The Importance of Pedagogy in Language Learning and Information and Communication Technology: The example of DiaLogos

Eleni Skourtou
Assistant Professor
Department of Primary Education
University of the Aegean
skourtou@rhodes.aegean.gr

Dr. Vasilia Kourtis-Kazoullis
English teacher
Department of Sciences of Education and Preschool Learning
University of the Aegean
Secondary Education
kazoullis@rhodes.aegean.gr

SUMMARY

Language learning and Information and Communication Technologies are closely tied. Many times, the improvement of language learning is associated with the introduction of ICT. However, it must not be taken for granted that this improvement will take place if certain decisions about pedagogy are made. An underlying pedagogical orientation is necessary. As seen in the example of DiaLogos, even when educators did not place particular importance to the pedagogical orientation, changes did take place. The traditional learning environment eventually became constructivist or progressivist in nature. The step towards transformative pedagogy -- although eventually made -- did not come about as easy. The conclusion of this paper goes back to the initial statements. When ICT is introduced to language learning, changes can take place on their own; however, if the full potential is to be realized, emphasis must be given to a clear pedagogical orientation.

KEY WORDS: Transformative pedagogy and ICT, Language learning and ICT, Language pedagogy

INTRODUCTION

At a conference dealing with ICT and education, we believe that it is vital that pedagogical issues be discussed as an underlying foundation of different applications of ICT. In education today, ICT applications vary and cover a wide range of disciplines such as mathematics, physics, chemistry, etc. However, *Information and Communciation Technology (ICT)* is closely tied to language learning, in particular. As the term dictates, ICT has three components: *information, communciation and technology*. Language learning deals with all three components:

• Information

Firstly, language learning means being able to acquire (i.e. receive), transmit and exchange (i.e. share) *information*.

Communication

Secondly, language learning means learning how to *communicate* in one or many languages when receiving, transmiting and sharing information.

Technology

Finally, the component of *technology* is related to language learning in term of learning environment and the tools/means used. ICT has added a different variable to communication, i.e. a different form of communication and a different form of literacy or literacies.

There are a few things that seem to be obvious when combining ICT with language learning. It is not surprising that ICT and language learning are very closely tied. It is obvious why the upgrading of language learning in schools is in most cases tied to the introduction of ICT. It is also obvious why the use of ICT in schools is related to language learning (i.e. in particular English language learning) as the technological *means* to communicate is not enough. This *means* must be accompanied by the ability to communicate, i.e. the knowledge of a common language/s of communication and different forms of this/these language/s as ICT allows for the "meeting" of different persons, in different geographical areas, and with different L1's.

What is many times not obvious when language learning is combined with ICT is the importance of pedagogy. Whether this pedagogy is a central component in the planning of the curriculum or not, pedagogical issues arise and must be dealt with. In our experience acquired from DiaLogos, i.e. an internet based sister class project dealing with foreign/second language learning, pedagogical issues arose even when the teachers did not make explicit decisions about pedagogical orientation before the project began (Kourtis-Kazoullis 2000). ICT served as a catalyst for changes. As DiaLogos was implemented in a traditional learning environment, many changes took place. These changes (as described by the teachers who participated in the project) are discussed in this paper.

THEORETICAL BACKGROUND

The theoretical framework of the project had three major orientations (Kourtis-Kazoullis 2000):

- 1. Language. The goal was the teaching/learning of the target languages with the most productive way. Theoretical constructs of bilingualism (Cummins 2000c, Skourtou 2000) were used in the teaching of the target language.
- 2. Identities and experiences. The identities and experiences of the students were utilized in the learning/teaching process.
- 3. Pedagogy. A learning/teaching environment was created that combined various pedagogies, with emphasis on transformative pedagogy (Cummins 2000c).

Pedagogy, the third orientation, played a major role in the other two orientations.

Transformative Pedagogy

The theoretical framework was grounded in a transformative orientation to pedagogy although the project was to be implemented in a very traditional classroom setting. The traditional classroom setting must be stressed as this is what the gap between the theoretical framework and what took place in practice. As we could not choose which classes were to take part in the project, we had to carry out the project in the situations that were given. The effect this had on the project's implementation was that pedagogy did not begin with transformative assumptions as an origin but gradually lead to this. The route to transformative pedagogy was *through* progressive or constructivist.

