

A PROPOSAL OF FRAMEWORK FOR PROFESSIONAL DEVELOPMENT OF TURKISH TEACHERS WITH RESPECT TO INFORMATION AND COMMUNICATION TECHNOLOGIES

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ABSTRACT

Studies in recent literature indicate that professional development programs for teachers addressing Information and Communication Technologies (ICTs) are either inefficient or far from being productive. The reasons behind the inefficiency of such professional development activities are considered as the incompatibility between the level of training and teachers' ICT skills, and the lack of active use of ICTs by teachers in the teaching and learning processes. Bearing this problem in mind, the current study aims at proposing a framework for organizing professional development activities for Turkish teachers regarding ICTs with an emphasis on teachers' ICT-related needs, competencies and levels of technology use.

Within the framework, it is suggested that teachers' levels and categories of technology use be determined in the first place, which will be followed by a four-stage professional development structure leading to teachers' effective ICT use and integration of ICTs in teaching-learning processes.

Keywords: Professional development, Information and Communication Technologies, ICT use, ongoing professional development

INTRODUCTION

Teachers are the main resources of an education system. They have important roles and responsibilities to exercise in the teaching profession and to mould students in accordance with the changing social needs. Therefore, professional development needs of teachers constantly change and develop along with the changing expectations regarding the quality of education, the changing social needs, technological changes and the effect of technology on learning, the change in student population, and the transforming paradigms in learning and teaching.

Professional development of teachers is a must for school improvement and educational change. It is useful not only for teachers, but also for students, school administrators, parents, families and colleagues.

Thus, it can be considered as both an individual and social implementation. In other words, investment on teachers is an investment on individuals whose consequences are directly reflected in the society as well. Professional development involves teachers' acquisition of knowledge, skills and attitudes addressing improvements in education. It compensates the lack of education in pre-service training with the help of regular in-service training. Therefore, it can be considered as a process which starts in pre-service training and goes on with in-service training till the end of the profession.

Teachers' professional development is generally defined as activities such as seminars and set-courses which aim at training teachers through in-service training (Odabasi & Kabakci, 2007).

It is also defined as any kind of teaching-training activity to meet teachers' needs that is necessary for their professional growth and development (Seferoglu, 2001). According to a broader definition, professional development consists of processes and activities designed to enhance the professional knowledge, skills and attitudes of teachers so that they can improve the learning of students. Therefore, professional development is a process that is intentional, ongoing and systemic (Guskey, 2000).

The purpose of any professional development program is to inform and change teacher behavior as a result of new information. To achieve this purpose, educators spend countless hours on professional development activities, learning to use new instructional strategies or materials (Barnett, 2003) since the professional development of teachers must be an on-going process of refining skills, inquiring into practice, and developing new methods. Professional development leads to knowledge acquisition on the one hand and update of current knowledge and skills on the other. In this respect, the advantages of professional development can be listed as follows (Librera et al., 2004). Professional development:

- ameliorates the field of application,
- helps teachers and students meet their individual or mutual needs by providing them with the opportunities to reflect on their personal experiences, applications and research,
- orientates professional experiences of high quality in schools,
- contributes to educational policies in heightening standards,
- helps teachers understand and explain ICTs.

Most countries in the world consider teacher training as a crucial subject, and so does Turkey. Teacher training has several qualitative and quantitative insufficiencies in several countries. Regardless of the quantitative adequacy of teachers, professional development of teachers remains one of the most glaring problems of teacher training. Pre-service teachers still have the chance to develop themselves since they are still within an educational institution as learners. However, in-service teachers might find themselves abandoned as they have started working and hence feel deprived of constant mentoring and guidance. The only solution to sustain lifelong learning in Turkey is to provide in-service teachers with constant support through regular and effective professional development activities.

Information and communication technologies (ICTs) constitute one of the most important factors in obtaining the desired levels of productivity and efficiency from professional development activities and in organizing qualified and appropriate activities. Considerable developments in ICTs made them very important for professional development. Thus, professional development and ICTs have become an inseparable couple.

It is important and necessary to use ICTs effectively to create an appropriate professional development program just as professional development is important and necessary to learn how to use and integrate ICTs in teaching and learning processes.

Bearing this mutual and interdependent relationship in mind, the study proposes a framework for organizing professional development activities of Turkish teachers regarding ICTs with a focus on teachers' ICT-related needs, competencies and their levels of technology use.

