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The Impact of Using a Distance Learning Network on Building Teachers' Communities of Practice in Egypt

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ABSTRACT

This research is a case study of using a distance learning network for teachers' professional development in Egypt. It aims to investigate the impact of using Egypt's National Network for Distance Training (NNDT) in developing teachers' knowledge and on building communities of practice. It explores the role of professional development experts and teachers' participation within the network. In addition, it draws attention to the teachers' level of engagement in professional development programmes and, therefore, it reveals their modes of participation within the network. Moreover, it identifies the role of the technology in facilitating communication and collaboration between participants. Finally, this paper offers a number of recommendations that aim to develop the network capabilities to become a more 'effective' means for teachers' professional development in Egypt.

Keywords:

Egypt, teacher professional development, network, distance learning, community of practice

INTRODUCTION

Since 1991, Egypt has been pursuing a reform policy that aims to improve many aspects of its education system (Swain et al., 2003). The Egyptian Ministry of Education reform efforts include, for example, curricula development, reviewing assessment and examination systems, and using information and communication technology. In line with these developments, a particular emphasis is given to the professional development of the teachers themselves who are considered to be an essential factor in reforming education. Accordingly, the Ministry of Education in Egypt (2004) developed a strategy for teachers' development by recruiting more and better prepared teachers in order to enhance Egyptian education in general. The Ministry's strategy includes the following:

- Improving teachers' financial status by increasing their annual income.
- Increasing the number of qualified teachers in Egyptian schools, particularly in primary schools.
- Enabling teachers to share and exchange their experiences with other teachers in developed countries.
- Providing in-service teachers with training in order to improve the teaching and learning process in schools.

Teachers' professional development efforts in Egypt include a variety of strategies for training teachers such as:

- *Direct training courses* (face-to-face) for teachers in regional and local centres in the different governorates in Egypt. These direct training courses also include in-school training.
- *Training teachers abroad* by sending them overseas to exchange experience and information with teachers from across the globe (Ministry of Education, 2005).
- *Distance training* of teachers using the National Network for Distance Training.

This paper reports on a study that investigates the impact of using a distance learning network on the development of teachers' knowledge and the building of communities of practice in Egypt. The following section provides an overview of the Egyptian National Network for Distance Training.

The Egyptian National Network for Distance Training

In 1997, the Ministry of Education in Egypt initiated a distance network for training in order to overcome the obstacles that face conventional approaches for teacher professional development. These obstacles include, for example, the lack of financial resources and time limitations (Bredeson, 2002). In addition, there are very many teachers who require training but are located in distant and disadvantaged areas of Egypt. This network aims mainly to train large numbers of serving teachers across the country on changes and/or developments in the Egyptian national curricula. It also aims to introduce teachers to new technologies and teaching methods. The network consists of 57 centres and each governorate in Egypt has its own centre. In addition, there is a main centre which is located in the Ministry of Education. The role of this main centre is to develop the training programme and support the operation of the whole network. All the centres in the network are connected using Interactive Videoconference (IVC) technology. The total capacity for the network centres is around 8000 trainees at the same time and the average network operation capacity is 2664 hours per year (Training Department, 2004). This illustrates the large number of training programmes which are organised every year through the network. For example, 1003 training programmes were conducted during the period October 1999 - December 2002 for 1097038 trainees. This number includes a wide range of education professionals such as teachers in all subjects and in different stages, school inspectors and school managers. The network aims to provide equal accessibility to the training experts between advantaged and disadvantaged districts across Egypt.