The theoretical framework dictated that the following steps would be taken. To some extent, transformative pedagogy follows the instructional orientation of progressive pedagogy (Wells 1999). The step further to transformative pedagogy dealt with the *social* assumptions. As outlined in the theoretical framework, transformative pedagogy focuses on social realities relevant to students' experiences and incorporates collaborative critical inquiry in order to relate to curriculum content to students' individual and collective experiences. Broader social issues, relevant to students' lives, are analyzed and students are encouraged to discuss ways in which social realities might be changed through social action and democratic participation (Cummins and Sayers 1995). When transformative pedagogy is followed, students can be empowered and critical (Cummins 2000c). When pedagogy follows a transformative orientation, literacy is not merely *functional* or *cultural* but goes beyond these two types of literacy. The object is that students acquire a *critical literacy*. Critical literacy is furthermore tied to the social goal of democratic participation and collaborative critical inquiry (Cummins and Sayers 1995).

Pedagogy and Information and Communication Technology (ICT)

Before ICT was actually used, thought was given to how implementation would follow the orientation outlined in the theoretical framework. This orientation was based on the work of Cummins (2000a, 2000c, 2000d), Cummins and Sayers (2000), Dimitrakopoulou (2001, 2000a, 2000b), Skourtou (2000a, 2000b) and the work of the New London Group (Cope and Kalantzis 2000). The pedagogical principles related to IT followed a transformative orientation. IT was not simply something to make language learning more interesting. The principles underlying the project dictated that IT should be used as a tool to:

- combat the social inequities;
- develop students' language and literacy abilities and their awareness of how language and literacy are implicated in relations of power;
- amplify the impact of pedagogy beyond what would be achieved without the use of IT;
- promote collaborative relations of power (Cummins 2000a);
- allow students to participate in *engaged distancing* (Cummins and Sayers 2000);
- create a different kind of pedagogy through multiliteracies (Cope and Kalantzis 2000) and
- permit *diversity* in ways of expression.

THEORY BECOMES PRACTICE

Each application of ICT must follow a theoretical orientation; however, the application of theory to practice depends upon a variety of variables and the results are not always easy to predict or monitor, especially when the environment of application is the classroom. DiaLogos was implemented in the 4th, 5th and 6th grades of five public primary schools in Greece in three different school settings: three schools in the city center of Rhodes, one school in a large village outside of Rhodes and one school on the island of Kassos. These classes were paired with sister classes in Toronto, Canada. The school environments in Greece were all different; however, as all the schools followed a centrally assigned school curriculum, the pedagogical orientation was similar. In most cases, the pedagogical orientation was traditional. DiaLogos was implemented in English language teaching class. In Greece, English is taught as a foreign language at the primary school level in the 4th, 5th and 6th grades. As this class is taught by an English teacher and not the teacher who teaches the Greek lessons, the lesson is carried out in a different way. The approach of the textbook which is assigned by the Ministry of Education is described as the *communicative*

approach; however, how the lesson is actually taught depends upon many variables. The result is that even the teaching of foreign languages is usually traditional.

Before DiaLogos was implemented, the foreign language teachers involved were trained. This training included an introduction to the theoretical framework of the project; however, it was very difficult for the teachers to change their usual way of teaching. Even in the new learning environment created through the internet based sister class pairing, the teachers were reluctant to change. Changes, however, did take place in the form of a gradual evolution. These changes were in the form of a "mixture" of pedagogical orientations. The changes often came about through the initiate of the students themselves.

CHANGES OBSERVED IN PEDAGOGY

Changes in pedagogy were observed over the three periods of *DiaLogos*. The observations presented in this paper are the observations made by the teachers themselves. These changes in pedagogy were based on a variety of factors. The interactions that came about as a result of IT and sister class connections inevitably led to different pedagogies that were not used in the traditional classroom. The teachers observations stressed that DiaLogos had two major effects: a) student interest in ICT was a catalyst for change in pedagogy. In regard to (b), the teachers observations in regard to change in pedagogy dealt with:

- collaboration;
- the need for support;
- support provided by students to other students as an aid;
- the improvement of teacher-student relationships;
- the school environment and how it reinforces traditional pedagogy;
- a new medium of learning and how it creates new literacy;
- collaboration between the teachers

TEACHERS' COMMENTS CONCERNING PEDAGOGY

Although DiaLogos did occasionally manage to go beyond progressive or constructivist pedagogy, the teachers' comments were restricted to changes from traditional to progressive. What the teachers could see was that change was taking place. Even the step from traditional to progressivewas a major step. For example, the teacher from Kassos was very hesitant about participating in *DiaLogos* at first, partly due to the fact that conditions were very difficult for her at school. At the end of the year, she described that teaching should be carried out "in a multiform way", meaning that teachers should incorporate a variety of teaching/learning methods that can combined with more traditional approaches.

