WEB CURRICULUM – THE INTEGRATION OF ICT IN EDUCATION

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ABSTRACT

This study is concerned with analysing the pedagogical theories and practices on the basis of which Information and Communication Technologies (ICT) are employed, together with the influence they have had in changing the syllabus with regard to the subject-areas included in the Post-Graduate Programme in Education and Curriculum in Brazil. The examination of the curriculum sets out with the aim of defining a conception of emancipatory education and exploring how this can be incorporated in a wider context of public educational policies. It also seeks to show how the planning and structuring of the I Web Curriculum Seminar took place – an event that occurred in Brazil in 2008 and is unique of its kind (it is expected to be repeated in 2010). The main concerns of this study are the concept of the Web Curriculum, the importance of scientific research as underlined by the seminar and the prospects for future activities. Integrating the technologies in education and the curriculum is an issue that poses a challenge both to the researchers and the practice of teachers.

1. INTRODUCTION

Discussions about educational policies and pedagogical concepts tend to stress the importance of the term "curriculum" in education. Investigations of this concept have shown that it has multiple meanings and it is impossible to ignore the changes that technological progress has brought about in education and which has greatly affected the recent evolution of the curriculum with the aid of ICT. On the basis of research by well-known specialists of curricular studies, we seek to determine the nature of the concepts and the effect they

have had on the current technological climate in education. By adopting a critical approach, our aim is to link the curriculum to society as well as to knowledge, power, culture and technology. The main emphasis of this analysis is on establishing the goals of a curriculum which has a distinct role to play in building up a democratic and inclusive society with the aid of technology.

The particular context of the curriculum and its role in Brazilian education is outlined by Moreira (2001) who thinks that "the curriculists must define the desired outcomes of their concerns by stating more clearly what issues should be given priority in the investigations being carried out". In his view, the specialists tend to look at the curriculum from two angles: as a syllabus or "list of contents" and as "practically any and every kind of educational phenomenon". Almeida (2009), working together with a Brazilian research team, seeks to combine theoretical studies with practical experience to devise a concept of an integrated curriculum based on the use of Information and Communication Technologies.

2. THE CURRICULUM AND EDUCATION

As Hamilton (1990, p.42) points out, the origin of the term curriculum can be traced back to the Latin word "curriculum" meaning a race or racetrack. Hamilton (2009, p. 33) began his inquiry into the origins of the term "curriculum" by stating that "the discourse of schooling is an historical artefact", which suggests that throughout history the term can be assumed to have had economic and political implications.

Yet the information society has progressed beyond the walls of school institutions (Gimeno Sacristán 1999, p. 199) and, as a result, there is often a stark contrast between school practices and the use of the new technologies. This has led Moore & Young (2001) to refer to the knowledge society and the need to train new workers through schooling. The problem of knowledge in the curriculum, as the authors prefer to regard it, clearly shows that education has not been willing to take a lead in introducing ICT – Information and Communication Technologies – in this context. Apple (2002), and Young (2007) in some similar comments, provide a warning of a return to traditional practices in education. On the basis of an investigative inquiry, Apple states that the market tends to encourage the standardisation of the curriculum and that this process is strengthened by standardised assessment procedures (Goodson 2007).

In the face of this wide-ranging criticism, what paths should the current state of education and the curriculum pursue? And what should be examined when account is taken of the current situation of society which is involved in the culture of digital technologies and which recognises the value of knowledge? Ponce (2006, p. 316) makes clear what answers should be given to these questions, particularly in the context of the curriculum in Brazilian education: "One should not lose sight of its historical constructive character, with all its virtues and vices, before restating its importance in human emancipation."

From this perspective of the "emancipatory value" of the curriculum and its historical construction, one should regard the curriculum as being integrated in the information and communication technologies that exist in society. The I Web Curriculum Seminar was held in the light of research findings such as these and an awareness that what will definitely not be found in an emancipatory curriculum is either an acritical stance towards curricular flexibility based on a theoretical constructivism or the alternative of technical vocabulary and standardisation.