Teachers as professionals can be viewed as participants who belong to a community of practice, because teachers have a joint enterprise, they function as a community, and they develop a shared repertoire and resources such as tools, documents, routines, vocabulary, symbols and artefacts, that embody the accumulated knowledge of the community (Allee, 2000). Lave and Wenger (1995) describe a community of practice as a set of relationships between persons, activity, and their world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is also seen to be groups of people who come together to share and learn from one another face-to-face and virtually. Basically, they are held together by a common interest in a body of knowledge and are driven by a desire and need to share problems, experiences, insights, templates, tools and best practice by interacting on an ongoing basis (Vestal, 2003). This view of a community of practice is seen to be consistent with current views of learning. According to Burk (2000), for example, learning is considered to be fundamentally social, motivated by engagement and participation in practice because knowledge construction in our society is rarely done in isolation. People in a particular field work together building on the ideas and practices of the group. Thus learning increasingly takes place in communities of practice (Fulton and Riel, 1999). The concept of communities of practice is a useful framework for teachers' professional development in order to enable them to transfer 'good' practice and exchange professional knowledge. Schlager and Fusco (2003) view teachers' professional development as a process of learning how to put knowledge into practice through engagement in appropriate practice within a community of like-minded practitioners. Since one of the primary aims of networks in education is to create opportunities for an ongoing exchange and collaboration between educational practitioners (Sliwka, 2003), networks are seen to be a system that enhances the professional development of teachers and that can lead to the building of a community of like-minded practitioners. This research investigates the extent to which the use of the network encourages teachers to actively engage in the learning process and play a main role in the construction of knowledge within such a community of practitioners.

RESEARCH METHODOLOGY

This study aims to examine in-depth the impact of using a distance learning network on developing teachers' knowledge and on building teachers' communities of practice. It also investigates the impact of using the network on constructing and exchanging professional knowledge among Egyptian teachers. Finally, it highlights the role of the network in facilitating 'effective' communication between teachers themselves and between teachers and training experts.

In this study, triangulation is used in order to reduce biases that might result from relying exclusively on any one data-collection method or source (Gall et al., 1996). Triangulation, therefore, is a key element to validate the findings of this study. Data were collected from different network members (teachers, inspectors, experts and education technology specialists) in order to highlight the different perspectives in relation to the use of the network in teachers' professional development. In addition, a variety of methods (questionnaires, in-depth interviews and observations) were used. Teachers who participated in this study included mathematics and science teachers in a number of prep-schools (11-14 years) and secondary schools (15-18 years) (see table 1). These two subjects were selected because they are key areas for growth and development in Egypt (Monk et al., 1999). In addition, teachers who took part in this study are divided in two groups. The first group consists of 38 teachers who were in training during the field work (*In-training group*) while, the second group consists of 113 teachers who had previously been trained via the network and returned to their school (*Follow-up group*).

Table (1) shows the total numbers of research sample.

Schools		People			
Prep-Schools	Secondary Schools	Teachers	Inspectors	Training Providers	Educational Technology Specialists
10	5	187	22	11	2
Total 15 Schools		Total 222 People			

Observed sessions took place in three training courses, two courses for mathematics teachers and one course for science teachers. Interviews were conducted with 36 school teachers who had been trained via the National Network for Distance Training (NNDT). Interviews and questionnaires were used to collect data from schools' inspectors, and also interviews were conducted with training experts (providers) and educational technology specialists who work in the network centre. The data from the questionnaires were analysed using SPSS software, while the data from interviews were analysed using NVIVO.

THE IMPACT OF NETWORK ON BUILDING COMMUNITY OF PRACTICE

Educational networks aim to establish and support a community of various network members such as teachers and professional development experts and policy-makers. This is can be for the purpose of supporting innovation; creating, utilising and transferring knowledge; enhancing professional development efforts; providing platforms for conversation and collaboration among participants and reforming school structures and leadership (Buchberger et al., 2005). In this section we look into the impact of using the Egyptian National Network for Distance Training (NNDT) on establishing and supporting the building of such communities of practice between the network members. We explore the role of professional development experts and any consequent impact on teachers' participation. In addition, we draw attention to the teachers' level of engagement in professional development programmes and, therefore, reveal their modes of participation within the network. Moreover, we identify the role of the technology in facilitating communication and collaboration between participants.

The Role of Professional Development Expert

To supply expertise for trainers the Ministry of Education coordinates a range of external partners such as Subjects Consultants and Faculties of Education in local Universities (The Ministry of Education, 2004). Accordingly, there is a large number of professional development experts who organise and lead teacher professional development programmes such as university academic staff, subject consultants, curriculum development specialists and so forth.