ICT-RELATED PROFESSIONAL DEVELOPMENT OF TEACHERS

In line with the developments in ICTs, teacher competencies regarding their instructional practices, subject-matter expertise and individual competencies are determined. Instructional competency refers to teachers' skills necessary in using ICTs effectively in all phases of the teaching-learning process including course planning, preparation, teaching, measurement and evaluation. Subject-matter competency involves teachers in having relevant skills to update their knowledge of the subject through ICTs along with the skills to present their knowledge of the subject through ICTs. Finally, individual competency stands for the skills to use ICTs in accordance with individual needs and for literacy in computer use. (McNair & Galanouli, 2002). Similar to above competencies, The International Society for Technology in Education (ISTE, 2000) reviewed and refreshed the standards regarding teachers' ICT familiarity as follows:

- to demonstrate a sound understanding of technological operations and concepts,**
- to plan and design effective learning environments and experiences supported by technology,**
- to implement curriculum plans that include methods and strategies for applying technology to maximize student learning,**
- to apply technology to facilitate a variety of effective assessment and evaluation strategies,**
- to use technology to enhance their productivity and professional practice,**
- to model and teach legal and ethical practice related to technology use.**

The role of the teacher is a crucial factor in the full development and use of technology in the schools (Rodriguez, 2000). Besides, the power of ICTs is determined by the ability of teachers who are supposed to use these new tools for learning to create rich, new and engaging learning environments for their students (UNESCO, 2002a). Thus, teachers are at the center of effective ICT use.

For students to become comfortable and effective users of various technologies, teachers must be able to make wise, informed decisions about technology.

To use new technologies well, teachers not only need access to them but also need opportunities to discover what the technologies can do, learn how to operate them, and experiment with ways to apply them (OTA, 1995). Therefore, one of the most important dimensions in effective use of technology in the classroom is professional development of teachers (Mouza, 2002). Killion (1999) describes professional development in technology as an important intervention but emphasizes that in order to improve student learning, teachers have to implement their technology knowledge and experience effectively in the classroom (Rodriguez, 2000). In brief, professional development helps teachers solve particular instructional issues by indicating how technology can enable or enhance learning (Mouza, 2002).

Most countries appreciate the importance of ICT-related professional development activities and organize professional development programs to equip teachers with computer literacy along with skills to use ICTs effectively in the teaching-learning processes. An evaluation conducted after an ICT-based professional development program carried out in Cyprus led to the conclusion that professional development activities and the relevant training program positively affected teachers' individual and instructional ICT competency.

On the other hand, it was revealed that ICT-related professional development programs carried out in Europe, the United States and the United Kingdom were insufficient in equipping teachers with the necessary skills to use ICTs efficiently in teaching and learning activities (Karagiorgi & Charalambous, 2006). In order to carry out more productive professional development programs leading to higher instructional, subject matter and individual competency, it is important to design and implement programs considering teachers' current level of ICT use along with their needs regarding ICTs.

Implications of ICT-related Professional Development for Turkey:

Professional development activities in Turkey regarding ICTs are organized by the In-service Training Department Presidency (HEDB), which is governed by the Turkish Ministry of National Education. HEDB prepares annual in-service training plans to be implemented in each city by the National Education Directorates (Ozer, 2004). When activities within this plan are examined, it is observed that professional development endeavors regarding ICTs are implemented in two ways (Odabasi & Kabakci, 2007):

- **Organization of professional development activities in order to develop teachers' fundamental skills regarding ICTs**
- **Organization of activities with the help of mentor computer teachers in order to help teachers use ICTs for instructional purposes.**

Within the scope of the annual in-service training plan prepared by HEDB, several professional development activities are organized in each city to develop teachers' basic computer skills. Besides, in-service training activities for mentor computer teachers are organized both in HEDB and in cities so that they can be equipped with up-to-date knowledge and skills in using ICTs for instructional purposes.

Finally, these mentor computer teachers organize professional development activities for their colleagues so that teachers can use ICTs effectively during instruction.

Apart from the annually-implemented professional development activities of HEDB, school administrators organize such activities within the scope of school-university cooperation. School administrators implement these professional development practices with the help of expert university instructors in accordance with elementary and secondary school teachers' individual and professional needs regarding the use of ICTs for instructional purposes.

In Turkey, professional development activities are organized in accordance with the needs that came out following the technology purchase that has been made since 1998 in collaboration with the World Bank. The investment known as the Basic Education Project has been realized in two phases which led the policy makers to organize professional development activities for teachers who were not competent enough to use the new technology effectively.

