

# ICT integration in Education: A Right to Democracy by way of Emancipator Education

Maria Fragaki

Adjunct Teacher, University of Patras  
Student Cancelor, Hellenic Open University  
fragakim@otenet.gr

**Abstract.** *This paper presents a Transformative Polymorphic Model for training, researching and teaching, a learning community of educators, which involves the integration of Information and Communication Technologies (ICTs) into the educational practice. It promotes transformative learning by way of emancipator education that fosters the human rights and equity that manifest in the everyday digital lives of people, from every level of online society. It consists in a learning environment that facilitates development of higher order cognitive abilities and it promotes a critical community of learners, where both reflection and discourse facilitate the construction of personally meaningful and socially valid knowledge and guides decision and action.*

**Keywords.** Polymorphic Model, ICT, Emancipator Education, Polymorphic Education.

## 1. Introduction

*The revival of democracy calls for the revival of the concept of citizenship; the revival of the concept of citizenship requires the revival of solidarity and responsibility, in other words the development of anthropo-ethics.*  
(Edgar Morin, UNESCO 1999)

The *Online Distance education* has the potential to adopt cutting-edge technologies in order to bring together learners, e-facilitators/tutors and e-content. Dynamic itself, seems to diminish when it creates a chasm between an arcane, highly specialized technoscience and citizens that leads to a new social antithesis between a “new class” and the citizens. Consequently, the potential of incorporating *Information and Communication Technologies (ICTs)* in the educational process, through *Online Distance Education*, should not be restricted to bringing together learners, tutors and e-content, but must contribute to a new ethic, whereby with

the aid of people and communities, they are reformed and perhaps new human values will emerge as a collective conscience and solidarity for all mankind.

The present paper aims to present a *Transformative Polymorphic Model* for training, research and teaching, the major objective being the integration of ICTs in the educational practice with an “*emancipatory cognitive interest*” and the promotion of a qualitative education for liberation. Initially, broad definitions and discussions, found in reviewing the bibliography, are formulated with respect to integrating ICT in the educational process, in *Distance Education*. In continuation, epistemological, theoretical and pedagogical issues are presented, concerning the design and development of the model, and an analysis of its various forms and elements follows. Subsequently, the author pose questions and make recommendations in relation to the integration of ICT in the educational practice, within the framework of an *Online Education for Liberation*.

## 2. Issues, Controversies, Problems

### 2.1. The integration of ICTs in education

The potential of ICTs, whereas they facilitate access to information and support the communication and cooperation among citizens and societies, it seems that they cannot contribute, to a satisfactory degree, in managing complex social issues. The aforementioned training activities have not centered on the political, ethical, social and critical dimension of integrating ICTs. They have overlooked the need to develop the trainees’ skills to constructively build on the mass of information that they can easily access by using technology, as well as the possibility to apply the functions of critical-reflective and creative thinking to manage

compounded problems [1], [2], [3], [4]. The majority of educators and students follow curricula that have been designed by “experts”, who do possess the know-how to use software, programs, and systems, but do not have the corresponding pedagogical support for this knowledge, on the basis of a “new” pedagogical outlook and especially an outlook with a critical-constructivist theoretical orientation.

## 2.2. The dimension of Distance Education

In their majority, *Online Learning Communities* apply a mechanistic view that focuses exclusively on educational material and on technologically advanced methods for transmitting information, without acknowledging the pedagogical dimension, and the positions and methods of a constructivist teaching and learning process [5], [6], [7], [8], [9], [10], [11]. According to Dimitracopoulou (2002), the most critical factor in ensuring the quality of the technological learning environments, is the theoretical support and the necessary analyses that precede their design and determine their characteristics, as well as those of the educational model that applies them.

## 3. Solution and Recommendations

The above considerations guided us towards the design of a ***Transformative Polymorphic Model*** for training, researching and teaching a learning community of educators, which involves the integration of *Information and Communication Technologies* (ICTs) into the educational practice.

In the following section, we will present the epistemological, theoretical and pedagogical development framework of the model, which supports a democratic form of teaching and learning in Distance Education, a *Polymorphic Education* [12].