Professional development programmes via the network are usually short-term programmes (between 3-7 days) and are run simultaneously in all local centres and usually led by only one expert (who is based in the host centre). Consequently the numbers of teachers who participate in these professional development programmes are very considerable and accordingly experts tend to mainly use the 'lecture' approach in order to address these large numbers of teachers. As illustrated in table (2), the majority of teachers (75 out of 113 from the follow-up group and 19 out of 38 from the in-training group) described the role of professional development expert as a 'lecturer' and this was supported by interviewee teachers who stated that they considered the main role of the training expert to be that of a lecturer.

Table (2) summarises the teachers' description to the role of the expert.

	In-training group(n=38)	Follow-up group(n=113)
	<i>Frequency</i>	<i>Frequency</i>
Lecturer	19	75
Guide	11	15
Facilitator	13	17
Not sure	1	5
Others	0	5

A smaller number of teachers from both groups (17 out of 113 and 13 out of 38) described the role of the expert as a ‘facilitator’ who help and facilitate their learning through discussion and problem solving approaches. Only 15 teachers from the follow-up group and 11 in-training teachers found that the expert acted as a guide i.e. he/she gave advice and helped them when needed during the training. A few teachers (five teachers from the follow-up group, and only one in-training teacher) were not sure how to categorise the role of the expert during the training programmes. Furthermore, five teachers (from the follow-up group) gave some other descriptions to the role of the expert during the training programmes such as a ‘problem solver’, who provides teachers with possible solutions to their professional problems, and some of these specified ‘subject expert’ and ‘a dispenser of information’.

Although the traditional ‘lecture’ approach can be sometimes beneficial for learning and for teacher development, relying too much on this approach can reduce teachers’ engagement in professional development programmes and hence teachers might remain on the periphery of the professional development community within the network (Machles, 2003). Therefore, it can be seen that the current structure of the National Network for Distance Training (NNDT) -which aims to provide equal access to training for large numbers of teachers by only one expert- is seen to be an obstacle to building communities of practice. Professional development experts within the current centralised structure of the network usually provide and structure the information and knowledge for teachers through lectures and presentations. This is in stark contrast to those who consider the role of professional development experts should be more varied including modelling, coaching, scaffolding and guiding learners (teachers) as they use information and create knowledge to solve contextual real-life problems (Vincini , 2003).

Learning activities

Networks should provide members with a range of activities that promote and maintain their active participation such as exchanging information and collaboration (Hopkins, 2003). Learning activities also provide opportunities for teachers to learn new content and skills as well as occasions to reflect on their relationship to practice and integrate new knowledge with existing professional habits and practice (Bredeson, 2002). Therefore, learning activities are seen to be an important element in teachers’ professional development programmes. According to the teachers’ in the study, 55% of in-training teachers agreed or strongly agreed that professional development programmes provided them with sufficient and authentic activities (i.e. activities based on real-world situations). In contrast, a large percentage of in-training teachers (43%) were either not sure, disagreed or strongly disagreed that they had sufficient and authentic activities. Teachers in both groups were asked about the different types of learning activities that had during the training and they were given the choice to select more than one type of activity (see table no. 3).

Table (3) shows the teachers’ views about the types of learning activities.

	In-training group(n=38)	Follow-up group(n=113)
	<i>Frequency</i>	<i>Frequency</i>
Problem solving	13	24
Decision making	8	11
Individual tasks	8	7
Group work	9	30
Others (mainly lecture)	2	36

As shown in table (3), 24 teachers out of 113 (from the follow-up group) mentioned that they had been given problem(s) to solve individually and/or in a group during professional development programmes via the network. Adel, one of the interviewee teachers who teach mathematics in a secondary school, said:

“During the training, we were given problem(s) to solve in groups using the brainstorming strategy”

