

PLEADING FOR AN INTEGRATED CURRICULUM

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Abstract. *Having as goal an optimum adaptation and reporting to the actual world in which we live, it is a clear direction in the actual education to “break” the traditional pattern of school disciplines (keeping in mind that the actual curriculum is still centered on disciplines) and to create several “bridges” between them, trying to observe effectively what is “beyond the disciplines”. In this respect, it was proposed the teachers’ training programme “PROFILES - Education through Sciences”, organized in the frame of the FP7 project “PROFILES - Professional Reflection Oriented Focus on Inquiry-based Learning and Education through Science”, which aims to the development of the professional-didactic competences of Science teachers (Chemistry, Physics and Biology), in strong relation to scientific investigation, valorization of pupils’ individual experiences, integrated approaches in the Science field and achievement of an educational demarché, in accordance with the constructivist paradigm principles. A modern education for and through Science, centered on competences, implies the promotion of an integrated curriculum that gathers Science fundamental scientific contents and abilities, practical skills, attitudes and values.*

Keywords: *integrated curriculum, monodisciplinarity, multidisciplinarity, interdisciplinarity, transdisciplinarity.*

1. INTRODUCTION

In Romanian school education, during the past years, the school curriculum and its afferent problematic has been constantly discussed, developed and enriched, generating new approaching perspectives of the educational process.

Frequently used especially after the ‘90s, the concept of *curriculum* subsumes a semantic area, complex enough to generate, especially lately, confusions and perturbations at the theoretical and educational practice level. The contemporary curriculum theory illustrates a real *cacophony of individuals’ voices* [1, 2], having obvious *expansionist tendencies*, meaning that it appropriates issues / thematic which are specific for other educational Science fields, posing as a *cure-all* for any discipline, that “already *knows them all and can do everything*” [2].

Here, it is not proposed to try to elucidate all the “mysteries” of such a surprising evolution (like that recorded for the curriculum theory), but it raises the intention to answer to several interrogations which are necessary in this context:

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- a) *What is an integrated curriculum? Why an integrative approach to curriculum and planning?*
- b) *Which are the levels of the curricular integration?*

2. CURRICULUM - INTEGRATED APPROACH

2.1. WHAT IS AN INTEGRATED CURRICULUM?

The *integrated curriculum* or *integrated approach of the curriculum* does not represent, for the educational field, a new paradigm. Those collocation roots are to be found in various works of J. J. Rousseau, J. Fr. Herbart, O. Decroly, J. Dewey, C. Freinet, W. H. Kilpatrick etc.

John Dewey, for instance, promotes *the theory of knowledge through experience* and sustains that the learning practiced in school should be an experiential one. Just only in *the experience*, it can be obtained an authentic knowledge - "*experience includes knowledge*" [3], through it is achieved the unity between action and knowledge. By introducing the *experience* in school, Dewey proposed to his pupils to practice the *learning through action*, the only generator of real and solid knowledge. Thus, he promoted the well-known principle that revolutionized the educational theory and practice - *learning by doing*. He accused the traditional school of the fact that it separated knowledge from experience, non-allowing the children to be in direct contact with Science - more precisely, with the Science products. Thus, it was ignored a fundamental truth: *experience precedes science*. In his school from Chicago, the activities proposed to the pupils represented a continuation of those developed in the familial environment. School became life itself, because it offered to the child the opportunity to experiment situations which were similar with those from the real life. By sure, experience cannot be framed in a certain discipline, it transcends the rigid boundaries of disciplines and generates *learning beyond disciplines*.

Returning to the specific issues of the curricular approach, J. Y. Boyer appreciates that "integration means the organizing, the connection of the school disciplines, with the purpose of avoiding their traditional isolation; integration also means the process and the result of the process through which the pupil interprets the subject that is transmitted, starting from his life experience and from the knowledge he already got hold of" [4].

Humphreys opines that "an integrated study is that in which the children research the knowledge in different fields, correlated with the concrete aspects of their life environment" [5, 6].

Shoemaker defines the integrated curriculum as "education that is organized in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of study. It views learning and teaching in a holistic way and reflects the real world, which is interactive" [6, 7].

Integrated curriculum requires first to teach all the teachers, then the pupils, surpassing the boundaries of the disciplines when they approach an issue/subject and thus to give to learning more meaning, more substance and relevance. Certain themes which are specific for Sciences like: "*Sources of renewable energy*", "*The environment - do we love it, or do we destroy it?*", "*Terrestrial ecosystems: the forest - the lungs of the planet*", "*Nutrition and health: What is it good to eat?*", "*Could a sterile couple to conceive a child?*" may become more accessible and interesting for pupils, if they are seen beyond the disciplines narrow lenses, isolated one from another and treated *inter-, multi- (pluri-) and/or trans-disciplinary*.