3. THE CURRICULUM AND ICT

ICT for educational services have the potential to integrate teachers and students with pedagogical practices and increase the efficiency of the school management, resulting in a momentum that is full of opportunities to improve the curriculum. Despite the fact that technology can now be found in every realm of knowledge, it should not be forgotten that it has always been a feature of our lives and included in schools. If account is taken of the fact that technology is devised to cater for a range of human needs and thus take the shape of cultural artifacts, it can be stated that the school itself can be regarded as a technological invention. For these reasons, it makes sense to undertake studies and encourage the production of knowledge in the light of attempts to integrate information and communication digital technologies in the curriculum and the implications of this.

4. THE WEB CURRICULUM

In September, 2008, the Post-graduate Programme in Education and Curriculum at PUC (Pontifical Catholic University), in São Paulo, Brazil held the I Web Curriculum Seminar on "Integrating Information and Communications Technology in the Curriculum", following a research study on new technologies in education. A useful definition of the meaning of the ¨Web Curriculum and the way it can be integrated with education is provided by Almeida (2009, p. 8):

> "The term web curriculum has been coined to denote a kind of curriculum that evolves through the tools and interfaces of the Internet and which includes different fields of knowledge: communication, education and technologies. Thus, the curriculum web combines technologies with the curriculum and involves distinct languages and sign systems which are configured in accordance with the essential features of the technologies and media that assist the curriculum in its different kinds of production within the parameters and potential scope of ICT. This integration takes place in a way that goes beyond the media and involves the following: messages and contexts; the relationships between diverse cultures; different times, spaces and languages; the experiences of the teachers and students; the ways the curriculum is perceived, together with its pedagogical objectives and contextualised scenario; and the negotiation and definition of meanings between all the participants."

On the basis of this conception of the web curriculum, it is clear that in improving the curriculum, ICT should be used for the standardised transmission of information and automated demand-response control, as well as to create conditions that can encourage the learner to express his/her ideas and engage in communication and collaborative learning (Almeida 2009).

Web 2.0 allows a more flexible, open and collaborative curriculum. There is a trend towards employing the web to produce individual curricular narratives (Dias 2008) which have the potential to be used for tools and interfaces on Web 2.0 and for setting up social networks. One of the benefits of this is the fact that the tools and interfaces of 2.0 are easy to operate, and have features that encourage group participation and a collective authorship, rather than leaving people to navigate by themselves, and search for information required for individual productions. The debate about defining a new concept of the Web Curriculum is governed by a notion that the curriculum is affected by sociocultural and political social changes, and has to be reformulated in the context of the time, place and cultural and technological setting in which it takes place. In attempting to integrate ICT in the curriculum, in particular the kind of technologies included in the context of Web 2.0, it should be taken into account that different media and technologies converge in the curriculum without imposing any constraints on it. It is clear that there is a need to keep a critical view of the use of ICT in the curriculum so that the complex relations between culture, power, the media, technology, knowledge and the curriculum itself can be investigated.

Structured learning on the Internet can lay down the right conditions for developing the capacity to express one´s thoughts through a wide range of languages. This can help bring about the following: the construction of special curricula, the collaborative production of knowledge, the ability to cater for individual needs and greater autonomy, creativity, and a critical sense.

If the curriculum is viewed as a complex, social practice where a wide range of interests converge, the inclusion of ICT will be able to occur in a linear form; it will not just emerge from a sociocultural consensus,

but rather, be the outcome of a fruitful debate. It should be stressed, however, that without a recognition of the value of multiple meanings in the curriculum and an understanding of their cultural, political, social, economic and historical implications, it is not feasible to seek to define the concept that supports the idea of the Web Curriculum or to investigate the practices surrounding it. .

5. ACADEMIC PRODUCTION IN THE I WEB CURRICULUM SEMINAR

In addressing this scientific event, a substantial part of the I Web Curriculum Seminar was taken up with giving a presentation of academic work in the form of oral communication and posters. Accounts of research, descriptions of on-going projects and project models either of an investigative scientific nature or of innovative experiments were brought to the Seminar by the participants. The works were assessed in accordance with the double-blind method. 98 pieces of work were submitted, 60 of which were accepted for oral communication, 31 for the presentations with posters. The members of the scientific committee were able to make a recommendation as to whether or not the work regarded as unsuitable for the presentation in an oral communication mode could be displayed in a poster. All the work was published in a CD-ROM and duly registered under ISBN 978-85-60453-05-4 and these were handed out to the participants together with other material related to the event.

