DIANA Model - Dialogical Authentic Learning on the Net

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Abstract: Learning on the net is a demanding and complicated challenge in many ways. Many researches report that collaboration, conversation and problem solving don’t succeed as expected in netlearning environment. This paper presents the dialogic and authentic model for the learning and teaching on the net. The main idea of the research project was to find out some pedagogical cornerstones of learning and teaching on the net. The results of these studies lead to the model, where dialogue and authenticity are the crucial points. It was named DIANA (Dialogical Authentic Netlearning Activity). The model was developed in the contexts of teacher training and professional education in Finland. The DIANA model was also tested in practice in different contexts, and the results showed that it is difficult to manage dialogic and authentic learning on the net. This research was one part of the National Strategy’s goals in order to provide concepts for network-based education in Finland.

Introduction

How do we become authentic human beings? Charles Taylor (1992) claims that we become capable of understanding ourselves and defining our identity through dialogue. He says that humans cannot develop into individuals without interaction with others; humans are fundamentally dialogical creatures, and through dialogue we are able to exchange our ideas with others and construct our values and beliefs gradually. According to Taylor (1992), this is how we become authentic humans; authenticity is being true to yourself. Mikhail Bakhtin (1984) expresses himself in the same way, when he writes about the dialogic nature of consciousness and the dialogic nature of human life itself: “The single adequate form for verbally expressing authentic human existence is the open-ended dialogue. Life by its very nature is dialogic. To live means to participate in dialogue…” (Bakhtin, 1984, p. 293).

There are also other remarkable classics, like Lev Vygotsky (1962; 1978) and Paolo Freire (1972), in whose texts the concepts of dialogue and authenticity, human's own voice, have a significant role. The ideas about scaffolding, the zone of proximal development, dialogue with teachers and peers, and dialogue as an existential necessity are well known. In teaching and learning situations, in knowledge construction, especially in online learning environments, these concepts of dialogue and authenticity are seen to be more and more important. The pedagogy that is needed in the Internet-based learning environments supposes more student-centered activity, participation and collaboration. Unfortunately, many online learning and pedagogy projects are too technologically driven. When the technology is in the focus, the teachers and the students are not
able to concentrate on the pedagogically proper and critical points and practices: the knowledge
construction of the students and the activities of the students and teachers.

Technology, especially information technology, affords new tools and possibilities for improving
teaching and learning practices. Nowadays, in different subject areas, all kinds of online, blended,
distance, continuing and life long education courses and training are organized. Thus it is too
easy and too attractive to think that technology will solve the problems of the pedagogy and hu-
man learning. Technological infrastructure is an essential part of most of today's learning envi-
ronments but it is also time to think about the social settings that support the implementation and
use of that technology. The technology itself, however, does not necessarily make any deep
changes in learning activities in school. Traditional methods of teachers are deeply ingrained in
their minds and they need new competencies in order to manage learning processes on the net.

The studies based on computer-supported collaborative learning (CSCL) framework have created
good outlines for learning on the net. However, many CSCL researchers are astonished at some
difficulties existing there in practice. Bielaczyc (2001, 106) asks “why does the implementation
of a CSCL tool result in desired effects in some classroom contexts and not others?” She suggests
that an appropriate social infrastructure has to be created around the CSCL tool. According to
Bielaczyc (2001), social infrastructure refers to the supporting social structures enabling the de-
sired interaction between collaborators using the CSCL tool. Lipponen (2001) points out, that it
is important to create a framework in which the social infrastructure is primary to the technical
infrastructure. It should be a pedagogy and activity driven model, which can be used in net-
worked learning environments. It is not easy to achieve a good level of participation and make a
commitment to genuine dialogue in educational online learning settings.

The purpose of the large research project, called VETO (one part of the National Project’s goals
set out by the Ministry of Education to develop an Information Society Program in Finnish
schools, 2000-2001; Aarnio & Enqvist, 2002) was to find some pedagogical turning points for the
learning and teaching on the net. This research project was based on two earlier researches, which
were concerned with the dialogue on the net (Aarnio, 1999) and with the passion for learning on
the net (Enqvist 1999). During two years (2000-2001) we collected and analyzed comprehensive
quantitative and qualitative data concerning the activities of the participating teachers and stu-
dents in the net learning situations. Based on these results, experiences, and many attempts in
practice, we constructed the DIANA model (Dialogical Netlearning Activity) for learning and
teaching on the net. The basic elements of this model are dialogue and authentic learning. In this
research, the DIANA model have been also tested in many different education contexts.

