John Dewey’s philosophical ideas of education in today’s ICT for secondary curriculum programmes
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Abstract

John Dewey’s philosophical ideas in the educational field are still an inspiration for current curriculum programmes. Therefore, we set out to provide an overview of the most important educational concepts found in John Dewey’s work in connection with ICT courses for Romanian Secondary School, 9th to 12th Grade. The 21st century is generally characterized by information and communication technologies and digital media content, and our students are the representatives of this digital generation, hence the present paper’s intention to bridge the gap between Dewey’s philosophy and common perceptions on computer technology practice in education.

Keywords: John Dewey; progressive education; ICT curriculum; reflexive experience; analysis

1. Introduction

Although, at first glance ICT for Secondary Curriculum Programmes have nothing to do with Dewey’s concepts, we have endeavored to demonstrate the relation between Dewey’s writings on education and today students’ needs for the ICT course syllabus.

Implementing new technologies in the teaching and learning process has both positive and negative effects. It is up to us how we use technological advancement. We use it as means of communication or we become confused in this World Wide Web?

Science, and all that surrounds it, needs space and time to evolve, people who are interested in develop new ideas, and, last but not least, the relations between elements of the entire spectrum which constitutes knowledge. Technology, the mainstream of today’s life, can become more involved in the teaching-learning process, and can also improve the quality of students’ experience through educational tools such as smart devices and similar technology. Although, new development in technology help us improving our daily life, the uncontrollable use of it may lead to faulty decisions making. Technology is everywhere, at home, at school, at work place, basically everywhere we go. It can improve or deteriorate our society. All in all, technology shapes our society and has both positive and negative impacts. Dewey himself once said:

Science through its physical and technological consequences is now determining the relations which human beings, severally and in groups, sustain to one another. If it is capable of developing moral techniques which will also determine these relations, the split in modern culture goes so deep that not only democracy but all civilized values are doomed…. A culture which permits science to destroy traditional values but which distrusts its power to create new ones is a culture which is destroying itself. (Dewey J. , 1939, p. 154)
At the beginning of the 21st century, one of the upshots is IT&C. Dewey foretold some of the significant outcomes of the new scientific wave that engrossed the connoisseurs and the practitioners of his time. Maybe he didn’t imagine the magnitude of such a transformation, but for sure Dewey initiate, applied, and expand new concepts in the field of education, notions well known today and very much appreciated, establishing the foundation of a modern, somehow futuristic, education system which operates with intricate informational technology and communications. Here and now, even if John Dewey believed in human relations and in the relationship between people’s freedom and social rules within a society, we see a switch, a complicated turn of events, something that we are witnessing now – and some of us take it for granted. These relations are mediated by computers, smartphones, and all sorts of gadgets.

Dewey’s philosophy inspires us even today, though for a few decades his work has been engulfed in darkness. Now, 64 years after his death, John Dewey is one of the most cited and valued thinker in the education field. Moreover, his ideas regarding pragmatism, constructivism, and active learning, create a world in which we can improve our thinking on a larger scale as to build and preserve a stronger educational scaffolding for future generations. We can’t help ourselves not wondering what would Dewey think about today’s technologies and means of communication, if he were still alive? Maybe he would be thrilled or at least enchanted by our way in which we manage the innovative high-tech resources at hand. He could have exploited the concept of teaching and learning by means of virtual communication, but we don’t know for sure.

The effective teaching and learning with technology, creating virtual teamwork between students and their teachers, is the result of an active learning – social, cognitive, teaching presence (Community of Inquiry). In fact, this active learning can be found in Dewey’s theory of reflexive experience.

2. Methodology

2.1. Objective

The objective of this paper is to see if John Dewey’s ideas about education are present in the Secondary School Information Communication Technology curricula.

2.2. Procedure

This article is based on the hypothesis that there is an influence of John Dewey’s philosophy about education present in Romanian Secondary School Information Communication Technology curricula. In order to investigate this hypothesis, we analyzed the ICT curriculum for the 9th Grade; the ICT curriculum for the 10th Grade; ICT curriculum for the 11th Grade; the ICT - Computer Documentation Techniques curriculum for 11th Grade; the ICT - Audio-Video Processing Techniques curriculum for the 11th Grade; the ICT - Computer Editing curriculum for the 11th Grade; the ICT - Database System Management curriculum for the 12th Grade; the ICT - Computer Documentation Techniques curriculum for the 12th Grade and the ICT - Computer Editing curriculum for the 12th Grade. We mirrored these programmes with John Dewey’s writings.

The methods used in this present research are hermeneutic as document analysis and text analysis.