The examination of the academic work threw light on ideas about integrating ICT in the curriculum and led to debates which helped to reshape it and make it more flexible. The use of ICT now plays a key role in the planning of teacher-training courses, in pedagogical practices undertaken in the most varied kind of learning environments, such as primary education or the teaching of Maths and languages, and in community projects. The work lays stress on the need for learning to be carried out by means of collective and collaborative work with the aid of technology, and for the students and teachers to be involved in creating new kinds of teaching and learning. Theoretical reflections and the projects and reports discussed in the I Web Curriculum Seminar show that the basic practices arising from the theoretical approaches can be characterised as sociocultural in their use of the technologies in educational contexts. The kinds of ICT usually associated with collaborative learning and the construction of collective knowledge bear the hallmarks of the sociocultural and historical contexts in which they were created.

The sixteen pieces of academic work showed that there were more occurrences (eight examples) of work devoted to the area of technology, the curriculum and the training of educationists – the term educationist is not used to mean an educational theoretician but is understood here as a professional who takes part in the teaching system in Brazil i.e. teachers, school administrators, directors of studies and other specialists in education. Four other subject-areas were encountered: "Technology", "The Curriculum and Research"; "The Integration of Media and Technology in the Curriculum"; and "the Curriculum and Web 2.0". These were about projects which were integrated with different media and technologies and included the opportunity to draw on the tools and interfaces of Web 2.0. It is suggested that there is chance of a convergence between these three subject-areas.

Following this, three subject-areas were found that were identified on three occasions: "the Curriculum for the Construction of Knowledge"; "Technology, the Curriculum and Culture" and "Public Policies". The first two ("the Curriculum for the Construction of Knowledge"; "Technology, The Curriculum and Culture") subjects are interrelated, since dealing with different spaces for the construction of knowledge covers a wide range of cultural contexts which must be recognised in any definition of public policies based on the integration of technologies in the curriculum.

The "Curriculum and Communication" was only identified once, perhaps because it deals with an event that has had a powerful impact on education and reflects the dichotomy that can be found between areas of education and communication

The subject-areas "Technology, the Curriculum" and "Assessment" were not identified in any of the published articles. This might be evidence that there has been a lack of research and pedagogical practice in these areas. As well as the subject-areas recommended by the event, the use of ICT appears in projects of various kinds, e.g. collective and collaborative learning using ICT, and the teachers' and students' roles as authors of new forms of teaching and learning. The works presented in the Seminar reflected the sociocultural character of the use of ICT in educational contexts.

On the basis of the assessment carried out by the double-blind method, there was evidence that the quality of the academic work displayed in the oral communications at the I Web Curriculum Seminar, represented by the articles selected, showed a high degree of commitment to teacher-training courses for children, young people and professionals. These combine theory with reflection about pedagogical practice within a perspective that envisages the use of ICT in learning environments. This should lead to further investigations and professional training projects in various sectors of education and benefit the debate on public policies and their application, while highlighting the place of technology in the curriculum.

6. CONCLUSIONS

Schools are responsible for offering society new kinds of knowledge and social practices, a critical outlook, innovative forms of cultural expression and an understanding of ethical standards. The application of new technologies in schools should be viewed as a chance to introduce the cultural tools and languages of the present-day generation and serve as an opportunity to overcome social inequalities and lead to teaching of a good standard that is accessible to everyone.

It is apparent that there is a growing concern about rethinking the curriculum, since more space is being made available for Information and Communication Technology. The ICT and the convergence of the media which are found in the context of Web 2.0 as a part of teaching and learning strategies are no longer regarded simply as aids to other practices, but rather as an effective practice that is being mediated by a range of languages. It is from these new perspectives that the Post-graduate programme in Education has emerged: the Curriculum has already made a start in preparing the Web Curriculum II (to be held in 2010) which will address the question of integrating Information and Communication Digital Technologies in pedagogical practices. It is hoped that this will widen the scope for discussing the curriculum as a form of innovation where the teacher can be increasingly involved in a real and effective way, while, at the same time, managing to bring the discussion to the student community, academics, the manufacturers of technological products and society at large.

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