Authentic learning

At present, in learning sciences, there are two essential metaphors of learning, acquisition and
participation (Sfard, 1998). These two metaphors point to the cognitive and social approaches of
learning. At this moment, researchers in learning sciences accept that both metaphors are funda-
mental for understanding human learning (Anderson, Greeno, Reder, & Simon, 2000), and now it
is important to progress towards reconciling the cognitive and the social approaches (Schoenfeld,
1999). Schoenfeld (1999) hopes to see a synthesis that takes the best from both approaches, and
according to him it is needed explanations of learning that have great scope, and that apply
equally well to the growth of understanding and capacity not only in school but as well out, that
is on the job, at home, and anywhere else. Theory and practice is tightly linked. The real world contexts can be more present in learning situations, and now it is easier to utilize them in learning processes because of the information technology. There is one road to the authenticity.

In the sociocultural approach, learning is a matter of participation in a social process of knowledge construction (Vygotsky, 1978), “enculturation” (Brown, Collins, & Duguid, 1989), guided participation (Rogoff, 1991), or legitimate peripheral participation and "an integral part of generative social practice in the lived-in world" (Lave & Wenger, 1991, 35). Knowledge does not exist either in a world of its own or in individual minds but is an aspect of participation in cultural practices (Lave, 1988; Brown, et al., 1989; Lave & Wenger, 1991). Authentic learning consists of activities concerning with students examining, collaborating and reflecting on real world, ill-defined and complex tasks from different perspectives (Reeves, Herrington, & Oliver, 2002). It is not just that students know the facts, but that they are also able to interpret, process, and apply them. Students articulate their own understanding of the problem and they assess it, construct an understanding and deal with complex problems within the world in which they live. Schaffer and Resnick (1999) talk about “thick” view of authenticity, which recognizes four interdependent, mutually-supporting “kinds” of authentic learning: learning that is personally meaningful for the learner, learning, that relates to the real-world outside of school, learning that provides an opportunity to think in the modes of a particular discipline, and learning where the means of assessment reflect the learning process. Authenticity works the best (see e.g. Taylor, 1992) in learning communities, where students shed repetition and imitation and begin to produce artefacts in creative dialogic processes of learning. The significance of social interaction and dialogue in learning, emphasized by Vygotsky (1962; 1978), is essential to construct knowledge as well as to get comprehensive and in-depth processed learning outcomes on the net. (Scardamalia, Bereiter, & Lamon, 1994; Brown & Campione, 1996; Salomon & Perkins, 1996).

**Dialogue in learning**

Dialogue as a concept is complicated. According to Bohm (1996, 6), dialogue means “the flow of meaning between or among us”. Isaacs (1996; 1999) emphasizes that dialogue does not mean just talking, and it is important to distinguish dialogue from the general types of conversations. Jenlink & Carr (1996) speak of four types of conversations common in educational settings, viz. dialectic, discussion, dialogue, and design. According to Bohm, Factor & Carret (1991), dialogue is a powerful tool to understand what, actually, thinking is as a process. “Factually, all of this knowledge that we have in mind, is transparent in a thought and this knowledge mediates in a thought.” That is why scaffolding and ZPD (Vygotsky 1978) can be taken into account in a new way in the learning on the net. It is especially interesting when the learners can be entitled to participate like experts in the activities of a community on the net. Then, one can talk, as Lave and Wenger (1991), about 'legitimate peripheral participation'. According to Bohm (1996), it is worth remembering that the word “participation” has two meanings: “to partake of” and “to partake in”. Receiving is as important as contributing. Lave and Wenger (1991) believe that an experience can be pedagogically valuable only on one condition: the experience does not consist of individually stored memories, but is primarily comprised of complex interactions and dialogue in the community.
Many researchers in the context of CSCL (Hewitt & Tevlops, 1999; Stahl, 1999; Guzdial &
Turns, 2000; Lipponen, 2001) have bumped into the same kind of social and technical problems
in attempts of the knowledge building: thread lengths in threaded discussion systems indicate
that communication does not usually continue long enough. Superficial discussions and low level
of student participation is typical. However, it is possible to make discussions become deeper
(Hara, Bonk, & Angeli, 1998) and student’s thinking transparent on the net. Guzdial and Turns
(2000) explored how to use and design computer-mediated discussion forums in order to support
discussion that may contribute to learning. Competence on dialogue could, however, be a safer
"tool" in order to succeed in conversations on the net.

If teachers and students were able to create dialogue, having the skills of inquiring and question-
ing, then the generation of the new ideas would be possible. They could find continuously new
paths to promote dialogue, for example, by simply opening personal meanings of utterances more
and more. Many researches (Aarnio 1999; Aarnio & Enqvist 2001) showed that teachers and the
student teachers had many kinds of big difficulties in dialogue on the net. The crucial point was
that questioning especially was the most difficult script of the interaction.