Within these professional development activities, 25.000 K-8 teachers participated in in-service training activities regarding the use of ICTs (Altun-Akbaba, 2006). Based on this, it can be suggested that professional development activities conducted in Turkey are mostly organized in accordance with the technology investments and needs that came out after these investments (Odabasi & Kabakci, 2007).

In a recent study that aimed at determining how teachers use computers and perceive instructional use of computers, only 21% of the participating teachers were reported to participate in in-service training activities on computer use (Cagiltay et al., 2001).

It was inferred in the study that teachers participating in in-service training were not happy with the training. Besides, the participants mentioned that they were not exposed to sufficient practice; that sufficient time was not allotted for course contents; and that contents were not leading to practice or application. Another study focusing on teachers' Internet use revealed that only 26% of the participating teachers used computers while 9% used Internet. This result led to the conclusion that teachers did not have preliminary skills to use technology such as computer literacy (Akkoyunlu, 2002). Yildirim (2007) conducted a study to determine K-8 teachers' ICT use along with the barriers interfering with technology integration. Findings revealed that teachers used ICTs during the course preparation while they rarely used them during instruction. Besides, the most important factor interfering with ICT integration was found to be insufficient in-service training.

Yalin (2001) conducted a study to evaluate in-service training programs and found that these programs are not structured in accordance with the levels of participants. Ozer (2001) also focused on teachers' professional development and found that most teachers needed professional development activities. However, teachers mostly thought that professional development activities were not compatible with their current instructional practices and with their needs, which made them reluctant to participate in such activities (Ozer, 2004).

When the relevant literature on professional development in Turkey is reviewed, it can be stated that professional development programs for teachers addressing ICTs are either inefficient or unfruitful.

The main reasons for the failure of these professional development activities can be listed as the incompatibility between the level of training and teachers' current ICT skills, the focus on theoretical information transmission rather than hands-on-experience, and the lack of practical activities involving teachers in active use of ICTs in teaching and learning practices.

THE FRAMEWORK OF PROFESSIONAL DEVELOPMENT FOR TEACHERS' ICT USE

In order to sustain high levels of effectiveness and productivity through professional development activities, it is crucial to diagnose teachers' needs, attitudes and interests (Ozer 2004).

Therefore, it can be suggested that professional development programs for teachers' ICT use are successful when they focus on teachers' stage of technology use. The first and the most important step in teachers' having technological competence is to consider the stages of teachers' technology use.

Mandinach and Cline (1992) described four stages of teachers' technology use, namely *survival stage*, *mastery stage*, *impact stage* and *innovation stage*. Figure 1 represents teachers' stage of technology use (Based on Mandinach and Cline 1992).

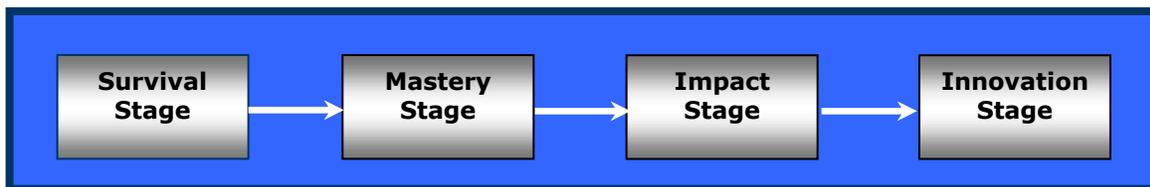


Figure: 1 Teachers' stage of technology use

In the survival stage, teachers struggle against technology, use technology only for directed instructions, have management problems, and have unrealistic expectations believing that technology itself can lead to higher academic performance.

In the mastery stage, teachers increase tolerance to hardware and software problems, increase technical competence, troubleshoot simple problems, and begin to use new forms of interaction with students.

Teachers in the impact stage are rarely threatened by technology. They regularly create technology-enhanced instructional units, regularly incorporate new working relationships and classroom structures, and share their experiences with their colleagues. Teachers in the innovation stage can modify and update themselves, their classroom and their working environment to take full advantage of technology-enhanced learning activities (Mandinach & Cline, 1992; UNESCO, 2002a).

Bearing these stages in mind, a four-stage professional development structure is proposed which aims at helping teachers use technology and integrate it into their teaching-learning practices. This structure is illustrated in Figure 2 which consists of emerging, applying, infusing and transforming stages (UNESCO, 2002b).