Ο δάσκαλος πρέπει να διδάσκει με ποικιλόμορφο τρόπο. Να εφεύρει διάφορους τρόπους. Να κάνει ένα συνδυασμό με τον κλασσικό τρόπο διδασκαλία.	The teacher should teach in a multiform way. He/she should invent different ways. He/ she should combine this with the classical way of teaching.
Μ.Τζούβαλη, Αγία Μαρίνα, Κάσος	M. Tzouvali, Agia Marina, Kassos

Table 1: Different pedagogies

She was, furthermore, able to tie different ways of learning to traditional ways. She was able to teach material normally taught (i.e. grammar) in different ways (i.e. through communication with the sister class).

Συνειδητοποίησα ότι κάθε ενότητα γραμματικής μπορεί να διδαχθεί με την αδελφοποίηση σχολικών τάξεων. Π.χ. περιγράφοντας ένας μαθητής πώς πέρασε το Σαββατοκύριακο ή τι θα κάνει το καλοκαίρι μπορείς αντίστοιχα να διδάξεις τους χρόνους.

Μ.Τζούβαλη, Αγία Μαρίνα, Κάσο

I realized that every grammatical section could be taught with sister classes. For example, by having the student describe how he spent the weekend or what he will do in the summer, you can teach tenses...

Maria Tzouvali, Agia Marina Kassos

Table 2: Teaching in a different way

TEACHERS' COMMENTS ON COLLABORATION

In the lesson plan log on December 16, 1998, Katerina Prasidou wrote, "Also, they need to try harder to co-operate with each other in joint projects such as this which are more or less *virgin ground* for them". On January 28, 1999 she wrote "Children are very enthusiastic with their involvement in the programme. However, the students need to work more on collaboration . . .". On May 12th 1999, she wrote, "Team spirit prevailed, although making the necessary arrangements and appointments put them off a bit at first". In the other schools, the same generally held to be true.

TEACHERS' COMMENTS ON THE NEED FOR SUPPORT

The students themselves often referred to the support provided by their groups, the sister class, the teacher, the computer itself, and specific projects as aids in learning. The teachers also referred to support as necessary for themselves as teachers (Kron and Sofos in press), as the tasks they were engaged in were very different than what they usually did, but also for the students who were engaged in these tasks.

TEACHERS' COMMENTS ON SUPPORT PROVIDED BY STUDENTS

Support was often provided by students in the class. The teachers did not feel that this was a threat. They welcomed any help they could get, as it was difficult to help all the students at the same time. The students worked in groups, but each group worked individually. Thus, each group needed something different in contrast to the traditional classroom where students usually do the same thing, regardless of their level or skills. This was true of both the Greek class and English class which is mixed ability. In the computer room, the computer skills of the students, their level in English, their ability to function independently without the help of the teacher, their ability to work in a group, their ability to work creatively, etc. made a diverse class even more diverse. Thus, it was impossible for the teachers to continue with the same role that they played in the traditional classroom. At the same time, much more assistance was necessary for the students. The assistance had to be available whenever the student needed it, and it had to deal with whatever the student needed at the moment. As the students were engaged in a creative process, they did not have the patience to wait for assistance as they wanted to continue with what they were doing. Other students then were called upon for assistance. In the beginning, those that are more skilled helped the teacher. Then other students, even if they were not very skilled, wanted to help. This gave them the incentive to learn, so that they could share the teacher's role. The ideal was that teachers and students acquired both roles; however, as the teacher below states, this assistance was not planned but came about through necessity. She describes how the student and teacher had in fact reversed roles and how the student "watched over" the teacher in case she was in need of help.

She explains how the students felt proud to have this role and how this served as a role model for others to follow. She also states that this was not planned but came about through necessity.

