



Identifying Needs: A Missing Part in Teacher Training Programs

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Abstract

Diverse compositions of student populations, changing paradigms in teaching and learning, and changing expectations about the quality of education occur in every society at an unexpected rate. In the absence of well designed professional development programs, teachers have been expected to learn how to improve their teaching on their own, learn from trial and error, and individually seek the required professional development. In the new educational era, the trial and error teaching, and take it or leave it professional development programs cannot be accepted anymore. Teacher training is more than the matter of only mastery of certain practical knowledge, pedagogical skills, and techniques. It has to concern teachers' own perception about the fields in which they don't feel knowledgeable. This article is a theoretical study intended to give an insight into teachers' training, their professional development, importance of needs analysis, and integration of needs analysis and information and communication technology in teacher preparation programs. It emphasizes that information and communication technology can enhance teachers' learning and their professional developments by giving opportunities to initiate new ideas through their training programs.

Keywords: Teacher Training, Needs Analysis, ICT, Professional Development

Introduction

A growing diversity of student population, a dynamic society and its needs, continuous changes in expectations about the quality and assessment of education plus rapid changes in information and technology, lead schools and instructors to face with tasks and greater expectations with respect to parents and society. In fact the issues for teachers and teachers' education to fulfill these requirements are ongoing and complex.

Schultz (1981) stated that investment in population quality and in knowledge determines to a great degree the future of mankind. It is already known that inadequate education is associated with poverty, unemployment and deviant behavior. As long as the quality of education is not improved, students won't be prepared for a contributing role in adult society. The key point to improve an educational system is to reform teacher education (Hallinan and Khmelkov, 2001). According to Walter, Wilkinson and Yarrow (1996) "the quality of

teaching depends on the quality of the teachers which, in turn, depends to some extent on the quality of their professional development". Without well trained, qualified and committed teachers it is impossible to deliver effectively functioning educational systems (Unwin, 2005). In fact, to meet the challenges of globalization, teachers are required to gain the necessary skills and knowledge. As Smaldino, Lowther and Russell (2008) state, the teacher in tomorrow's classrooms needs to exemplify a willingness to explore and discover new technological capabilities that enhance and expand learning experiences.

In this aspect, professional development programs for teachers have always been essentially important. Those programs enable teachers to become highly qualified by improving, increasing and advancing their knowledge through a better understanding of effective instructional strategies. On the other hand, to improve teacher quality, teacher development needs should be identified first. Based on teachers' professional needs, information and communication technology (ICT) can take on important roles in support of those professional development programs. According to Moyle (2007), professional development of teachers is conducted on the assumption that improved teacher capabilities, e.g. in integrating educational technologies into their teaching, will in turn improve student learning outcomes. In this paper, a theoretical approach is used to define a framework for effective and successful implementation and integration of information and communication technologies and need analysis in teacher training programs. The aim is to highlight a set of parameters that are essential for a successful professional development program for teachers.

Teacher Training and Professional Development

Teacher professional development is the tool by which policy makers convey broad visions, disseminate critical information, and provide guidance to teachers. It is the instruction provided to teachers to promote their development in a certain area (e.g., technology, reading instruction, subject mastery, etc.) (Gaible, Burns, 2005). Hassel (1999) considered professional development as the process of improving staff skills and competencies needed to produce outstanding educational results for students. According to Olivia and Pawlas (1997), professional development is a program of activities planned and carried out to promote the personal and professional growth of teachers. Shulman (1987) described an extensive knowledge base for teacher education. He identified seven categories of professional knowledge and four sources of such knowledge. The seven categories were content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational context, and knowledge of educational ends and purposes. He mentioned the sources of the knowledge as scholarship in disciplines, educational materials and structure, formal educational scholarship, and the wisdom of practice. Reynolds (1989), Christensen (1996), and Gore (2001) explained similar knowledge bases for teacher training.

In general, there has been a strong tradition of teacher training that emphasizes obtaining the required pedagogical skills, instructional technology, and practical experience for teachers. Hallinan and Khmelkov (2001) mentioned that as the result of the new trends in the mid-1980s, educators and policy makers shifted their attention from improving schools to improving teaching. They relied on a growing body of educational research that highlighted the critical role of the teacher in the learning process. Greene (1995) stated that teachers are expected to be the agents for educational reform, they need to be empowered to think about what they are doing and to perceive different alternatives; their perspectives on a broad range of educational issues need to be transformed and enlarged. Cheung and Cheng

(1997) also indicated that teachers should be aware of the importance of developing themselves strategically in order to achieve their personal goals and school mission and be able to formulate their own professional development plan.