Design and Methods

The background of the project (Aarnio & Enqvist, 2002) was created on Aarnio (1999) and En-
vquist (1999). The research was divided in three phases: orienting (May 2000 – December 2000),
deepeening (January 2001 – August 2001) and applying (September 2001 – December 2001)
phase. The respondents were professional teachers (n=12), who had worked on the net; full time
professional teachers (n=30), who were looking for competence for teaching and learning on the
net; professional students (n=42), professional teacher trainers (n=10) and teacher students
(n=148). They represented different substance or professional areas. A survey was also arranged
for the vocational institutes (62/226) in order to get information about their best realizations of
teaching and learning on the net. The whole research was made as action research, and the ap-
proach was multi-methodological. The data was gathered by means of questionnaire, open ques-
tions, interviews, observations, reflective discussions and from discussion forum texts.

Result

The DIANA model for learning and teaching on the net is the most important result of the paper.
First are presented the main results of the studies contributed to the construction of the model.

The orienting phase was started by a further teacher training course (n=30) with the theme “Dia-
logical learning on the net”. The data was gathered by means of reflective discussions, open ques-
tions and interviews. The students (n=42) participated also by answering to inquiries about learn-
ing on the net. This phase showed the bottlenecks of the learning on the net, and the results of
every investigation supported each other. The structuring of the learning process and scaffolding
are very important if students are to succeed in achieving their goals on the net. The meaning of
structuring and scaffolding on the net was found easily. On the opposite vein, it was quite diffi-
cult to identify authentic and dialogical knowledge construction on the net. That is why they be-
came the most important questions for the next phase of the research. At the end of this phase the preliminary framework for the learning on the net was constructed.

The deepening phase consisted of many different studies and there was variation in their results. In vocational institutes (62/226) the best realizations on the net were examples of moving traditional teaching to the net. Students had to prepare assignments on the basis of predetermined material, all organized by the teachers. The activity was totally devoid of dialogical and authentic learning. In this phase, it was also investigated to what extent the student teachers (n=80) are able to inquire the students about their flow of thinking and how they (n=32) are able to catch their key-utterances, so called “hot words” in the texts on the net. Both of these activities are supposed to be important skills in producing dialogue. The results showed that student teachers still have a lot to do in order to enter into dialogue and to form a real learning community on the net. They failed in inquiring and in catching and picking up the key utterances. The results were the same with the traffic student teachers (n=68). It was also noticed that it is necessary to structure the learning process very carefully and to coach students in the necessary technology and dialogue for a successful learning process to take place. The preliminary framework for the learning on the net was reconstructed, and the teachers and the teacher trainers who had more experienced on working on the net were asked to analyze the generated model. According to their opinion, the model helped in perceiving and identifying learning on the net. The teachers made also various proposals to develop the understandability of the model. At the end of this phase the final form for the model of the learning on the net was constructed. The model was named DIANA (Dialogical Authentic Netlearning Activity).

The essential elements of the model, the cornerstones A, B, C and D, are tightly connected with knowledge construction on the net and how dynamic and intensive it will be. Each of the cornerstones consists of certain activities and they are in dynamic and cyclic interaction with each other. These activities A1, A2 etc. form entities of the activities in knowledge construction.

The DIANA model for the learning on the net is as follows:

**Cornerstone A:**
*Creating common ground for the learning on the net*
A1. The idea of authentic dialogical learning on the net
A2. Coaching and training for the learning on the net
A3. Structuring and the start of the working on the net

**Cornerstone B:**
*Authenticity of the learning on the net*
B1. Student-centered search and formulation of proper study problems out of real world and work situations
B2. Utilizing sources of information and generating and building material or producing content about one’s own substance field

**Cornerstone C:**
*Dialogical learning activities on the net*
C1. Dialogical problem solving within a learning community
C2. Dialogical helping and supporting in a learning community
C3. Dialogical inquiring in problem solving

**Cornerstone D:**

*Finding new direction for learning and developing competence*

D1 Reformulating the study problems and focusing them further into real world and work situations

D2. The idea of evaluation.

**Finally**

In the applying phase the relevance and usability of the DIANA model was tested in practice. The researchers tested the model with full time teachers (n=29) in a further education course with the theme “Dialogical learning on the net”. Professional teachers (n=19) from different fields also applied the DIANA model with their students on the net. The results showed that both the teachers and the students have plenty of work ahead of them in order to manage authentic dialogical learning on the net. Especially the cornerstone C was seen as difficult and challenging. However, the teachers deemed that the working methods named under this cornerstone are exactly those that deserve the most attention in professional education.

At this moment, DIANA model is applied and tested out in practice by many teachers and educators in various institutes, from schools to universities, in Finland.

**References**


