches produce "best pedagogy" for science education and beyond if we want to develop sustainable competencies for school students.

If we look at the activity of an ordinary class in school, we try to understand the developed skills, especially through routine activities. For example, in order to receive the mark, 10 students learn to select what their teachers want - correct answers, good works - so they only offer what they want. While education has a conservative role in society and should not be subject to certain "educational" or "non-funded" practices, the question remains, "How can school provide the skills needed to make students ready for the world that changes every minute?".

Potolea (2008) refers to the concept of the curriculum, making it a correlation with the entire education, in the design and development issues. In his view, no definition of the curriculum date would define its essence as a whole, as this concept has successive developments. The teacher considers that such a concept "has a load of meanings that place it in the area of broadly disputed polysemantic concepts."

In Nicolescu's (2007) view, the transdisciplinary approach of the curriculum is not an ideology but establishes a fertile dialogue between fields in order to create a pedagogical ideal, "wise bits of intelligence": analytical intelligence, emotional intelligence, body intelligence. This is the premise of the formation of an active individual from a holistic point of view, able to perceive with all the senses and to participate in the life of the world with all its native endowments.

In the third millennium, students form transferable skills, assume roles in a team, develop prosocial behavior, develop the competence to learn to learn, develop conceptual charts, develop critical and creative thinking. By transdisciplinarity, students move from deep, useful conceptual learning to learning through challenging, meaningful problems, adapted to their cognitive level, being able to apply knowledge, develop new and complex situations to foster transfer, and generate new knowledge (Washor & Mojkowski, 2013).

Transdisciplinarity is among the most modern objectives of teaching/learning and causes important changes in the child's further development.

As we see in educational practice, this organization of curricular content is poorly used as D'Hainaut (1981) states " the disciplines are invaded by a gigantism that stifles them and closes them in the impasse of specialization."

According to Văideanu (1988), the interdisciplinary organization of the curriculum "implies a certain degree of integration between the different fields of knowledge and different approaches, as well as the use of a common language allowing conceptual and methodological exchanges.

By interdisciplinarity, content is sought to be organized in order to achieve higher-order, higher order learning objectives: problem-solving, decision making, the acquisition of efficient learning methods and techniques, etc., in other words, the transfer of the effective transfer into contexts of everyday life and outside the classroom.

Transdisciplinarity becomes visible at the conceptual level by highlighting over-concepts that cannot be tackled within rigid disciplinary structures. Numerous education systems opted for an integrated curriculum approach, one of the most common forms of integration being the organization of disciplines

on curricular areas, starting from the premise that there are a series of general competencies common to a group of disciplines. In addition to the classical disciplines, some countries, especially the Nordic countries, have moved on to introduce cross-cutting themes, to project activity, to the intersection of new dimensions of education in the curriculum. As an expression of this integration, cross-curricular themes are studied units that allow us to explore some significant issues of what we can call the "real world." Of course, the inter-or transdisciplinary design will not lead to "dismantling" the disciplines, but the beneficial consequences for school curriculum are multiple: focusing on integrated projects such as projects; relationships between concepts, phenomena, processes from different domains; the correlation of learning outcomes with everyday life situations.

In the present study, the emphasis will be developed from the perspective of critical thinking competence, 21st-century competence and so much needed on the labor market.

Halpern (1996) like to consider that critical thinking is an consists of those activities that make it possible to make decisions. Processes involved in critical thinking include emotion awareness and reflection, identifying own values, evaluating information and sources, analyzing and clarifying language, developing solutions to different issues, evaluating alternative solutions.

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### **3. Research Questions**

Before starting any curricular change, it is important to analyze the importance of developing transversal competencies in students by going through an integrated modular program based on the content of sustainable development and trying to find a way to solve the questions " How will they help pupils? What is the right way that school develops transversal skills?

### **4. Purpose of the Study**

In relation to the need to develop critical thinking skills to teachers, research hypotheses will be described, the purpose of which is to organize and develop new educational practices that are useful to be developed at pre-university education level.

Subjects of the research are high school students, about half of whom will be part of the experimental group (the group will be involved with a training program based on sustainable development and critical thinking) and the other half is the control group (over which it is not will intervene, in any form). Thus, the assumptions argue that the results obtained by the experimental group after participating in the described activities (compared to the control group) will be statistically significant. Also, the initial results of the experimental group will be compared to the final results, with the assumption referring to the results obtained as statistically significant higher at the posttest time (compared to the pretest).

## 5. Research Methods

Subjects who participated in this research are part of research are in high school secondary education classes, so it was not possible to use randomization methods. It has been presented with the research plan and timing, descriptions of the activities that will be carried out, with explanations of the terms used. The workgroup volume was 57 students, 28 students from a high-school economic-experimental group and 29 students from a pedagogical high school, experimental group, but their results were compared with the initial level of development transversal competencies because the alternative of a control group (a class of the same profile within the same high school) was not possible. As such piloting of the experimental modules was carried out in two high school classes with different specializations, but benefiting from similar activities.

The independent variable of experimental research is the integrated modules designed for experimental study. These modules introduce some of the major issues - global realities - that need to be addressed in building a sustainable future. It serves as the basis for more in-depth studies in the following modules. It also highlights the interdependence of these issues and the way our daily lives, as inhabitants of the world, are linked to social, economic and environmental processes. Modules demonstrate the possibility of making changes in resources, social and environmental issues can be solved, and also the fact that we have the collective power to overcome the many problems we face together.