It is important to remind oneself that the majority of novice teachers begin their career in a teaching environment with little or no professional assistance while expected to carry a full educational load immediately. Some new teachers may teach disciplines that differ from their area of specialization. They may be asked to teach in some fields for which they are ill prepared and receive little support, and are not evaluated based on proper criteria to improve their teaching. In fact, not only novice teachers require guidance in these areas but there are also veteran teachers whose knowledge of teaching methods should be updated. However, research shows that teachers tend to teach the way that they were taught (Ball, 1990). In fact, school teachers need professional development opportunities in order to grow professionally. Professional development of teachers plays an important role in the current global movement of educational reforms. A major study carried out by the National Foundation for Improvement of Education of the US National Education Association concluded (after interviewing over 1,000 teachers) that professional development is no longer viewed as separate from the teaching job, but must be built into the daily, weekly and yearlong job of teaching (Jegade and Taplin, 2000). Professional development is essential for teachers to develop the content knowledge and skills they need to succeed in their classroom. By improving their skills and knowledge, teachers become better prepared to create the most effective curriculum and instructional design (Vrasidas and Zembylas, 2004). It seems that attending high quality professional development programs is crucial to the future of teachers.

What is apparent in most of the recent policy initiatives in education is an attempt to re-think the teaching profession by introducing significant changes in the way that teachers are trained. The existing teacher training programs are prepared in a wide range of activities including teachers' orientation conferences, workshops and seminars, symposiums, courses, print publications, videotaping services, teacher consultations, teaching excellence centers, school teaching awards, research and training seminars.

However, due to missing ingredients in the existing programs of efficient training, those programs try to be revitalized. In spite of the importance of professional development in teacher training, traditional methods of professional development of teachers and instructors have come under severe attacks as inadequate, inappropriate and out of tune with current research about how teachers learn and how expertise is developed (Fullan, 1995; Liberman, 1995; Guskey and Huberman, 1995). Dass (1998) disagrees with the traditional form of professional development of teachers in which "everything is packaged into an afternoon, or a full day in-service session which seems to be designed as a quick-fix for teachers' inadequacies and incompetence". Sykes (1996) also regards conventional professional development of teachers as sorely inadequate. The main point is that learning does not end at the conclusion of a workshop. Teachers need continuous support to implement the skills and concepts learned in professional development programs.

Therefore, teacher training's previous models may be inadequate to satisfy the expectations and challenges to teacher preparation which have emerged from new educational initiatives. Furthermore from time to time those programs lack the necessary coordination with both the existing curriculum and the realities of the classroom in order to meet the new challenges. As Liston and Zeichner (1990) stated, in some programs trainees are exposed to weak courses focusing on pedagogy and student discipline rather than on subject matter and educational research. In other programs, the courseware focuses solely on a

liberal arts curriculum, providing no knowledge about the mechanisms that underlie the processes of teaching and learning and no practical preparation for teaching.

In fact, professional development programs for teachers should be more than a range of training workshops, meetings, and in-service days. It is a process of learning how to put knowledge into practice. According to Ruohotie (2006) and also Herrington & Herrington (2006), the development of the required professional key qualifications can be supported and enhanced so that teacher training and staff development must utilize and enhance the development of authentic learning environments. Few training programs have the resources to address all stages of career development for teachers. Paying less attention to teachers' development programs gives rise to those programs that are limited to occasional conferences or workshops, rather than a systematic on-going professional development. That's why the traditional teacher training sessions cannot stand up to the expectations and challenges that emerge from new educational initiatives. As Lieberman (1994) stated "Today, 'quick fixes' or 'single-shot workshops', or even 'weekend seminars', are no longer acceptable. Rather, professional development has come to be seen as a set of mutually reinforcing conditions that would need to be considered, understood and built over time." For successful phases of implementation, teacher training activities that address the core areas of teaching are required to be extended. The aim is to provide continuing support for teachers as they develop new skills and understandings in their teaching career.

Needs Analysis: The Missing Part

In general, needs are defined as a gap between what is expected and the existing conditions. Mitchell (1993) describes needs analysis as "an examination of the existing need for training within an organization". It identifies performance areas or programs within an organization where training should be applied. A needs analysis identifies the problem or need and then proceeds to identify the aims, content, implementation, target population and outcome of an intervention (Cohen, Manion and Morrison, 2003). According to Kaufman, Herman & Watters (1996), it is important to differentiate wants from needs. Knowing the difference between where instructors are now and where they want to be plays an important role in determining the contents of a training program. Applying need analysis before a teacher-training program defines fields in which teachers need to develop their skills. This also provides a baseline against which teacher training accomplishment can be measured.