"In an integrated curriculum, affirmed Dressel, the planned learning experiences do not offer to the trainees only an unified vision on the existent knowledge (by learning models,

systems and structures of culture), but they also motivate and develop the pupils' power to perceive new relations and to create new models, systems and structures" [4, 8].

Synthesizing, the concept of integrated curriculum "refers to a certain modality of teaching and to a certain modality to organize and plan the instruction that produce an interlacing of disciplines or study objects, so that (a) it meets the pupil's needs for personal development, and (b) it helps to create connections between what pupils learn and their present and past experiences" [9].

2.2. LEVELS OF THE CURRICULAR INTEGRATION

If until now it has been tried to offer a global image over the concept of *integrated curriculum*, from now on, the focus will be oriented on the *levels of the curriculum integrated approach*. They may thus be derived the following steps of the curricular integration:

(a) *Monodisciplinarity (intradisciplinarity)* - promotes the approach of a theme, from the isolated perspective of a studied discipline;

(b) *Multidisciplinarity (pluridisciplinarity)* - in this case, a theme is approached from the perspective of several disciplines, thus gaining in clarity and facilitating comprehension;

(c) *Interdisciplinarity* - is focused on the analysis/explanation of complex issues, that cannot be treated/clarified only from the perspective of a single discipline, but only by means of the instruments offered by several disciplines; among those disciplines, clear connected relations are established;

(d) *Transdisciplinarity* - is oriented on reporting to *problems taken from the real life*, with a special signification; their treating is possible and even generating "a complete *decompartmentalization* of the implied studied objects" [9], often obtaining a solid *fusion*.

The *multi-*, *inter-*, and/or *transdisciplinary* approaches do not imply an *abolishing* of the classic disciplines, but rather suppose changes at the level of the projection and implementation practices of the school curriculum, concretized in: promotion of the integrated activities (project-type ones); assurance of connections/relations between concepts, phenomena, processes, principles, theories etc. from different domains; projection of learning expected results by reporting to real life situations; introduction to any other referential in the curriculum organization: thematic unities, concepts, issues, pupils'/students' life situations/experiences etc.

The integrated curriculum does not exclude *intradisciplinary* aspects. The pupils will be able to valorize the acquisitions obtained at *intradisciplinary* level in various learning contexts/experiences that best simulate problematic situations from the real life, and provokes a *multi-*, *inter-*, and/or *transdisciplinary* approach/treatment. However, the projection of an integrated curriculum must take into account a set of fundamental ideas/principles [10]:

(a) each pupil/student is in fact *a complex person*, that must be regarded as a whole, in a continuous development;

(b) the school education must offer adequate answers for *the needs of real pupils/students*, who live a real life, in a real society;

(c) the educational demarché must assume, as a key principle, the *focusing on the pupil/student*, on his/her personal, professional and social development, in accordance with his/her potential;

(d) the main purpose of the school curriculum is the creation of *transversal competences, values, attitudes* that surpass the boundaries of some disciplines, being essential for a successful life in the context of the actual society;

(e) the pupil's/student's training must be achieved within the framework of multiple and various *learning experiences*, that allow diverse acquisitions and experiencing in concrete contexts;

(f) the learning experiences - focused on the valorizing and development of the individual potential - must involve *pupils/students as active participants*, directly drawn in their own development;

(g) the curricular activities must be constituted and executed based on *the partnership between pupils/students, teachers, members of the local community* and must valorize the potential of the community, expressed in the resources which can be offered for the learning process;

(h) the authentic pupils'/students' training can take place only in *activities based on group or team working*, which level is permanently maintained by opening towards knowledge, opened communication, attention for inter-knowledge, collaboration climate;

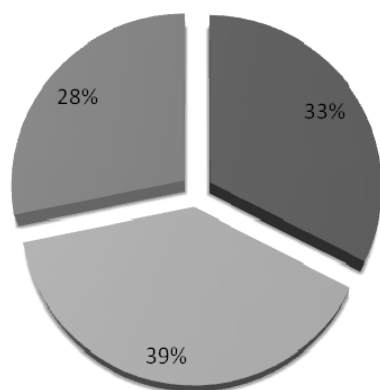
(i) in order to help the pupils/students to make various connections between the diverse learning acquisitions / what they learn and the real life, the curricular activities must approach *a variety of themes with significance in reality*;

(j) the construction of an integrated curriculum is - by excellence - a process that implies *innovation and creativity*, as factors that may contribute to the identification of adequate curricular solutions and to the diminishing of the resistance to what is new, unknown or changed.

