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THE USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) TO IMPROVE ACCESS TO IN-SERVICE TEACHER EDUCATION PROGRAMMES FOR EDUCATIONAL DEVELOPMENT IN PAKISTAN

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ABSTRACT

The use of ICT and distance education in the delivery of professional development programmers for in-service teachers to improve access to educational opportunities is explored in this article. Further, the link between teacher development and the development of human capital to aid educational and national development is discussed. The role of ICT and distance education is highlighted in enabling this venture which eventually leads to overall educational and national development.

Keywords: Access to education, teacher education, barriers to educational opportunities, human capital theory, educational development, distance education, information and communications technology

INTRODUCTION

Equity of access to education is the right of every human being irrespective of gender, race, religion, culture etc. One of the strategies to increase and support access to education as proposed by the Dakar Framework for Education for All (EFA) is the implementation of Information and Communications Technology (ICT) in education, especially in the training of teachers of developing countries (UNESCO 2001). Trained teachers can play a vital role in educational development by contributing towards quality education of students and developing human resource, who in turn contribute to the country's economy in a productive manner to bring about national development.

The professional development of in-service teachers can be further facilitated by the use of ICT and distance education in teacher education programmes to improve access and provide them with opportunities for continuous and flexible learning. This paper discusses the issues of access to in-service teacher education programmes in Pakistan, with special reference to female teachers who face economic and other socio cultural barriers to education and how ICT can be used to help overcome these barriers to allow for teachers' education.

This paper will also look at the links between teacher education and educational development and how trained teachers can influence national development. Further, an analysis of the issue will be presented using the Human Capital Theory, which was used in the 1960's, as an approach to explain the relationship between education, employment and economic growth (Livingstone 1999) and will also be looked at in light of cultural perspectives to consider the importance of culture in development and the cultural impact of the use of ICT in teacher education. A case study of Certificate Programmes for the development of in-service teachers, offered through distance education at the Aga Khan University-Institute for Educational Development (AKU-IED) will be referred to as an example.

IMPROVING ACCESS TO IN-SERVICE TEACHER EDUCATION PROGRAMMES USING INFORMATION AND COMMUNICATIONS TECHNOLOGY FOR EDUCATIONAL DEVELOPMENT

Issues of Access To In-Service Teacher Education Programmes In Pakistan

In-service teacher education programmes, when conducted in the traditional face-to-face mode allow access to those who can afford to take leave from their jobs and domestic responsibilities. However, teachers who come from rural areas, especially the women, are deprived of opportunities for professional development and education (Abbasi and Millar 1996). In the Pakistani society, women lack educational opportunities due to cultural and historical factors (Abbasi and Millar 1996), while their male counterparts take these opportunities for granted (Mithani, Memon, Shah and Farooqui 2003). Women for the most part are expected to take on the traditional roles within family life without having to leave their homes. Doing household chores, getting married and having and caring for children take a priority over education (Farah and Bacchus 1999). Men, especially those belonging to the lower social strata, are considered to be the bread winners of the family (Mithani et al 2003) and their parents are more willing to invest in their education so as to reap the returns, as men work and support their parents and family. Female teachers also face similar issues and do not have the ease of access to in-service teacher education programmes due to these cultural and economic barriers.

How ICT Can Help Improve Access To In-Service Teacher Education Programmes

The use of ICT in the training of in-service teachers, especially in the rural areas, may assist in overcoming some of the issues of access mentioned above. ICT can play an integral role in the dissemination of knowledge and effective learning. It can create a community of learners and help teachers and students communicate across classrooms and cultures (UNESCO 2001). It is flexible enough to meet the needs of a student on an individual basis (Murphy and Greenwood 1998) and promote collaborative learning (Mc Kibben, McDonald, Holmes and Tangney 2001).

Some of the advantages of using ICT and especially, distance education to train teachers are that the teachers will not have to leave their jobs or take time off to study. In turn, their schools will also not have to bear the cost of replacing the teacher while they are away. They will have the flexibility to work on the job, study and apply their learning in the classroom during their course of study (Perraton, Creed and Robinson 2002). Women especially can benefit from this venture as they can work and study while attending to their domestic responsibilities.

Linking Teacher Education and Educational Development

The significance of education in development has been widely discussed. According to Mithani et al (2003:279),

"Education is one of the important keys to breaking the vicious circle of ignorance and exploitation and empowering human beings to improve their lives. The aim of education is to bring about all round development, which includes one's personality, mental understanding and spiritual and moral values."

Pakistan as a developing country has made and continues to make efforts to improve the quality of education for its citizens so as to create productive members of society. Educational development is not an easy task and the first steps towards improving the quality of education are to educate its teachers i.e. to invest in educational human capital and to engage in their continuous professional development. These teachers then go on to become change agents who through better teaching methodology and practices can bring about positive changes in students' learning (Khamis and Sammons 2004). By developing and investing in in-service teachers and attempting to improve the quality of education, Pakistan is developing its educational and national human resource.

ANALYSIS USING THE HUMAN CAPITAL THEORY

The human capital theory was developed by American economists Theodore Schultz (1961) and Gary Becker (1962) in the 1960's. The principles of the theory were that investments in human capital, by way of education/schooling are as important as investments in physical/capital goods that are involved in the production process and when these are properly utilized, the benefits are realized by the individual, the enterprise, the economy and society (Schultz 1961). Education was considered to be an investment which would generate 'human capital' (Vandenberghe 1999:1). The returns to investments in education would be an increase in the individual's knowledge which would lead to overall productivity in the enterprise, better job opportunities and higher incomes (Livingstone 1997). An uneducated person can contribute by providing labor but the returns on these are minor as compared to inputs by the skilled and the educated (Woodhall 2001).