In fact, teachers need a wide variety of ongoing opportunities to improve their skills. Effective professional development of teachers begins with an understanding of teachers' needs and their work environments (Gaible, Burns, 2005). Conrad (2000) stated that needs analysis begins with problem identification and definition. It is believed that a main step in any training program is to determine whether training is needed and, if so, to specify what that training should provide. Although the majority of teachers consider themselves to be knowledgeable and confident, at the same time, due to the new expectations and challenges, they have a perception of a gap between their current knowledge and what they need to know to become an expert teacher. If in-service teacher training programs are established with the involvement of participants, Butler (1989) considered that they will evolve to meet participants' needs, level of awareness, mastery, and concerns. Through the professional development activities, it is also important to take into account the teachers' perceived self-proficiency about the topics in which they feel knowledgeable and those in which they do not. The training programs are most effective when they are based on an analysis of these needs of the teachers.

Unfortunately needs analysis is usually ignored as a critical first step in the development of most teacher training plans. This leads to a waste of time, human resources and money while damaging the motivation and enthusiasm of the majority of people involved in those programs. According to Wanzare and Ward (2000), staff development for the twenty first century should give teachers an opportunity to contribute to programs which address their own in-service training needs.

As an initial step, in order to plan and conduct a needs analysis, different categories of needs should be considered. This helps us to determine the type of information to gather. Burton and Merrill (1991) defined six categories of needs that are used for planning and conducting a needs analysis. They are normative needs, comparative needs, felt needs, expressed needs, anticipated or future needs, and critical incident needs. Based on the category of the need, an effective planning can be designed focusing on job classification or target audience. Next, a strategy should be developed for collecting the needs' data. For instance, well-designed questionnaires can be developed and conducted among the teachers to determine their needs and also goals of the training program. Moreover, through conducting interviews data on teachers' views are gathered. The opinions of teachers help us to understand their priorities. By analyzing those data through both descriptive statistics and inferential statistical models, some of the areas which instructors mention as a need in their teaching proficiency will be identified/classified. Finally, the staff development team will develop some qualified programs based on the results.

Generally, the main aim will be to decrease gaps in teachers' proficiencies in different educational needs. It should be remembered that teachers in different branches have a wide range of specific knowledge needs. They may show different characteristics based on their education, experiences, needs, the subjects they teach, and factors affecting their perceived proficiencies. These aspects lead us to develop professional development programs with different contents and methods based on their needs and priorities. Courses which focus on the teachers' interests and needs, and enable them to reflect on and improve their practice, are those most likely to improve the quality of the school and develop the individual (Black, Harvey, Hayden and Thompson, 1994).

Unfortunately, in the existing training programs, a distinction between different groups of teachers is rarely found. Indiscriminate teacher training leads to inevitable ignorance of teachers' educational requirements. In that case, teachers will not be likely to attend and follow further professional development programs with greater enthusiasm and interest.

Information and Communication Technology (ICT) and Needs Analysis

Information and communication technologies are said to be reshaping the material basis of society (Al-Jaghoub and Westrup, 2003). In fact, Information and Communication Technology (ICT) has the capacity to support a wide range of learning activities. Those technologies have been integrated into teaching approaches of different training programs. ICT can enhance the effectiveness of information presentation to teachers and stimulate their interest using various internet and multimedia technologies. According to Duke (2002), ICT capability should in principle represent a shift from content memorization to learning to search and learning to learn. In future, the role of teachers will still result in improved student learning, but will require the teacher to have broader capabilities than content knowledge and pedagogy skills. Those teachers will need to be technologically competent and information-literate

(Smaldino *et al.*, 2008). Teachers must be equipped well to respond and guide students in centered learning environments.

In our times, ICT has been considered a facilitator of the learning process. To create new types of learning environment and to open a wealth of new educational resources, the capabilities of ICT can be utilized in facilitating teacher training programs. It can take on important roles in supporting teacher training programs by helping teachers enhance basic skills, develop curriculum and assessment resources, increasing access to information, and learn about new approaches to instruction.

Moreover, ICT provides a variety of media to deliver up-to-date information to learners. The navigational properties of ICT enable learners to search among various sources and documents in multiple locations. A convenient communication provided by ICT allows learners in various locations to share and exchange ideas by engaging in conversation with subject experts in specific fields of their studies (Smaldino *et al.*, 2008).