3. RESULTS AND DISCUSSION

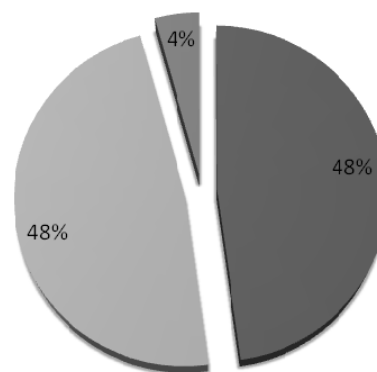
It is not a simple task to design an integrated curriculum. However, the orientation should be on designing a curriculum that is relevant, standards-based, and meaningful for students. On the other hand, the curriculum should challenge students to solve the real world problems [11]. But how much trust and confidence do the teachers have in an integrated curriculum designed in the respect of the fundamental principles, mentioned previously at points (a)-(j)? In this sense, a study was conducted in the frame of the FP7 European Research Project *PROFILES - Professional Reflection-Oriented Focus on Inquiry-based Learning and Education through Science* (code: 5.2.2.1-SiS-2010-2.2.1-266589), with the view to rate the confidence of 46 Science teachers from Dâmbovița County, in an integrated curriculum for Science education. The study was made in direct correlation to the Science teachers training needs, with the view to determine the necessary professional support and guidance for the teachers enrolled in the *PROFILES* continuous professional development and intervention [12-14].

Fig. 1 illustrates the teachers' confidence on planning a lesson considering pupils'/students' wishes and proposals. As the Science lesson must be designed offering exact answers for the pupils'/students' needs, the teachers' replies seems to be almost balanced between *very good, good* and *satisfactorily confidence*. It is clear that not all of them are ready to consider pupils'/students' needs (coming from their real life), in the lesson designing process. On the other hand, Fig. 2 shows an important teachers' confidence on implementing student-centered teaching in the classroom. In fact, this is the main principle of the actual Science education (and not only), taking into account the pupil's/student's personal, professional and social development, in strong relation with the personal potential.



■ Very good ■ Good ■ Satisfactorily

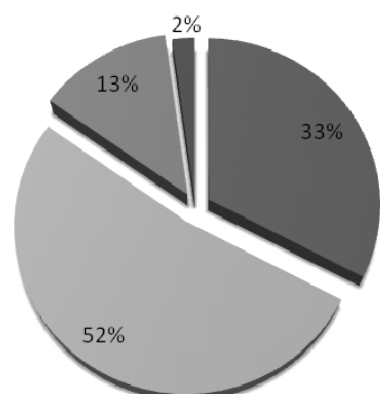
Fig. 1. Teachers' confidence on planning a lesson considering pupils'/students' wishes and proposals.



■ Very good ■ Good ■ Satisfactorily

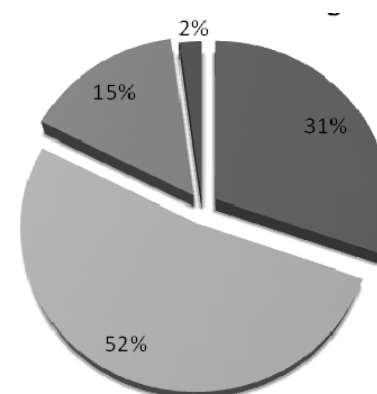
Fig. 2. Teachers' confidence on implementing student-centered teaching in the classroom.

Fig. 3 illustrates the teachers' confidence on creating pupils'/students' transversal competences, values and attitudes in the context of an integrated curriculum. In this respect, 85% from them expressed *very good* and *good confidence*. It is clear that beside knowledge, for Science disciplines, transversal competences, values and attitudes represent key-factors for learning, being essential for a successful life in the actual society. In addition, in the classroom, it becomes important the way that the teacher promotes an active participation strategy for ensuring the pupils'/students' engagement. In this sense, Fig. 4 shows the teachers' confidence on promoting the active participation of the pupils/students, especially in the process of socio-scientific decision making, over 80% from them expressing *very good* and *good confidence*.