2.3. Data analysis

In order to verify the present hypothesis we analyzed the ICT curricula for secondary school namely: ICT curriculum for the 9th Grade for Theoretical Studies, all types and specializations, Vocational Studies, Artistic, Sports, Pedagogical,
Theological, Public Order and Safety (MAI) types, all specializations; the ICT curriculum for the 9th Grade for Theoretical Studies, all types and specializations, Technological Studies, all types and specializations, Vocational Studies, Artistic, Sports, Pedagogical, Theological, Public Order and Safety types, all specializations; ICT curriculum for the 11th Grade for Theoretical Studies in Sciences, Life Sciences specialization; the ICT - Computer Documentation Techniques curriculum for the 11th Grade for Vocational Studies in Arts, Specializations Music, The Actor’s Art, Choreography; the ICT - Computer Editing curriculum for the 11th Grade for Theoretical Studies in Humanities, Philology Specialization; the ICT - Database System Management curriculum for the 12th Grade for Theoretical Studies in Sciences, Life Sciences Specialization, Vocational Studies, Theological type, all specializations; the ICT - Computer Documentation Techniques curriculum for the 12th Grade for Theoretical Studies in Humanities, Social Sciences Specialization, Vocational Studies, Public Order and Safety type, and Pedagogical type, all specializations and the ICT - Computer Editing curriculum for the 12th Grade for Theoretical Studies in Humanities, Philology Specialization.

First of all, we analyzed and compared the content of each curriculum in order to obtain a common core, a general accepted idea present in all four years of Secondary School curricula on which the content of the curriculum is built.

The next step consisted in selecting the common methodological suggestions from curricula and compared them to John Dewey’s ideas about education.

### 3. Results

After analyzing and comparing the content of each curriculum we created a matrix containing the analyzed curricula on the columns and the competences and methodological suggestions on the rows (Fig. 1)

![Fig. 1. The Secondary School ICT Curricula Analysis – extract](image-url)

The most important findings in this first step of the analysis are as follows:

1. European key competencies targeted by the study of discipline - Digital competencies and Mathematical competencies and Science and Technology basic competencies – are common to all nine analyzed curricula;
2. General competencies of the discipline, targeted to be formed throughout high school (lower and upper cycle) – user modern skills development; knowing
how to use the computer working environments; develop usable products that foster ingenuity and creativity – are also the same in all analyzed curricula;

3. Values and attitudes promoted by studying discipline throughout high school (lower and upper cycle) presented slightly differences, but the common values are as follows: awareness of the social, economic and moral impact of computer use; understanding the impact of technology in society and the connections between discipline of ICT and other subjects; expression of a creative mindset, structuring and solving the tasks; readiness to evaluate / assess themselves practical activities;

4. Methodological suggestions from all curricula are identical for each grade as follows: a) teaching and learning Information Technology and Communication discipline will be focused on solving some workloads, using mainly the learning and forming skills method by solving a wide possible range of practical applications and focusing on achieving accurate and on time of workload requirements. Projects within practical activities will pursue the developed teamwork skills; b) the specifics of the discipline requires interactive teaching methods especially recommending individual practical applications, the discovery method, demonstration and heuristic conversation; c) evaluation should aim primarily at creative interpretation of information and the ability to solve a problem using computer; d) interactive training specific to this discipline contributes to the realization that a good computer user is more likely to succeed in the action of socio-professional integration; e) asking questions like “What would happen if...?” and f) presentation and discussion of the finished applications.

After identifying all common elements of the curricula we proceeded to the next stage of the investigation and we analyzed the methodological suggestions of the curricula and John Dewey’s ideas about education, also using a matrix (Fig. 2)

![Fig. 2. John Dewey’s ideas vs curricular methodological suggestions matrix – extract](image)

The results of our analysis show a connection between Dewey’s philosophy of education and ICT curricula for Secondary School as detailed below.