### 3.1. Epistemological – Theoretical-Pedagogical Framework

The very fibre of Distance Education is defined by the cognitive and value content of teaching, by the teaching and learning process, by the teaching framework in which it occurs, and by the means it employs. Once these facts are covered and Distance Education involves not only the means, but also the principles for

learning and teaching, then it is differentiated and may be termed as ***“Polymorphic Education”***. Under these conditions it takes on a particular value and it implies qualitative education that functions according to learning and teaching principles, in a distance environment (ibid). And furthermore, if interpretive and reflective-critical epistemological approaches, constructivist and reflective theories, and collaborative learning methods are adopted, these options will assign Distance Education its pedagogical dimension, i.e. its *“polymorphism”*.

The matter of incorporating ICT in the educational process, depends a great deal on the theoretical and methodological approaches, the educational framework, the learning profile of the trainers and the trainees, and it is determined by many different factors that relate more to the *“cognitive interests”* [13] of those participating in the process and to the wider, social, political environment, and less to the possibilities ICT offers [14]. The educational and research-teaching action of the *Transformative-Polymorphic Model* is infused by an ***emancipatory cognitive interest***. Epistemologically, it belongs to the *Critical-Dialectic Paradigm*, and is in contrast to the *technical cognitive interest*, which basically targets “control” and “management”. Nevertheless, it extends the notion of “understanding” a situation, to forming a “critical consciousness” and to “action”, aiming at social change (ibid). The educational subjects are above all social and the computer is transformed from a *technical* to a *cognitive tool*, and from this, to an *emancipatory tool* [15]. They use ICT tools with *emancipatory* methods, in *authentic* contexts of problem solving activities (ibid), in order to examine manners and actions, through which they can transform social reality [16], [17], [18], [19]. ***Transformative pedagogy***, guided by an *emancipatory interest* in knowledge, aims at preparing the students to function as vehicles and not as instruments of change and at transforming the educators from facilitators of the learning process to “critical friends” and advisors [14]. The critical-reflective educator redefines his professional self and from an education technocrat, becomes a dialectic partner, a reformer and an intellectual.

## 4. Forms & Elements of a Transformative Polymorphic Model

The transformative model promotes a *critical community of learners*, where both ‘reflection’ and ‘discourse’ facilitate the construction of personally meaningful and socially valid knowledge and guides decision and action. The forms of the model (*figure 1*) are presented, and their basic elements, for which we argue that they define a qualitative, democratic form of learning in Online Education and grant it its *polymorphic* dimension.

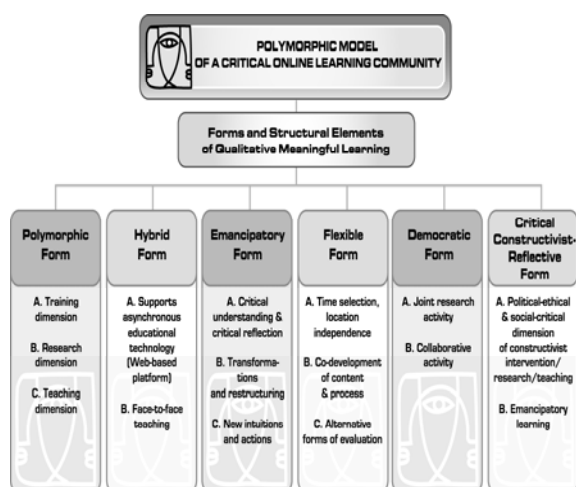


Figure 1: “ Polymorphic Model of a Critical Online Learning Community”  
(Fragaki, 2008: 184)

### 4.1. Polymorphic form

**A. Training dimension:** This concerns a form of in-school training in the use and pedagogical exploitation of ICT, under the social standpoint of teaching and learning. It is carried out in real conditions on school premises, in the wider context of an online learning community, operating from a distance. The training activity is based on the principles of a “*critical-constructivist*” [20], [21], [22], [23], [24], [25], and “*critical-reflective approach*” [26], [27], [28], not only in its design, but also in its training strategy. The teacher trainees acquire knowledge in “*Emancipatory Pedagogy*”; they receive training in contemporary epistemological, theoretical and methodological views and apply this knowledge in practice, through the use of ICT.