■ Very good ■ Good ■ Satisfactorily ■ Do not know

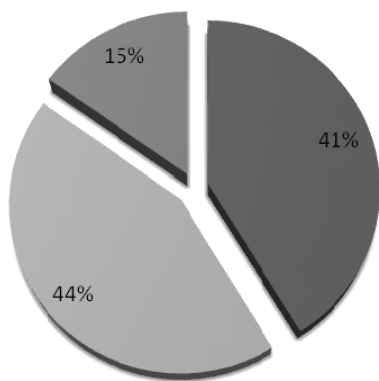
Fig. 3. Teachers' confidence on creating pupils'/students' transversal competences, values and attitudes.



■ Very good ■ Good ■ Satisfactorily ■ Do not know

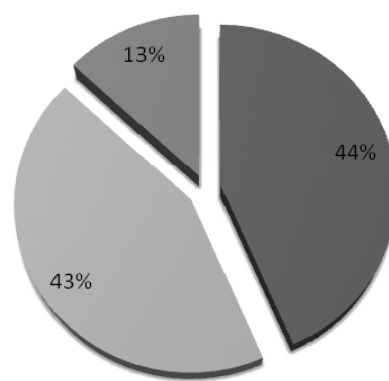
Fig. 4. Teachers' confidence on promoting the active participation of the pupils/students, in the process of socio-scientific decision making.

Fig. 5 presents the teachers' confidence on promoting specific activities based on group or team working. More, Fig. 6 illustrates teachers' confidence on guiding pupils/students to value their learning for life, lifelong learning and for their future careers. In both cases, over 85% from teachers expressed *very good* and *good confidence*. Science education is based also on practical activities and students become aware of the importance of having sufficient skills and abilities for working in a team. But for the future career, knowing how to work in a team can be crucial. In this respect, Science teachers try to encourage the group or team working, for enriching the positive communication and developing the students' leadership potential.



■ Very good ■ Good ■ Satisfactorily

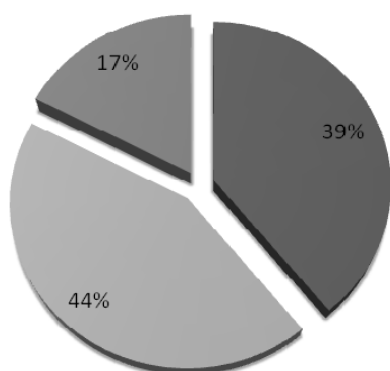
Fig. 5 . Teachers' confidence on promoting specific activities based on group or team working.



■ Very good ■ Good ■ Satisfactorily

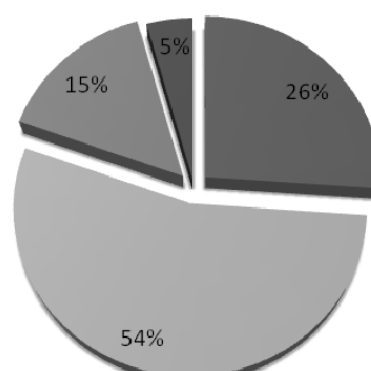
Fig. 6 . Teachers' confidence on guiding students to value their learning for life and future careers.

Fig. 7 shows the teachers' confidence on promoting pupils'/students' innovation and creativity. In the actual education, the teachers must scaffold pupils'/students' innovation and creativity engaging them in specific processes of complex thinking and provoking them to express new opinions and ideas. Finally, Fig. 8 illustrates the teachers' confidence on modifying the way of teaching in the context of implementing the integrated curricula. In this case, 80% of them expressed *very good* and *good confidence*. But there is still 5% that are not sure if an integrated curriculum must lead to changes of the teaching style.



■ Very good ■ Good ■ Satisfactorily

Fig. 7 . Teachers' confidence on promoting pupils'/students' innovation and creativity.



■ Very good ■ Good ■ Satisfactorily ■ Do not know

Fig. 8 . Teachers' confidence on modifying the way of teaching in the context of integrated curricula.

4. CONCLUSIONS

It is demonstrated that the curriculum approached in an integrated manner allows the future graduate to acquire the necessary instruments through which he/she will have future access to complex scientific knowledge and to extend learning to the scale of his/her entire life (*life-long learning*). In fact, this approach prepares pupils/students for life-long learning. Teachers expressed very good and good confidence when considering the fundamental principles which must be taken into account for designing and implementing an integrated curriculum. As Markus said (quoted in Shoemaker, 1991), “the integrated curriculum is a great gift to experienced teachers. It's like getting a new pair of lenses that make teaching a lot more exciting and help us look forward into the next century. It is helping students take control of their own learning” [6, 15].

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