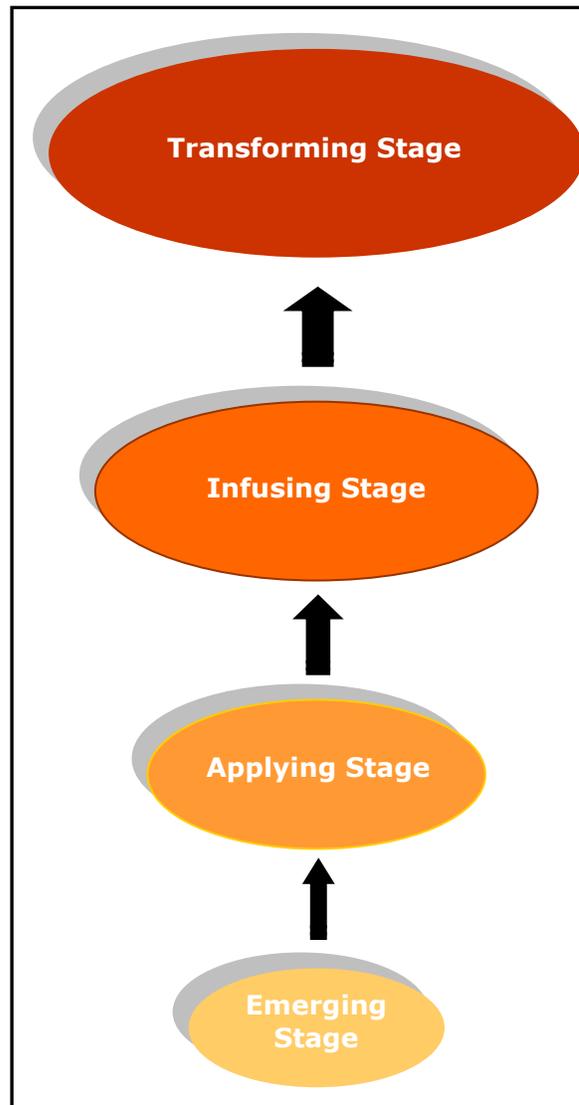


Figure: 2 The framework of professional development for teachers' ICT use

- The first stage entitled the 'Emerging Stage' involves professional development activities addressing technology literacy. In other words, this stage focuses on teachers' use of ICTs. Such an approach might help teachers develop a sense of security and trust towards ICTs.
- The second stage is called the 'Applying Stage', where professional development activities leading teachers to use ICTs in the teaching of their subject and enriching their instructional practices through ICTs are organized based on the skills that were already provided in the emerging stage.
- In the 'Infusing Stage', professional development activities are organized which help teachers to transfer their knowledge and skills into both teaching and administrative dimensions. Such activities might be organized with the help of the Internet since teachers have progressed enough in terms of technology use.
- The last stage entitled 'Transforming Stage' covers professional development activities that enable teachers to use advanced technology in both instruction and other educational endeavors to help them become experts and develop new points of views.

Educational research studies show that programs of professional development for teachers are most effective if directed to the stage of ICT development reached by schools. Among the implications of these research findings is the fact that teacher development is best conceived as an ongoing process with many professional development programs conducted in schools (UNESCO 2000b). Depending on this, in order to meet teachers' professional development needs in ICTs, an ongoing professional development program was developed based on technology use and professional development stages. Figure 3 shows the structure of this program.

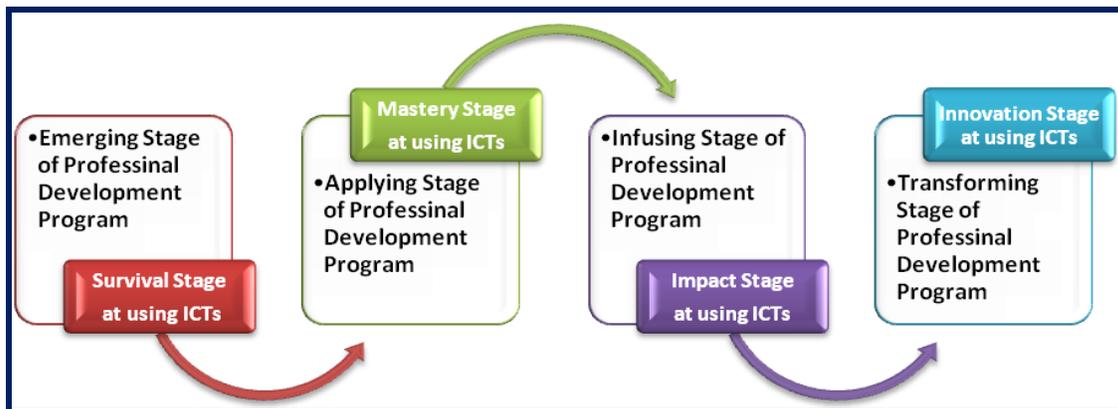


Figure: 3 The Framework of Ongoing Professional Development Programs for Teachers' ICT Usage

As can be seen in Figure 3, the most important characteristic of this structure is the fact that teachers participate in professional development programs according to the stages of technology use. The model of adult learning is taken as the basis for the implementation of ongoing professional development programs.