**B. Research dimension:** The members of the online community, teacher trainers and trainees, as “reflective professionals” and “co-researchers in action”, conduct an “*emancipatory research action*”, exploring (a) the processes of their personal and teaching change, regarding subjects related to teaching and learning and to the pedagogical use of ICT, (b) the possibility of the pedagogical exploitation of ICT in an educational process with an “*emancipatory cognitive interest*”, as well as (c) the possibility of qualitative learning via a *Polymorphic Model* applied on an Online Learning Community (OLC).

**C. Teaching dimension:** The teacher teams can now apply the “knowledge” they have acquired from their training and the “awareness” they have gained from exploring their own “personal theory” and their work. Thereafter, they are encouraged to design and author *Educational Learning Scenarios* involving the pedagogical application of ICT, focusing not only on knowledge acquisition, nor on knowledge discovery, but on the socio-political and ethical dimension of their pedagogical approach [29]. The issues/problems they will deal with are “authentic”, refer to social problems and address the interests and problems of their students. Teachers develop projects and design activities for their students, using digital and other electronic tools and educational software, for each module they are taught. Students confer and conclude on these activities together with their teachers, are involved in the management of complex projects, thus developing their critical thinking and their collaborative skills. The teachers are now ready to activate the educational framework in which they work, as well as in their greater social environment. It is recommended that they introduce educational innovations to their schools, publicize their work, suggest solutions and take measures in relation to the issue or problem they undertake to tackle. In all these actions, they act together with their students, as reflective and active teachers-students-citizens. They creatively integrate into the online community to which they belong, and they succeed in “opening” their schools towards society, with their active integration and participation in common social events.

## 4.2. Hybrid form

### A. Supporting Asynchronous Education Technology:

The Model of the present training and research oriented teaching activity belongs to the *Advanced Learning Technologies (ALT)* in Distance Education, since it involves the development of a learning environment on the Internet, it aims to advance interactivity between the trainees-trainers-educational material and educational tools [30], [31], [32], [33]. It is recommended that it be structured as a Virtual Learning Environment 'VLE' that will be incorporated into a wider Management Learning Environment 'MLA' (Higher Education Academy, 2006), [34]. The *Polymorphic Model* stands as a form of asynchronous education, since the teachers themselves can choose the location, time and pace of their own learning. Besides studying the educational material, they are afforded the possibility to communicate, at a predetermined time frame, with their trainer, in a variety of ways (*semi-automatic form of asynchronous education*).

**B. Face to Face Teaching:** Concurrently with "asynchronous" education, "face to face" personal meetings may be held, whenever and wherever possible, between the trainer and each team separately, before each learning cycle of the Model begins, as well as with all the teams together, during the application of the Model. The participating teachers in the training and research oriented teaching action are actively involved, voluntarily and consciously, in an action where each individual is a separate entity, is released from the shield of anonymity and from the veiled identity/entity that may result in the context of online communication. Each person separately, and together all the individuals of the Community are revealed through the critical-reflective process.

## 4.3. Emancipatory form

The teachers of the Online Learning Community (OLC), during their training, also explore their work in the framework of an *Emancipatory Action Research*". They examine the processes of their personal and teaching change, aiming for a long-term educational and social change, in issues concerning teaching and learning, and the pedagogical exploitation of ICT in an educational process. The emancipated reflective researchers accept the principles and conditions

of practical interest, with a crucial difference. They are not limited to understanding and personal professional advance, but they reach beyond this, to the analysis of social, cultural and political conditions that shape their educational practices. The goal they set is to understand and transform the present, in order to create a different future. As Grundy reports [35], when "understanding", that is derived from critical reflection on critical social theorems and on the direct social context, is linked to social actions directed towards changing the illiberal and unequal relationships that exist in the social group, then what is applied, is an emancipatory form of action research. *Emancipatory Research* will always be characterised by a critical focus and by its readiness to include the social context within its research field. In this way, emancipatory action research has, in effect, a political dimension. It consists in a dialectic process where the results of reflection are continuously transformed into practice, and practice continuously gives rise to reflection and development.