Τ: Είγε από μικρός κομπιούτερ. Με βοηθούσε παρά πολύ και μάλιστα επειδή είχε πάρει χαμπάρι ότι σε ορισμένα σημεία η δασκάλα του ήταν ανεπαρκής. γιατί αυτός που ξέρει, καταλαβαίνει, μπορεί να κρίνει και μου έλεγε "ελάτε να σας πω". Με έπαιρνε λίγο στην γωνία. Αυτό εκείνο και εκείνο, εντάξει: «Καλά» του λεω Α., «θα έρθεις αν σε φωνάξω;» Και παρακολουθούσε και μένα από την άλλη μεριά μήπως κολλήσω πουθενά να έρθει να με βοηθήσει να με ξεκολλήσει. Να, είγα μερικούς που ήξεραν παρά πολύ και το χαίρομαι και δεν αισθάνονται άσγημα απέναντί σου δηλαδή. Δεν το βλέπουν κριτικά. Ίσα ίσα αισθάνονται υπερήφανοι που βοηθάνε τον δάσκαλό τους. Κάπως έτσι. Και ήθελαν και οι άλλοι. Λειτουργεί και για τους άλλους ως κίνητρο. Σου λέει ας μάθω και εγώ για να μπω και εγώ κάποτε σ'αύτη τη θέση, εφόσον έγινε αυτό τυχαία. Δεν το επιδίωξα δηλαδή. Αλλά δημιουργήθηκε το πρόβλημα και έγινε μετά. Ήθελαν και κάποιοι άλλοι να μπουν στο ρόλο του Λ., ας πούμε στο επόμενο μάθημα.

T: He had a computer when he was young. He helped me very much and, furthermore, because he realized that at certain things his teacher was lacking, -- because if someone has the knowledge, he understands and can reason -- would tell me, "come here and I will tell [help] you". He would take me to the side and say "this and that" [would explain]. "A.", I would tell him "Will you come if I call you? And he would watch over me from the other side, in case I got stuck anywhere so he could come and help me get unstuck.. Yes, I had several students who knew a lot and I was very glad and they didn't feel bad about it. That is, they didn't view it negatively. They even felt proud to be helping their teacher. In the same way others wanted to help, too. It worked as incentive for the others. They wanted to learn so that they could at some time be in the same position [to help the teacher]. As this came about by chance – I didn't purposely set out to do it [to have students help]. The problem was created [the problem of the teacher not being computer literate enough] and then others wanted to follow the role of L., in let's say, the next lesson.

Table 3: Student – teacher roles

TEACHERS' COMMENTS ON TEACHER-STUDENT RELATIONSHIPS

The use of computers in the classroom inevitably leads to many changes, including changes in teacher-student relationships (Raptis and Raptis 2001). The teachers felt that working in the computer room (as a result of *DiaLogos*) served to bring about positive changes in teacher-student relationships. The teacher in the interview excerpt states, "we became more close". She goes on to refer to a particular situation where discipline problems with one student were resolved as a result of working on the computer. The student, who was very active, was able to find something that interested him and channel his energy there. The parents later told the teacher that after his experience with computers in school, the student decided to take private computer lessons and that he was doing so well that he wanted to work with computers as a profession. Thus, the teacher-student relationships were reinforced by working closer with each individual student, as opposed to a whole class and by offering the students activities that interested them.

Τ1: Είχαμε πρόβλημα την ώρα του μαθήματος. Γενικά [ήταν] ανήσυχος. Με τίποτα δεν καθόταν στη θέση του. Με τίποτα. Δημιουργούσε πολλά προβλήματα και όμως στο κομπιούτερ εδώ καθόταν πολύ ήσυχα και όποτε είχε απορίες ερχότανε και με έβρισκε και στα διαλείμματα και μου μιλούσε και πιστεύω ότι βελτιώθηκε η σχέση. Δηλαδή, αν δεν υπήρχε αυτή η δυνατότητα δεν ξέρω.... Ισως να είχαμε φτάσει σε άσχημο σημείο πέρυσι.

T1: We had problems during the lesson. He was in general very restless. He couldn't sit in his seat. He caused many problems, but in the computer room he would sit quietly and when he had questions he would come and find me during the break and would talk to me and I believe our relationship [between teacher and student] improved. If we didn't have this possibility [to work in the computer room], I don't know... Maybe we would have reached a very bad point last year.