Dewey considered that child’s life is a whole, a totality, so facts should not be disconnected from reality (Dewey J., 1977, p. 68). Those words are present in five out of the six methodological suggestions examined. The only methodological suggestion which does not reflect his opinion is the last one – “Presentation and discussion of the finished applications”. Projects within practical activities is directly linked to Dewey’s idea that “a system of education based upon the necessary
connection of education with experience must” take into account several more conditions: “the local community, physical, historical, economic, occupational, etc.”. Education should continue beyond the school’s walls, not just for the receiver – the learner, but also for the teacher – the educator. According to Dewey, the teacher “should become more intimately acquainted” with the environment in which the child is brought up. All this information should be used as “educational resources” (Dewey J. , 1997, p. 40). Moreover, in today’s schooling, the educator has a bigger role in implementing the new technologies in the act of teaching and evaluating the young in order to connect the process of conveying the knowledge with the reality of our times. In our view, the instructor has the responsibility to incorporate ICT in the classroom with or without the system’s help. “The principle of continuity in its educational application means, nevertheless, that the future has to be taken into account at every stage of the educational process. […] the subject-matter in question was learned in isolation” (Dewey J. , 1977, pp. 47-48). By using facts from reality to develop ICT skills through interactive training demonstrates that Dewey’s idea is still present in the nowadays curriculum. Thinking about facts from real life, is not possible to avoid questions like "What would happen if ...?" Every learning experience orbits around this type of questions which is meant to develop a fluent and coherent image of reality. Evaluation doesn’t have to be just another exam graded accordingly. Evaluation instead, should be part of the experience. The student would be more aware of his gaps, inaccurate notions, errors, etc. Consequently, the learner would try to improve his/her knowledge so as to be prepared for future situations. At the same time, the student will grasp the main point of the lecture through active learning and could be evaluated accordingly. Hence, the evaluation would be more attractive in respect of comprehension and retention.

“The content should be transposed in terms of life, not as a replacement or as an external appendix to the current child life” (Dewey J. , 1977) is an idea which can be found in the first methodological suggestion regarding the learning and forming skills method by solving a wide possible range of practical applications and focusing on achieving accurate and on time the workload requirements. At the confluence of the second methodological suggestion from all four study years’ curricula and Dewey’s idea is the importance of using real, practical facts in the teaching – learning process. Likewise, in order to form a social integrated person is important to use these facts in the teaching process content which resonate with child’s real life. As content resonates with child’s real life, the curriculum supports Dewey by suggesting the use of „what if…?” type of questions.

“The child needs a motive for learning” (Dewey J. , 1977, p. 80) is another idea of John Dewey which appears between the lines of the curricula. The motivation for learning influences the learning process itself, and, therefore, the results of this process. Analyzing the methodological suggestions from curricula we consider that the use of interactive teaching methods like individual practical applications, the discovery method, demonstration and heuristic conversation, questions like “what if…?” are meant to motivate students for learning.

Teachers should consider activities like the use of ICT as “life and learning methods, not as distinctive subjects” (Ibidem, p. 91). The teacher should be able to judge what attitudes and habitual tendencies are being created for the well being of the learner. (Dewey J. , 1997, p. 39). According to Dewey’s opinion about the role the adult should play in the education of a child, we may assert that is more important to know what should be done in order to achieve growth than to just transfer the information from one generation to another without the necessary attention for the future situations. “The conceptions of situation and of interaction are inseparable from each other” (Ibidem, p. 43). The situation we live in today must be taken into consideration. Therefore, the curricula should be more anchored to the social setting. If we use computers, tablets, smartphones, and all that is being encompassed within technology, in our every day life, why shouldn’t we make use of them at school too? We do know that can be difficult to learn how to apply most of the software, let alone the hardware or programming, yet with a little interest and commitment things could be improved in no time. New technologies prove to be at hand with every passing
day. Is our present and future. On the other hand, interaction between instructor and student could be facilitated by ICT without excluding straight communication between individuals.

Perhaps the greatest of all pedagogical fallacies is the notion that a person learns only the particular thing he is studying at the time. Collateral learning in the way of formation of enduring attitudes, of likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what count in the future. The most important attitude that can be formed is that of desire to go on learning (Ibidem, p. 48).

We would add and self-assessment. Sometimes evaluation is sought by students in order to see what they really know. Besides that, evaluation aims to identify the usage of the subject learnt. Are the newly acquired notions relevant in a real situation, as part of solving a problem? “The statement that individuals live in a world means, in the concrete, that they live in a series of situations” (Ibidem, p. 43). The integration of a future adult is linked to the training. For example, when a young person wants a job the prerequisite would be: proficiency in the use of Microsoft Office, as well as other relevant information technology skills. No matter if he or she works as a vendor in a supermarket or in an office. This is a real situation, and Dewey argues that every day of our life is a situation in which we use our knowledge, or past experiences, in order to integrate ourselves socially and professionally.

"... we learn from experience and from books or from others hearsays unless they are linked to experience” (Dewey J., 1977, p. 93). Dewey’s pragmatic philosophy extracted from his words is omnipresent in five out of six methodological suggestions of the analyzed syllabuses.