The findings of "*Emancipatory Action Research*" derive from the examination of case studies of the educators participating in the research and from the evaluative study of the training-research process, through a multi-method approach, based on *Grounded theory*. This constitutes a research method, and at the same time, a method for data analysis, in which a hypothesis is not tested, but discovered, developed and temporarily verified, by the systematic collection and analysis of data that concern the particular phenomenon.

### A. Critical understanding and "critical reflection":

In a research context, educators declare their *personal theories/praxial knowledge (cognitive cognitions)*, they disclose their educational practices with the aim to assume their measure of responsibility and to change their teaching, and they get to know each other and to interact with the other members of the online Community. The goal is, through critical-reflective processes, to recognize and to understand the social, ethical and political dimension of their teaching alternatives and of the wider framework that affects these. In this theoretical research framework, the educators participating in the research reflect "*during the action*" (*reflection-in-action*), i.e. while the action is evolving, as well as "*on the action*" (*reflection-on-action*), before the action begins or

after it has ended. Trainers, in the framework of the Reflective-Critical Model, function as “critical friends” and their contribution focuses more on enabling the “thought-action” schema.

**B. Transformations & restructuring:** Through critical reflective analysis, the members of the *Online Critical Learning Community* explore contradictions and antitheses in their thoughts and actions that lead to transformations and to restructuring, or “new” intuitions with regard to thoughts for action relating to teaching and learning and to the pedagogical use of ICT.

**C. New intuitions & actions:** Coupling new intuitions with action, direct educators towards teaching activities that employ electronic tools and educational software with their students, taking into account ethically-politically, socially and culturally “authentic” issues.

#### 4.4. Flexible form

**A. Time selection – location independence:** The members of the *Polymorphic Community* are not obliged to join in chat-room discussions, at specific times, as is done in a “conventional” educational format. Meetings via a software platform are not predetermined, but it is recommended that they are collectively agreed upon, according to the educational needs of the community members, in the framework of a flexible and anthropocentric teaching approach.

**B. Co-development of content & process:** Educators have the opportunity to co-develop, together with their trainees, the content of the educational material and the training and research – teaching process. Thus, while initial educational material should exist, corresponding to the Curriculum, at the same time, the opportunity is provided for its transformation and restructuring, in accordance to the educational needs and the specific interests of each educator. Consequently, each team negotiates the teaching subject, selects units of particular interest, electronic tools, enriches the teaching objectives, modifies its tasks and participates in the evaluation of the Model’s actions. At the same time, educators reassess their attitude towards “commitment” to the Curriculum and towards the strictly structured and predefined course of teaching and methodology, by restructuring its present, stifling structure. The flexible format of the *Online Polymorphic Model* allows the

educators access to the learning content, as well as to the teaching and learning process.

**C. Alternative forms of evaluation:** “*Alternative evaluation techniques*” are used, which do not specify predefined technical criteria that involve “measurability” and “effectiveness”. The evaluation of the effectiveness of the training and research oriented teaching action, by means of experiential-analytical trials has no bearing on the application of a critical-reflective model with an “emancipatory” orientation, but it is based on what is termed “*reasoning feedback*” of the community teams [14]. In this form of qualitative evaluation, evaluation criteria are determined together with the trainees. Educators review their own work, the content, the teaching and learning process, the results and the means used, in accordance to the aims that they have set, transformed and restructured, through the critical-reflective process of examining their personal theory and their work. They take into consideration their students’ criticism during the teaching practice, as well as the criticism of the trainers/“friends”. Evaluation concerns all the structural elements of the training and research oriented teaching activity and at all its stages (beginning, intermediate, and end), aiming to shape an evolutionary course and to instigate transformations, restructuring and ever newer actions. The role of the trainers is not that of the “expert” who “measures” results. They are collaborators, advisors, tutors, coordinators, who enable educators to create a self-critical and thinking team of educator researchers, a *Critical Online Learning Community* with a *polymorphic* dimension.

#### 4.5. Democratic form

**A. Joint-research activity:** The members of the community examine their own work in cooperation with their trainers/co-researchers. In this manner, the content of the *Polymorphic Model* is not limited solely to a technical dimension, whereby the Community members become familiar with ICT, nor to a technical research action that is concerned with and controls expected results of predetermined criteria for effectiveness and control.