Ήταν πολύ προβληματικό παιδί. Δεν μπορεί να είχε και ενδιαφέροντα πολλά αυτό το παιδί. Βρίσκω τον πατέρα του τώρα πριν ένα μήνα και του λεω "τι κάνει ο γιος σου;" Λέει "Άσε τώρα, κάνει μαθήματα πληροφορικής και να δεις πως του αρέσει". Δηλαδή ήταν το κίνητρο. "Και του αρέσει και έχει προχωρήσει και σκέφτεται να σπουδάσει κάτι τέτοιο".

He was a very problematic child. I don't think this child had a lot of interests. I found his father now, a month ago [now that the child has gone on to high school] and I asked him, "How is your son?" He said, "Now he takes computer lessons and you should see how he likes it!" That is, that [the computer] was the incentive. "And he likes it and has progressed and is thinking of studying [at university] something like this."

Table 4: Teacher-student relationships

THE SCHOOL ENVIRONMENT AND HOW IT REINFORCES TRADITIONAL PEDAGOGY

The computer room provided an environment that was different from the classroom. The teachers felt that this in itself brought about a change. They felt that the traditional classroom did not provide enough input for the student and that the English lesson was different because visual and audio aids were used. When different methods of teaching were used, it allowed the students to express themselves more and in this way individual talents of the students were evident and could be displayed. The teachers felt that the different way of teaching in the English class influenced how the other lessons were taught as well.

A NEW MEDIUM OF LEARNING CREATES NEW LITERACY

The excerpt from the interview below makes a lot of points referring to changes in pedagogy. It describes a process in which a student, who was considered *average* by the teacher, took learning into his own hands and, by himself, found a way to learn better (using the computer). He shared this with the teacher who, at first did not take it seriously. When she finally looked at what the student had given her, she was surprised and considered it a valuable tool for learning. Thus, she used it with the rest of the class. The *average* student then became *teacher and student*, by learning by himself, but also by helping others (including his teacher). The computer, a new medium learning, allowed the student to learn in a way that was more appealing to him. Thus, the traditional medium (i.e. textbook, pen and paper, etc.) that was not appealing and that was once an obstacle was surpassed with a new medium that the student was more *literate* in (and more interested in). The difference in the medium, allowed for a change in *literacy*. With the traditional medium, he was considered average in literacy. With the new medium, he was considered of higher literacy.

ΤΙ: Τον Π. τον θυμάσαι, που είναι με τον Α., ένας έτσι λεπτούλης που ήταν και πέρυσι. Είναι στην 5η τώρα. Αυτός δεν είχε καθόλου επίπεδο, ούτε στα Ελληνικά ούτε στα Αγγλικά, αλλά είναι έξυπνος και ψάχνει τα καινούρια ξέρεις... Και το κομπιούτερ του αρέσει. Και τί κάνει; Έχει βρει αυτός μερικά σι ντί (CD) [οπτικός δίσκος υπολογιστή] και έχει γράψει κομμάτια που του αρέσουν από σι ντί ξέρεις, για την αγγλική γλώσσα και μου το έφερε. Μου λέει «για σένα. Κυρία».

Μαζεύονται όλοι αυτοί στην ομάδα. Άλλοι είναι καλύτεροι, άλλοι είναι πιο μέτριοι [και] φέρνουν όλοι ότι [υλικό] έχουν από το σπίτι τους. Κάποιος έχει ειδικό μηχάνημα που κάνει αντιγραφές και γράφουνε κομμάτια από το κάθε σι ντί. . . και κάνουν δικό τους σι ντί.

Και μου λέει, "ρίξτε του μια ματιά να δείτε τι είναι". Εντάξει, εγώ δεν είχα και πολύ εμπιστοσύνη στον Π. Το είχα αφήσει πίσω το θέμα. Μου είχε δώσει το σι ντί και έμεινε το σι ντί [φυλαγμένο]. Κάποια στιγμή το βάζω και το βλέπω και πράγματι είχε μέσα κάποιες δραστηριότητες που ήταν πολύ καλές. Θα σου πω... γιατί ήταν πολύ απλά. Όχι μόνο γιατί αντέγραψαν από άλλα σι ντί κάποια κομμάτια που τους άρεσαν, αλλά επειδή είχαν σχέση με τα ενδιαφέροντά τους. Είγαν μπάσκετ αλλά είχαν και ποδόσφαιρο. Άκου τώρα. Έψαχνε να βρει μια λέξη και ανάλογα με καλαθιές που τις έβαζε, εμφανιζόντουσαν τα γράμματα, δηλαδή σαν προγράμματα. Ξέρεις, μπορεί για μένα να... μου φαινόταν απλοϊκό, όμως γι αυτόν, για το παιδί αυτής της ηλικίας, ήταν πολύ ωραίο και του παρείχε κίνητρο και προσπαθούσε να βάλει το καλάθι, για να βρει το επόμενο στοιχείο που θα τον οδηγήσει στο γράμμα το σωστό και έτσι οικοδομούσε τη λέξη. Ναι, αλλά αυτές οι λέξεις που παρατηρούσαν τους έμεναν, παίζοντας αυτό το παιχνίδι.