Almost a third of teachers who were in training (13 out of 38 teachers) stated that they had problem solving activities during the training, and these were observed to be mainly subject-based mathematical problems. In addition, 30 out of 113 teachers (in the follow-up group) and 9 out of 38 teachers (in-training group) declared that they had group work activities which were required to be done in collaboration with colleagues. Moreover, only 11 teachers (from the follow-up group) and 8 teachers (from the in-training group) stated that they had decision-making activities during the training in order to achieve particular goals. The same number of in-training teachers (8 teachers) and 7 teachers from the follow-up group indicated that they had individual tasks (i.e. tasks to implement solely by themselves) during the training. A large number of teachers (36 from the follow-up group) mentioned that they had experienced other learning activities during the training but they stated that these other learning activities they considered to be 'lectures' yet, only 2 in-training teachers pointed out that they had 'lectures' as another type of learning activity. This view of a lecture as being a learning activity contradicts with Jonassen's (1991) view about authentic activities which have real-world relevance and utility, that integrate those activities across the curriculum, that provide appropriate levels of complexity and that allow students to select appropriate levels of difficulty or involvement. Thus, Henze and Nejdil (1997) describe the influence of authentic activities on the learning process in the following:

"Authentic activities shift part of the ownership for learning and performance from the teacher to the student. While working on their tasks in real-world situations, students have to learn and apply the required skills at least partly by themselves. This does not allow learners to passively consume a lecture without critical reflection, learned knowledge and skills are needed to perform the task which stimulates the students to think about the arising problems and techniques." p2.

During the observation of professional development programmes, it was seen that lectures, mathematical problem solving methods and open discussion between the professional development expert and the teachers were used during the training courses. However, small discussion groups and discussion between the teachers themselves in local centres were not facilitated. The activities that were used in professional development programmes are not therefore 'authentic', and they do not shift the ownership of learning from the expert to the teachers and they do not encourage teachers' construction of knowledge.

The conventional role of training experts (lecturer) and the small range of activities that they use during distance training programmes influence the level of teachers' participation. The following section highlights the teachers' mode of participation during the training programmes via the network.

Modes of Participation within the Distance Learning Network

Opportunity to Share Ideas through the Network with Other Teachers

Smith (2003) emphasises that learning involves participation in a community of practice and that participation refers to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities. Since one of the primary aims of networks is to create opportunities for an ongoing exchange and collaboration, teachers were asked whether they had the opportunity to share and exchange ideas and professional knowledge with other teachers through the network. The majority of in-training teachers (73%) indicated that they indeed had the opportunity to share and exchange ideas and professional knowledge (e.g. subject knowledge and educational knowledge) with other teachers through the network, while 46% of teachers, in the follow-up group also believed that they had this opportunity. On the other hand, a very similar percentage (44% of teachers in the follow-up group) either disagreed or strongly disagreed with the suggestion that they had the chance to share and exchange ideas and professional knowledge through the network, but only 16% of in-training held the same view.

The observation of the professional development programmes showed that teachers in all governorates had, to some extent, the chance to ask questions and express their views about particular issues if they need to do so. According to some teachers, this is seen to be one of the principal advantages of the IVC network. For instance, some teachers found that the main advantage of the network is that it allows teachers to identify common professional problems through raising questions during the training, for example, Mona, one of the teachers, said:

"The network allows me to meet other teachers in the different governorates across the country and benefit from their own experience. I also can identify the problems and issues that face other teachers in their practice and the possible solutions to them. The network also gives me the opportunity to share these problems, contribute to their solutions and take them into consideration in future practice."

However, some teachers indicated that the time dedicated for raising questions and/or making comments and so forth is not enough and that they need more time in order to interact with the other participants and to share ideas with them during the training programmes for the sharing and exchanging of ideas and professional knowledge. This is consistent with Hardless et al. (2001) view as they state that many learners have difficulties in formulating and articulating contributions to a discussion under time pressure. They also add that discussions change direction rapidly and the 'right' time to contribute to the discussion is momentary. The time constraint is seen to inhibit teachers from learning in a community because it does not give them the opportunity to learn from other people and consciously or unconsciously teach other members of the community through a matrix of relationships and social exchanges (Wenger and Snyder, 2000).