**B. Collaborative activity:** Through “*Computer-Supported Collaborative Learning*” (CSCL), each team works at its own class level (*intra-team activity*), at the overall level of all the

classes (*inter-team activity*) and at the broader level, with different classes from different schools (*extended inter-team activity*), and comes into contact with the objects and the situations. Next, the team assumes social roles and acts as a small “society of active citizens”. By means of this collaborative activity, democracy permits the rich relationship between citizens and society, where the members of the Community help each other, inter-develop, inter-adjust, and inter-control, with the aim to democratize knowledge, to bridge the gap between the hermetic, super-specialized techno-science and the citizens, and to eliminate the dualism existing between the “knowledgeable”, with their out of context splintered knowledge, and the “ignorant”, i.e. all the citizens.

#### **4.6. Critical Constructivist-Reflective form**

**A. Political-ethical & social-critical dimension:** The members of the online community reflect upon the socio-political and ethical dimension of their teaching choices. With a critical consciousness, they transform their previous theory and practice. They are guided towards undertaking autonomous -individual and collective action. They develop values and actions that relate to “authentic” teaching activities, as one critical Learning Community.

**B. Emancipatory Learning:** Throughout the duration of their project, the educators evaluate the result of the training and research oriented teaching action, and redefine themselves. Linking new “intuitions” to “action” includes the attempt to incorporate the members of the greater social environment into the narrower educational environment. Having social interaction as their faithful ally for interfacing with the members of the community and their general environment, they are involved in the practice of problem management, thus developing their critical thinking and their collaboration skills. With respect to the political-ethical dimension of teaching, the acquisition of meaning is not restricted only to the active participation of the students, but it extends to the development of critical consciousness and social sensibility, through exploring the “why” that lies behind the “what” and the “how” of the world’s socio-political and ethical issues/problems, hence attributing to the teaching process its social and political dimension.

### **5. Difficulty in the Application of Innovative Models**

The major problem in the application of innovations that depend upon the new technologies, is the negative balance of time and cost, to the results (Ward & Newlands, 1998), the personnel’s heavy work load (Wolcot, 1997) and the personnel’s wages, which do not correspond to the risk, time and effort demanded. The combination of the training, research and teaching dimension in an online Learning Community render the application of such an innovation a difficult endeavour. Such a process demands the voluntary, as well as the total, conscious and full involvement of the educators. The participants must possess political awareness, be open and democratic citizens, have a positive attitude towards encountering, negotiating and adopting innovative ideas, and must be able to support the principles and positions of the critical-constructivist and critical-reflective approach. Trainers must be “open” and “flexible”, accepting of suggestions/transformations to the Curriculum by the trainees, throughout the duration of the application of the model, according to the personal and educational needs, that arise at each point in time, and according to the specific activation and learning pace of each team. On the part of the trainees, they need to communicate regularly with their trainer and with their teams, to follow continuous reflective processes “in action” and “on action”, and to systematically observe the reflective tools and to daily incorporate theory into practice.

### **6. Conclusions – recommendations**

The *Transformative Polymorphic Model* was applied in the framework of the “E.P.I.C.T-Esperides” European project, implemented by the “Educational Technology” Laboratory of the Faculty of Primary Education of the National and Kapodistrian University of Athens, in cooperation with international bodies, in the framework of the “*e-Content European Programme*”. Primary education educator teams from different areas in Greece took part in the project, who together with their trainer and researcher worked with a high degree of autonomy as, co-researchers and co-developers of the model.

The research results, that derived from the application of the *Transformative Polymorphic Model* show that the reflective-critical educators are now more concerned with the “why” and not only with the “what” of the teaching and learning process, thus abandoning neo-behaviourisms and pseudo-constructivist views and practices in the use of ICT. They have surpassed the methodological speculations of the technocrat educators, without overlooking them, they warily question, they cautiously organize their actions and question the ethical and political impact of teaching, specifically (*micro-level teaching*) and generally (*macro-level teaching*).

Taking into account the examination of the results of the present research, we support that to apply a model with an “emancipatory” orientation is no longer an utopia, but it can be realized within the context of qualitative and meaningful learning. In this way, knowledge is contextual, education acquires a political meaning as an act of socialization and ethos and an *Online Education for Liberation* is promoted.

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