T1: Do you remember P., who is with A., a thin student who was here last year, too? He is in the 5th grade now. He is not very god at Greek or English, but he is bright and searches for new things. You know. And he likes the computer. So, what does he do. He has found some CD and he copies parts from them. Parts that he likes from the CD, you know, for the English language and he brought them to me and says, "for you Mrs..".All of them [the students] in the group meet. Some are better, some are average [and] they all bring what they have from home, CD's. Someone has a special CD writer which makes copies and they write parts of each CD and make their own CD.

And he tells me, "Take a look and see what it is [what the CD is like]." OK. I didn't have a lot of trust in P.. I let it go [I didn't look at the CD immediately]. He gave me the CD and I stored CD somewhere. At some time [later], I looked at the CD and saw that there were some activities that were really good. I'll tell you why. Because they were simplistic. Not only because they copied from other CD some parts that they liked, but mostly because it was very much what they were interested in, according to what they liked. They had basketball and football. Listen now. He [the student] would try to find a word and according to the baskets he made, letters appeared. Something like programs. You know, for me it could be... it seemed simplistic, but for him, for a student at this age, it was very nice and it gave him the incentive and he tried to make a basket in order to find the next information which would lead him to the correct letter and in this way he would build a word. Yes, but these words that they noticed, remained in their minds [they remembered them], just by playing this game.

Table 5: New Literacy

CONCLUSION

A clear pedagogical concept helps teachers to plan their route with a clear focus in mind and allows them to fully evaluate what the class has achieved at various points. When ICT (or anything is new) is introduced, it is inevitable that changes in pedagogy will take place to some degree. The teacher can chose to limit these changes, feeling that he is tied to a particular type of pedagogy, i.e. traditional, or he/she can allow the class to take steps in different pedagogical directions. It seems that when combining language learning with ICT, the step towards progressive pedagogy is easy to take, even when the teacher is reluctant at first. The teacher soon realizes that there is a mismatch between traditional pedagogy, ICT and language learning. Thus, the step towards progressive pedagogy comes about out of real demand, i.e. the demand that his/her teaching is effective. A major point of progressive pedagogy is working within one's zone of proximal development (ZPD) (Vygotsky 1978). Using ICT in language learning seems to help students work more successfully in their own ZPD in a way that is welcomed by both the teacher and themselves. What is new to the teacher is that he/she is also working within his/her own ZPD when teaching the class by accepting help from their students. Within the framework of traditional pedagogy, the teacher is supposed to know the material/content that he/she is teaching and the teacher does not need to go beyond that, regardless of his/her years of experience. It is as if the teacher never needs to learn. This is a crucial point for progressive pedagogy. The teacher needs to learn and has to become capable of doing so.

Our experience from DiaLogos showed us that the actual steps towards progressive pedagogy were made by the students themselves and the teacher followed. The route towards transformative pedagogy was via progressive. The teacher was able to accept progressive pedagogy as it made the class more functional. Thus, there was an actual need for something different from traditional pedagogy to be tried. What differentiates progressive pedagogy from transformative is the social function. However, this step was not considered a necessity but only came about when there was an actual need for the students to deal with an issue that was not part of the curriculum. Teachers in a traditional learning environment are often reluctant to take learning outside the realm of the classroom and to go beyond the curriculum as their job is to teach what the curriculum dictates. This is why transformative pedagogy, in particular, must be explicitly dictated as an orientation if it is to be accomplished.