The proposed activities, together with the methodological guidelines, are arranged within 3-4 hours and can be developed/adapted according to the class specificity, the classroom rhythm as well as the degree of development/accommodation of the students with the experiential activities. they can be spent in a normal school hour, about 40-50 minutes, obviously with the necessary adjustments.

The Watson-Glaser Critical Thinking Appraisal Critical Thinking Test (W-GCTA) assesses the ability to reasonably analyze assumptions, arguments, deductions, inferences, and interpretation information. A passage of information that may contain a mixture of verbal and numerical data and statements requiring critical evaluation of the candidate as to the extent to which the statements are based on the passages previously given.

The critical thinking appreciation, according to the Watson and Glaser test, contains five sections that are specially designed to find out how good an individual is in analytical and logical thinking.

Critical thinking has analyzed students' ability to make assumptions, analyze arguments, make deductions, make inferences, interpret information.

## 6. Findings

To analyze the first hypothesis the data obtained will be described in the following. By analyzing the data distribution, they do not seem to be distributed normally, and as we do not have a large sample, we will apply the Wilcoxon test (nonparametric test). The results of the comparison test are as follows: as  $S = -4.625$ ,  $p = 0.001$ .

The statistical program used for data analysis was SPSS, version 2.0. With the help of this, namely Mann-Whitney, Wilcoxon test, Multiple Measured ANOVA or independent tests, the two above assumptions were tested.

For the first hypothesis, as it results from the nonparametric test, there are statistically significant differences in the two moments. We will analyze the sum of the highest ranks (in our case 406.00) to analyze the differences. The Wilcoxon test is used to check whether the subjects who were part of the experimental group have achieved better results at the end of the training than the control group. The obtained statistical results confirmed the hypothesis,  $Z = 4.625b$ ,  $p = .001$ , and the effect was  $r = 0.76$ . This directly means that the passing of activities towards sustainable development (conducted with specialized teachers) by the students can have the same effect under similar conditions for another research group or it can be extended.

For analysis of the second hypothesis, study group 2 will be analyzed the results of the Shapiro-Wilk and Kolmogorov-Smirnov tests; they must be statistically insignificant ( $p > 0.05$ ), so that the variable is normally distributed in the population. As the results in both tests are not statistically significant, it results that the critical pretest test is not normally distributed. For the post-pedagogical group, the test result  $K-S = 0,115$ ,  $p = 0,200$  and the result in the S-W test is  $0,922$ ,  $p = 0,034$ . As the results in both tests are not statistically significant, it results that the posttest address the critical variable is not normally distributed.

Given that the results obtained in testing the normality of the data distribution revealed that they are not normally distributed, it is necessary to apply non-parametric tests.

The results of the comparison test show that  $Z = -4.705b$ ,  $p = 0.00$ , which means that there are considerable differences between the time before the activities and the results obtained afterward. Analyzing the Sum of Ranks table (Table 01), it can be deduced that the highest value corresponds to the positive ones (435.00), the posttest moment.

**Table 01.** Sum of Ranks column

<b>Critical.thinking.pedagogic Ranks</b>			
	N	Mean Rank	Sum of Ranks
pre.critical.thinking - post.critical.thinking	Negative Ranks	0a	.00
	Positive Ranks	29b	435.00

By calculating the magnitude of the effect, based on the previous results, we apply the Wilcoxon test. We get it  $Z = -4,705$   $p = .001$ ,  $r=0.763$ , which means that the critical thinking competence being more developed after the intervention, in of the subjects in experimental group 2. As a result, we reject the hypothesis of null and we accept the one we have said initially.

## 7. Conclusion

Although we have researched a small group of subjects and it is difficult to outline some general conclusions about the practice of transversal competencies, especially those of critical thinking, we are not afraid to look deeply at the factors that still allow us to offer ways to restructure our practices curricular and social aspects of the school. Among these factors, we recall that micro-research was conducted in two different high schools, with different profiles of specialization, with different teachers in the classroom, so

at first sight with pupils who have different backgrounds. In the following, we will describe some of the challenges and practices that can be developed in schools:

- analysis of marginal, interculturally and decentralized cultures; overturning the myth of power and knowledge about the teacher-student relationship (cancelling the unique source of information) and promoting the continuous interaction between the actors of the educational process

- realizing reflections by addressing different perspectives by reinterpreting, reconsidering theories, deconstructing to reveal the different facets of the same issue/themes and identifying the contradictions/assumptions from which a change/ mitigation/adaptation can be made in accordance with the identified needs and needs

- the usefulness of acquiring knowledge relevant to the life of the individual in the context of the role of the future employee as well as their integration into personal development

- tolerance towards diversity in all perspectives (ideas, concept, own interpretation), advancing negotiation, mediation, active involvement

- promotion of collaborative learning, the use of group interactive methods. By activating imagination, creativity, portfolios, project development, emphasis on analysis and improvement, and less on punishment and control, we increase the personal responsibility of pupils in the learning process, becoming more motivated and developing collaborative relationships with teamwork, and socialization capacity.

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