The two principles of continuity and interaction are not separate from each other. They intercept and unite. They are, so to speak, the longitudinal and lateral aspects of experience. Different situations succeed one another. But because of the principle of continuity something is carried over from the earlier to the later ones. […] What he has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow. The process goes on as long as life and learning continue (Dewey J., 1997, p. 44).

"The child’s imaginative game of the mind gives shape to the multitude of suggestions, reminiscence and anticipation that arise from things the child uses” (Dewey J., 1977, p. 150). The methodological suggestions meet Dewey’s opinion concerning the importance of creativity and imagination in the teaching-learning process.

Continuity and interaction in their active union with each other provide the measure of the educative significance and value of an experience. The immediate and direct concern of an educator is then with the situations in which interaction takes place. […] the phrase ‘objective conditions’ covers a wide range. It includes what is done by the educator and the way in which it is done, not only words spoken but the tone of voice in which they are spoken. It includes equipment, books, apparatus, toys, games played. It includes the materials with which an individual interacts, and, most important of all, the total social set-up of the situations in which a person is engaged (Dewey J., 1997, p. 45).

What can be inferred from the passage above is the very fact that the educator’s attitude towards the students must be in complete accord with the message conveyed. Thus, everything a teacher does provides meaning and value for the upcoming experiences. The most important phrase from this paragraph is ‘the total social set-up of the situations in which a person is engaged’, in other words, if we fit Dewey’s judgment to modern time, it may be suggested that new technologies are part of our daily life, therefore they must be integrated in the teaching-learning process without hesitation.

“The occupation is an activity which reproduces or runs simultaneous with an activity type which takes place in social life (Dewey J., 1977, p. 155) ... the occupation is active or motor and implies continue observation of the content, planning and continuing reflection so the practical or executive side should be carried out successfully” (Ibidem, p.156). As Dewey mentions, student’s occupation is very
important in the teaching-learning process. Here we may talk about active learning which is generally defined “as any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing” (Prince apud Bonwell, C.C., and J. A. Eison, p. 1). Those actions implied by their occupation are the core of the learning activities present in the analyzed curricula.

“Reflexive attention always includes judgment, reasoning, deliberation. It means that the child has a question of his own and is actively concerned about the proper solving method” (Dewey J., 1977, p. 165). Active learning has a huge impact upon students, or at least should have. It gives way to questions. If there is a question there is judgement, or reasoning. The main idea is to find solutions to a problem. To try to solve that problem, hence expanding your knowledge.

“Teaching and learning are seen as an ongoing process of experience reconstruction” (Ibidem, p. 225) is also an idea present in all methodological suggestions.

...the relation of the present and the future is not an Either-Or affair. The present affects the future anyway. The persons who should have some idea of the connection between the two are those who have achieved maturity. Accordingly, upon them devolves the responsibility for instituting the conditions for the kind of present experience which has a favorable effect upon the future. Education as growth or maturity should be an ever-present process (Dewey J., 1997, pp. 49-50).

There is no doubt education is for the future. At the same time, must be taken into consideration a broader vision on what future lies ahead of us. What we do today affects tomorrow.

4. Discussions

Our study directed us to the conclusion that the Romanian ICT curricula for Secondary School concurs with Dewey`s reflexive experience theory. As Birzea (1995) says, in Dewey`s pragmatic optics, the action is not a simple extension or an application of knowledge, but a propaedeutic and a necessary component of any cognitive approach. Every experience has an intellectual component (reflection) and a factual one (visible acts), so manifestation of the symbiosis of knowledge / action is actually “reflexive experience”. Science of education becomes “theory of reflexive experience”. Not every action is experience, but only action followed by an improvement of the human condition. Experience is therefore broader than the action itself; it entails active dimension (trying and experimenting with solutions) and one passive (the effects of these solutions) (Ibidem, p. 181).

We have shown that the ICT curricula for Secondary School is designed to have as a core what student needs to learn. In this respect, Dewey himself redirected educational attention, though almost a century ago, from what should be taught to what the student needs to learn.

As we mentioned before, we investigated the hypothesis using only hermeneutic research methods such as document and text analysis. This approach could be one of our study’s limitation. For further research, we propose that this hypothesis to be also investigated in the classroom, on the spot, in order to better understand the behavior and the actions of both teachers and students.

We are well aware of potential contestants of John Dewey`s philosophy of education relating to the freedom attributed to the student. For Dewey the socialization is the preeminent objective of education leaving the academic objective in the shade. Consequently, the mission of curriculum makers is to find an equilibrium between student`s freedom and socialization and the academic responsibility. We strongly support the idea that academic achievement must have a social component throughout its entire course.
References

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