The grounds for the adult-learning model are to establish an appropriate learning environment, to maintain effective participation and cooperation, and to teach practical learning experiences (Lawler, 2003). As a learning environment within the ongoing professional development programs that will be executed based on this model, the Information Technology classes found in the schools where teachers work will be used.

In this way, the technical sub-structure necessary to help teachers acquire the skills in ICT use will be established. In addition, the programs will be executed by Information Technology teachers in schools who are specialists in their fields regarding ICTs. The execution of the programs in Information Technology classes by Information Technology teachers will provide the participants with appropriate learning conditions based on adult learning.

Online learning communities will be established to provide effective participation and cooperation in ongoing professional development programs. Online learning communities to be established with the use of synchronous and asynchronous tools such as e-mail, forums and chat via the Internet will enable the participants and the trainers to share the necessary sources and experiences. Moreover, online learning communities to be established with the professional development programs regarding ICT use of teachers will not only develop teachers' knowledge and skills regarding ICTs but also provide them with the opportunity to gain practical learning experiences.

For the evaluation of Ongoing Professional Development Programs for Teachers' ICT use, the portfolios to be prepared by the teachers during the program will be used. In this way, teachers will be able to gain practical experience in ICT use and make summative evaluation of the program. Another characteristic of the program that will lead to successful application of the program is the fact that teachers will participate in upper-stage professional development programs after the stage of ICT use, which is determined according to the results of the evaluations.

Based on the literature on Turkish teachers, it can be stated that teachers are still at the mastery stage of Mandinach and Cline's (1992) four stages of teachers' technology use. They urgently need to move to the impact and innovation stages. In this respect, it is considered appropriate to begin ICT-related professional development activities with the applying stage.

Following this, in order to help teachers transfer to the impact and innovation stages, professional development activities at the infusing and transforming stages can be organized. Such an approach can help teachers integrate ICTs into their instructional practices, develop their subject matter competencies through ICTs, and carry out their administrative tasks and responsibilities properly.

The Applying stage is considered as the starting point. Teachers should be encouraged to participate in professional development programs in the applying stage and transfer to the other further stages when they complete their tasks successfully.

CONCLUSION

Technology use in educational settings is accompanied with contemporary and modern concepts such as individualized learning, learner-centered instruction, effective and productive training. Lifelong learning, a contemporary and up-to-date philosophy, is also accompanied with technology. Technology use is brought forward as a new dynamic which aims at transferring traditional teaching-learning environments and teacher-learner roles.

However, the most important determinant of the teaching-learning process is still the teacher. Thus, ICT integration is mostly affected by the qualifications of teachers rather than the quality of the new technology (Odabasi & Kabakci, 2007).

In order to make utmost and effective use of technology in instructional settings, to provide learners with rich learning experiences, and to realize high-quality ICT integration, it is crucial to equip teachers with relevant knowledge, skills and attitudes regarding ICTs. Equipping teachers with such skills can only be realized by organizing effective and productive professional development activities.

Several studies have been conducted both in Turkey and in the world regarding teachers' professional development in ICTs.

These professional development activities suffer from similar problems. One of these problems is the need to develop professional development activities in a way that allows teachers to use ICTs in their instructional endeavors appropriately.

Besides, these activities should allow teachers to have hands-on-experience in technology integration. Thus, ICT-related professional development activities in Turkey need to be revised and renovated in accordance with teachers' needs.

Professional development activities regarding ICT use of teachers should be organized in a way that follows the changing needs.

That is, rather than providing teachers with one-shot ICT training activities, they should be exposed to continuous learning experiences in accordance with new developments and technologies. Professional development activities should be realized in accordance with teachers' current stages of technology use.

Sufficient time should be allotted for teachers to accept and learn technology. Besides, both formative and summative evaluations should be carried out in order to sustain the continuity and currency of professional development activities.

Finally, bearing the influence of professional development activities on participants, participants' ideas regarding professional development endeavors should be inquired in order to evaluate the effectiveness of professional development programs. Regarding the applications in Turkey, it can be stated that teachers' professional development in ICT has a long and tiring way to go.

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