Opportunity to Discuss Professional Problems with Other Teachers via the Network

Kelly and McDiarmid (2002) emphasise that 'good' teachers' professional development provides opportunities for teachers to interact with peers and establishes a learning community of which all teachers are members. Moreover, the success of the learning community relied on the nature and importance of relationships formed between the people in the community (Lathlean and May, 2002). In order to investigate the 'success' of the learning community within the Egyptian network, teachers were asked whether they had the opportunity to discuss the problems that they face inside classrooms with other teachers in different centres or not. Based on the in-training teachers' views, 47% of teachers believed that they can freely discuss the problems that they face in the classroom with other teachers in different centres during the training. Conversely, nearly the same percentage of in-training teachers (45%) either disagreed or strongly disagreed about the possibility to discuss the problems that they face in reality with other teachers in different centres during the training. Rhodes and Beneicke (2002) discovered that collaboration between teachers is seen to be a means to raising teacher performance, because, teachers have the opportunity to gain access to new information, clarify their ideas and beliefs, examine different ways of thinking about teaching and reflect on their own practice. Collaboration among teachers in all centres of the Egyptian network is seen to be difficult within the current centralised structure. Teachers are seen to rarely have the opportunities to interact and discuss their professional problems with their colleagues in different local centres within the network. Hence, only 9 teachers out 38, who were in training thought that they can interact with other teachers in *different* local centres because of using the network during training programmes, while, the majority of in-training teachers (18 teachers out 38) mentioned that they can interact with teachers sharing their *own* local centre. Moreover, 9 teachers expressed the opinion that they feel isolated because of using the network. Therefore, the current use of the network for teachers' professional development does not encourage teachers to be active participants in the training and does not facilitate interaction between teachers in order exchange their own professional knowledge and experience. Networks are considered as a mean to facilitate "connectivity" among teachers and to enable them to interact with other teachers without being constrained by distance (Chang et al., 2004). It is not only teacher-to-teacher interaction that is inhibited. Only 10 teachers out 38 stated that because of using the network during the training programmes, they interact with the expert who is based in the host centre.

From the above discussion, it can be seen that the current centralised structure of the network does not allow training experts to easily integrate constructive approaches such as discussion, problem solving, small group activities and so forth. As a result, the trainee teachers are not actively engage in the training process and the exchange of professional knowledge is limited. Therefore, the current training is seen to be hardly facilitating the building of learning communities, because it lacks the main features that underpin a learning community, as highlighted by Chang (2003), such as spontaneous learning and active knowledge construction by individual learners; idea sharing and information provision for all members of the learning community; and distributed knowledge and expertise among all members through interaction, discussion, communication, instruction, sharing or utilisation of tools. Therefore, we suggest that the structure of the network needs to be reviewed in order to enhance the building of communities of practice where learning is transformed from something inherent and that only happens when teaching takes place, to something that occurs through active participation in different communities of practice.

Facilitating Communication and Collaboration within the Network

Communication tools are regarded as a crucial element for 'successful' networks in education (Buchberger et al., 2005). Communication tools facilitate the collaboration and conversation among network participants and promote and support the building of a network community. Within the Egyptian network, the purpose of using videoconference technology is to facilitate simultaneous communication between the teachers themselves and between the teachers and the professional development experts. In-training teachers were asked whether they can easily communicate and collaborate with other teachers in different local centres using the videoconference technology during the training. The analysis of data shows that the majority of in-training teachers (52%) did not think that the videoconference technology can facilitate communication and collaboration between them.

Conversely, 45% of teachers thought that they can easily communicate and collaborate with other teachers using the videoconference.

The observation revealed that the communication process via the videoconference was mainly two-way communication between the expert in the host centre and the teachers who are located in different centres within the network. However, according to Touchstone and Anderson (1995), this type of communication needs a considerable effort on the part of the expert in order to involve teachers who are not located with him/her at the same centre. Furthermore, communication and collaboration between the teachers themselves who are located in distant local centres were hardly observed. Although it is technically possible to establish communication between the teachers in the different distant local centres, according to one of the educational technology specialists, in reality this facility is disabled. His view is that this is a result of the fact that there are too many local centres and maintaining such communication between all teachers in the centres is too difficult with the current centralised structure.

In line with the above results, nearly half of teachers in the follow-up group (45%) found that the use of videoconference, as a tool for facilitating communication between the different centres within the network, is not sufficient for the training (see figure 1).