The impact of ICT-enabled teacher training programs is often unknown. ICT can be thoughtfully integrated into those activities, not as an add-on (technology for technology's sake) but as a tool to promote higher order learning (learning with technology) (Gaible and Burns, 2005). Similarly, with the development of new information and communication technologies, computer network technologies are used to organize, develop, manage, and administer in-service teacher training (Jung, 2001). In fact, supporting innovative models of professional development that emphasize technology-facilitated teaching and learning strategies are among proposed actions of different organizations like the Society for Information Technology and Teacher Education (SITE, 2004). Robertson, Grady, Fluck and Webb (2006) also mentioned that in their study based on effective implementation of information communication technologies in schools, professional development of teachers in the use of ICT was an important consideration. ICT can provide a flexible learning environment in that teachers will be able to involve themselves in more meaningful interaction activities through their professional development. ICT has also been expected to support individual learning processes through the preparation of a purposeful curriculum.

Furthermore, flexibility and powerfulness of ICT helps teachers to improve their training experiences (Cantoni, Tardini, Rega, Fanni, 2007), develop materials, access resources, and enable communication with experts, master teachers, and help desks. Multiple media and platforms of ICT are able to enhance teachers' development by using a combination of learning materials in various types (text, audio, video, and animations) presented in an interactive format. This will improve subject mastery and enable learner-centered and active-learning pedagogies for teachers. In an increasingly globalized world, ICT can provide support for collaboration (individuals, pairs, and groups of teachers) through the training programs. As Kozma (2003) indicated "ICT is the vehicle that will assist schools in completing the transition from the industrial to the information era".

According to Wanzara and Ward (2000), those organizations involved in in-service teacher training programs will need to address teachers' concerns related to their professional growth. Wide range application of ICT usage in schools has started public debate concerning the efficacy of using ICT in teacher training programs. Eisenberg and Johnson (1996) stated that competent use of technology skills must relate to a content area, and the skills themselves must fit together in a systematic, instructional model.

However, there is a common mistake in many teacher training approaches in that one tries to compensate a lack of needs analysis by extensive usage of ICT.

Unfortunately, it is sometimes believed that technology is the solution to a whole range of educational problems and that there is no necessity to assess the instructors' characteristics and educational needs. Whenever ICT is involved in a teacher training program, it should address teacher needs via approaches that are appropriate for conditions in their learning environments.

As Potter and Mellar (2000) also stated, training based on information technologies should address the personal and professional needs of the learners. Instructor training programs are most effective when they are based on an assessment of the priorities of instructors and context of instruction. As mentioned previously, teachers' educational needs are vital for motivating them to gain new knowledge and acquire new skills. According to Roll-Pettersson (2001), when developing a new program, failure to take in the perceived needs of the teachers might result in resistance to it. Ignorance of their needs gives rise to construction of poor quality educational materials too.

Consequently, ICT integrated programs must be arranged in such a way that the teacher should actively be involved in the learning process. Continuing old practice with the use of new ICT, without paying attention to instructors' needs, will never affect their training positively and efficiently. Similarly, Gaible and Burns (2005) stated that to be effective and successful, teacher professional development programs must be of high quality and relevant to teachers' needs. No amount of ICT can compensate for professional development programs that lack these characteristics.

In fact, one of the main purposes of applying ICT and needs analysis together is to shift teachers' approach of knowledge transmission to knowledge building in their training programs. In this way, technology will be an integral part of teacher preparation programs. In other words, those programs should not simply offer a course in educational technology, but also demonstrate effective use of technology in teaching. They should be a matter of guiding, encouraging, and facilitating rather than a rigid application of a predetermined set of procedures and skills. As De Sousa Pires (2001) stated, ICT can be a part of learning, but the starting point should be: 'what can one do with a computer which one cannot do without a computer?' Introducing ICT into professional development programs should include sufficient attention being paid to the involvement of teachers through their training process.

Application of needs analysis before using ICT leads to an appropriate context within which instructor training can be offered properly. Another advantage of this approach is to avoid the overloading of online technologies and to assist navigation through training resources. In this way, the assessment strategy will also reflect the aims and objectives of the training goals. It should always be remembered that training based on ICT must offer much more than an easy text exchange between program mentors and teachers. Here, it is important to consider that the focus should not be more on the technology than on the training methods. According to Jung (2001), if designed and used properly, information and communication technology has the potential to make teacher training more effective, affordable and flexible. Mason (2002) stated that while the basic mechanisms for getting online have improved, the need for students and tutors to adapt their learning and teaching styles to the online environment is, surprisingly, still a significant hurdle. Therefore, in all stages of teacher training programs, needs analysis should be used in support of ICT-embedded teacher development programs to produce the desired educational outcome. Otherwise, the teacher training programs will fail to utilize the benefits of an ICT culture.