ΒΙΒΛΙΟΓΡΑΦΙΑ

Cope and Kalantzis M. (2000), *Multiliteracies: Literacy learning and the design of social futures*, London and New York: Routhledge

Cummins J. (2000a), Academic Language Learning, Transformative Pedagogy and Information Technology: Towards a Critical Balance. *TESOL Quarterly*, 34(3), 537-548

Cummins J. (2000c), Language, power and pedagogy: Bilingual Children in the Crossfire, Clevedon: Multilingual Matters

Cummins, J. (2000d), A Pedagogical Framework for Second Language Learning in the Context of Computer-Supported Sister Class Networks. In E. Skourtou. (editor of edition) *Bilingual Working Papers of Rhodes: Bilingualism and Learning on the Internet*, University of the Aegean, http://www.rhodes.aegean.gr/gr/tetradiarodou

Cummins, J. and Sayers, D. (1995), *Brave new schools: challenging cultural illiteracy through global learning networks*, New York: St. Martin's Press

Cummins, J. and Sayers, D. (2000), Families and Communities Learning Together: Becoming Literate, Confronting Prejudice. In Z. F. Beykont (ed.) *Lifting Every Voice: Pedagogy and Politics of Bilingualism*. Cambridge: Harvard Education Publishing Group

- Dimitracopoulou A. (2001a), Educational Activities via Internet for young children: How to promote meaningful learning, *Proceedings of International Conference, Sustainable Development in the Islands and the Role of Research and Higher Education*, PRELUDE International and University of the Aegean, Rhodes, Greece
- Δημητρακοπούλου, Α. (2000a), Η Εκπαιδευτική Αξιοποίηση του Ηλεκτρονικού Ταχυδρομείου: Πώς, Πότε και Γιατί, Ηλεκτρονικός Κόμβος για την Υποστήριζη των Διδασκόντων την Ελληνική Γλώσσα. Retrieved on October 11, 2000 from the World Wide Web:http://www.komvos.edu.gr/periodiko/default.htm
- Δημητρακοπούλου, Α. (2000b), Εκπαιδευτικές δραστηριότητες μεσω INTERNET: για μια ουσιαστικότερη μαθησιακή αξιοποίηση. Στο Ε. Σκούρτου (επιμ. τεύχους) Τετράδια Εργασίας Ρόδου: Διγλωσσία και Μάθηση στο Διαδίκτυο, Ρόδος: Πανεπιστήμιο Αιγαίου, http://www.rhodes.aegean.gr/gr/tetradiarodou
- Kourtis-Kazoullis V. (unpublished doctoral dissertation), DiaLogos: Bilingualism and Second Language Learning on the Internet
- Κούρτη-Καζούλλη Β. (2000), ΔιαΛογος: αδελφοποίηση σχολικών τάξεων Ελλάδας Καναδά. Στο Ε. Σκούρτου (επιμ. τεύχους) Τετράδια Εργασίας Ρόδου: Διγλωσσία και μάθηση στο διαδίκτυο, Ρόδος: Πανεπιστήμιο Αιγαίου, http://www.rhodes.aegean.gr/tetradiarhodou
- Kron F. W. and Sofos A. (in press), Uber Mediendidaktische Kompetenz von Lehrern/Innen (On Electronic Media Literacy/Competence of Teachers), In proceedings of the conference, *Information and Communication Technologies in Education*, 26th 29th September 2002, University of the Aegean, Rhodes Greece
- Ράπτης Α. και Ράπτη Α. (2001), Μάθηση και διδασκαλία στην εποχή της πληροφορίας: ολική προσέγγιση, Αθήνα
- Σκούρτου Ε. (2000a) Διδασκαλία δεύτερης/ξένης γλώσσας σε περιβάλλον διαδικτύου. Στο Ε. Σκούρτου (επιμ. τεύχους), Τετράδια Εργασίας Ρόδου: Διγλωσσία και Μάθηση στο Διαδίκτυο, Ρόδος: Πανεπιστήμιο Αιγαίου. Retrieved on June 6, 2001 from the World Wide Web: http://www.rhodes.aegean.gr/gr/tetradiarodou
- Σκούρτου Ε. (2000b), Αδελφοποίηση τάξεων στο διαδίκτυο Μάθηση μέσω ηλεκτρονικής σύνδεσης. Γλωσσικός Υπολογιστής, τεύχος 2/2000. Retrieved on June 4, 2001 from the World Wide Web: http://www.komvos.edu.gr
- Vygotsky, L. S. (1978), Mind in Society: the development of higher psychological processes, Cambridge, MA: Harvard University Press
- Wells, G. (1999), *Dialogic inquiry: Towards a sociocultural practice and theory of education*, Cambridge: Cambridge University Press.