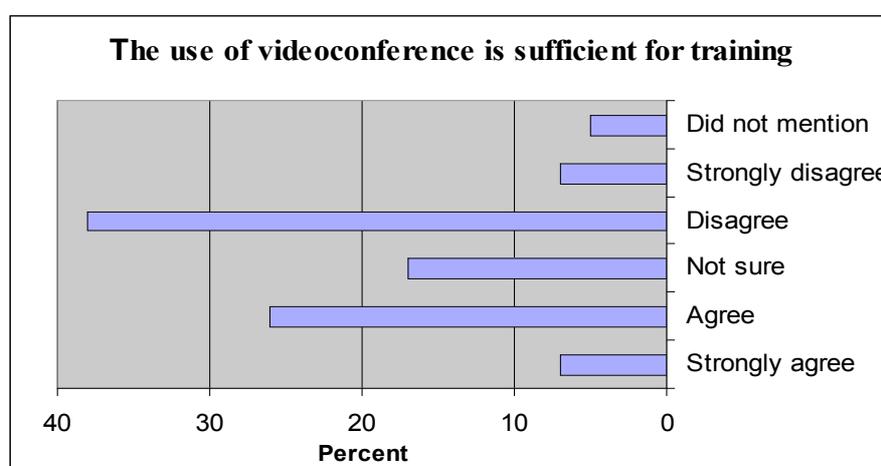


Figure (1) shows the follow-up group views about the use of videoconference.

Similarly, the majority of interviewee teachers (26 out of 36 teachers) stated that the use of videoconference is not sufficient for the training and it needs to be supplemented by other tool(s) in order to facilitate the communication between the centres. On the other hand, 33% of teachers were either agreed (26%) or strongly agreed (7%) that the videoconference is an adequate tool for connecting the different centres within the network. In addition a few interviewee teachers thought that the videoconference is a sufficient communication tool for training. For instance, Nihal, a mathematic teacher in a prep-school, said:

“The use of videoconference is good and sufficient for training. [...] Because teachers have the opportunities to raise their questions and discuss their problems with the expert without any kind of barriers”

Although some teachers thought that the videoconference is a sufficient tool for communication during the training, the majority of them found it insufficient. It is a fact that the videoconference brings together large numbers of teachers from different places at the same time. However, the centralised structure for using the network and the large numbers of teachers who participate in each programme inhibits the building of a collaborative learning environment for teachers. In addition, the videoconference technology itself has limits as it only allows communication between participants during the actual training-sessions time and it does not provide further communication channels before or after the training. While communication tools should provide opportunities for collaboration between teachers where they can share expertise and knowledge, solve professional problems etc. (Wenger and Synder, 2000).

CONCLUSION AND RECOMMENDATIONS

According to Bridglall (2001), community membership can produce in teachers a sense of excitement and ownership of new ideas to apply theory and practice to teaching and learning in their classroom. The National Network for Distance Training (NNDT) in Egypt is considered by the Ministry of Education as the main method

for teachers' professional development. Although the current "central" structure of the network aims to provide equal access to training for all teachers across Egypt, it leads to a number of challenges that adversely affect the establishment and support of a community of practitioners during professional development programmes. The results of this study reveal that the main (and sometimes the sole) approach of training is the 'lecture' which is largely pre-packaged information organised by a development expert. Consequently, the role of the professional development experts can be described as 'dispensers' of information and hence the role of the teachers becomes 'receivers' of that information.

This study suggests that:

- the network should be 'decentralised' by dividing it into sub-networks to facilitate easier teacher-teacher interaction across governorates;
- professional development experts should play different roles such as model, guide and facilitator of teachers' learning;
- teachers should have authentic activities in order to enable them to become active participants in professional development programmes. These activities should aim to encourage teachers to construct knowledge in order to enable them to examine and evaluate their own practice, on the one hand, and to enable them to identify "successful" practice, on the other;
- other communication tools (e.g. the Internet) should be used alongside the videoconference in order to facilitate and maintain 'sufficient' communication between teachers. This will allow them to share and exchange ideas and knowledge; and it will help them to discuss their professional problems with other teachers and in turn assist them in forming and maintaining a community of practitioners.

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