Conclusion

Teachers may not be professionals and they need to be professionalized. However, from time to time, resources and training are far from being responsive to their needs and their professional roles. Sometimes, their training may even be neglected due to limited financial resources. For a satisfactory and effective teacher training program, it is absolutely essential that teachers, as the most valuable human resource in the educational systems, should be improved properly. They need a wide variety of ongoing educational opportunities to improve their teaching skills. Meanwhile, in recent years there has been a community demand from students and their parents for high-quality teaching. Being concerned about the quality of teaching in schools, empowerment of teachers to strategically develop their own professional competence is also critical for quality of education.

On the other hand, the role of ICT in teacher training programs cannot be neglected. ICT supports teachers' learning in a variety of ways by offering interactive and effective learning environments. Using ICT in the training of teachers helps them to share information and other valuable materials through cooperation and collaboration with their colleagues and instructors while managing their self-directed learning process. It should always be remembered that the use of ICT, careful instructional design, active teacher involvement, increasing teachers' motivation, appropriate teacher support services and continuous evaluation all lead to high-quality training programs. Consequently, teachers attending those programs will obtain higher levels of satisfaction and greater perceived learning. In this aspect, the major role of ICT will be quality enhancement rather than just cost reduction or labor saving.

It seems that many activities can be used to raise the status and quality of the teaching, and ensure a good supply of highly qualified and motivated teachers. However, from time to time this vision has been difficult to put into practice. Teacher training programs are required to review and develop teachers' educational knowledge and implement a program to provide a firm foundation in relevant new approaches and techniques for them. This process should be based on a well-designed needs analysis phase. A needs analysis may identify more than one training need. These needs should be prioritized, and either placed into a formal training plan, or prepare a database for future training. Information and communication technology should be considered as an important tool to enhance the quality of these training programs. ICT developments should be integrated productively in professional development programs of teachers. Hence, it is quite important to take into account the teachers' own perceptions about the areas in which they feel proficient, those in which they feel a need to be trained and those fields in which they have deficiencies but they are completely unaware of them.

The main aim of integrating ICT and needs analysis in the professional development programs of teachers is to improve their learning outcomes. Teachers should be informed and confident in integrating ICT to their educational needs. ICT applications facilitate delivery of instruction and consequently the learning process. By integrating ICT into the teaching and learning process, the required tools and environment for learning will be enhanced automatically. However, at this stage, the main attention should be paid not only to technical provision of those tools but also to satisfying the needs of different groups of teachers and understanding their perceptions of professional development activities. Maybe the focus should be changed from a teaching technology to a learning technology in teacher training programs. In short, professional development strategies of the future should be sensitive to teachers' needs as professionals and to related solutions supported by ICT. It seems that the full potential for the integration of needs analysis and ICT into the professional development programs of teachers has yet to be realized.

On the other hand, change of teaching methods cannot be achieved in a short time. Professional development of teachers must be a continuous, job-embedded, career-long process. The plans should be specifically focussed on improving teaching in all of the curriculum, instruction and assessment stages. Through integration of ICT and teachers' needs assessment, the training should fill the gap in inefficiencies of teachers and also schools. To meet the educational needs of the new global organization, teachers need continuing professional development in order to maintain and upgrade their skills. Through learning how to learn effectively, how to develop themselves professionally, and how to manage personal resources to achieve action plans they will become more aware of their own strengths and weaknesses.

Finally, an effective leader should be appointed who can manage the whole process of teacher training. She or he should have specific expertise and vision to create and head a professional development plan effectively. In addition, experts and participants should evaluate those programs regularly and necessary changes must be applied. With this approach, the use and impact of ICT on teacher training can also be regularly monitored as part of evaluation activities that help to improve the whole process of professional development plans effectively. Such evaluation process allows professional development staff to find and correct errors in implementation and identify factors that lead to success. Formative and summative evaluation can be used to program improvements.

As mentioned previously, in an effective training program teachers are prepared to work successfully in a rapidly changing social environment of schools while trying to meet the complex learning needs of students. Consequently, the society will likely attach higher value to a qualified education system and the social status of the teaching profession will rise accordingly. Such a success will lead to the revitalization of schools and related social institutions that interact with the educational systems. It is hoped that this approach will provide a starting point for further attempts to rethink and renew teacher training programs in the era of new expectations, innovations and challenges. Such attempts should provide a clear vision of high quality professional development that recognizes local needs, ICT integration, priorities and resources to improve the quality of such programs. The final aim will be to obtain a quality ICT-based professional development program for teachers.

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