Psacharopoulos (in Woodhall 2001) presented international comparisons on rates of return to investments in education to the individual and to the society which could be monetary and non-monetary. General patterns revealed that social returns are consistently lower than private rates of return, social and private rates of return to primary education have a tendency of being higher than rates of return to secondary or higher education, the rate of return to education is higher in developing countries than in developed countries and the rate of return to investment in education is higher than the average rate of return to physical capital in developing countries, though not necessarily in developed countries (Psacharopoulos and Woodhall in Woodhall 2001).

Although the Human Capital Theory was the first contribution to the economics of education issues (Vandenberghe 1999) and was popular to the education-employment-economic relations approach in the 1960's, it began losing its appeal in the 1970's when trends showed that although there was an increase in school enrolment rates, the average incomes of individuals remained stagnant; unemployment figures and the issue of underemployment was on the increase (Livingstone 1997).

The human capital theory was criticized for not taking into account the different classes of people that interacted in a workplace; their access and level of education, their economic influences and their varied impact on production; the social relations involved in the process; the returns of investing in human capital (Bowles and Gintis 1975), 'qualification escalation' (Dore 1997:9) and for its focus on individual education and on formal schooling and credentialed knowledge (Livingstone 1999). Despite these limitations, the human capital theory could be a useful theory to apply to the issue in question. Education has been seen as a contributing factor in individual, societal, economic and national development (Iredale 1996). Pakistan, with a view to development has taken up on this notion and has embarked on improving the quality of education.

The government of Pakistan realized the importance of universal literacy and the fact that education would enable its citizens to be equipped with skills to contribute to the socio economic framework of the country (Baloch 1977). The government also realized that to have a trained taskforce, trained trainers or teachers would be required and hence efforts were made to promote teacher education in Pakistan for educational development. Investments made in teacher education can reap private and social returns (monetary or non-monetary), to the teacher, the individual and the economy. Pakistan, as a developing country can get a higher rate of return on investments in education according to patterns emerging from studies carried out by Psacharopoulos (in Woodhall 2001).

The private returns on investment in education to the teacher will be an improvement in the teachers' skills, knowledge, and social status. Education provided to teachers leads to their individual development, professionalism and empowerment (Meher, Ummulbanin and Lalwani 2003, Lone, Jahan, Kiani, Khan, Ayoub and Muhammed 2003). A trained teacher has the capacity to secure a better job, better earnings or maybe a promotion after completing some form of professional development (Perraton et al 2002).

The social returns to investments in teacher education will be improvements in quality of education or educational development by improving the level of learning and attainment for students (Kingu 2003) and improvement in the nation's development due to the fact that there are more educated individuals in the market who will get better jobs due to an increase in their knowledge and skills which will eventually lead to a rise in earnings and better standards of living and better productivity in the workplace (Schultz 1961). A teacher plays a very important role in society. A teacher by his/her effective teaching methodology, thorough knowledge of content and application of skills, behaviour, ideas, beliefs and values can have great influence on a student (Sarita and Tomar 2004).

Effective teaching methods used by trained teachers in schools help in student retention and encourage them to keep on learning. Female teachers can play a positive role in influencing the education, enrollment and retention of girls in schools (King and Hill 1993, Davies 1996).

Trained teachers at a professional level can bring about development and improvement in schools, improve the quality of education, and become agents of change in their school systems (Khamis and Sammons 2004). The better trained a teacher is, the better he or she can educate (Perraton et al 2002) the next generation of citizens.

By attempting to improve the quality of education for improved human resource, trained teachers bring about educational development and eventually, national development (Brembeck 1962). Davies (1996:61) emphasizes the significance of teacher education in national development;

"Creating a teacher education institution or a course where students are invited to set their own problems and solve them is a step towards having an education system which can genuinely contribute to national transformation rather than reproduction."

Investing in teachers' education can also lead to social (non monetary) returns. Teachers by getting an education can not only benefit their schools but also their homes, families and the community at large by helping their students and people recognize their needs and working towards fulfilling those needs, helping them deal with issues of everyday life and teach them good practices and skills that are required to move ahead in life (Brembeck 1962). Women teachers can serve as role models (Farah and Bacchus 1999) for other girls and women in society by proving to them that education can lead to social and other non market returns. On the social front, an educated woman can improve her family's standard of living and secure a better job in the market. On the domestic front, by investments in education, her family can reap the non market returns. For example, an educated woman will take better care of her children with regards to health and nutrition, she will have better health and hygiene practices, she will encourage schooling for her children and she will be aware of fertility issues (Schultz 1993).

The Dakar Framework for Education for All (EFA) conference brought to light the fact that there is a need for a large taskforce of trained teachers whose skills and knowledge can no longer be treated as something that is static but ever changing (UNESCO 2001). Qualified teachers are in short supply and conventional approaches to teacher education haven't been able to meet the demands of quality in education (Perraton et al 2002). In order to facilitate continuous professional development of teachers to ensure improvement in the quality of education the Dakar Framework has suggested the use of ICT to provide access to teacher training programmes (UNESCO 2001). The use of ICT to train in-service teachers in Pakistan is one way to increase access to education for teachers for educational development. In Pakistan, many, especially women, who due to cultural constraints are unable to attend regular face to face teacher education programmes can avail of this option as they can focus on their own professional development while taking care of their work and domestic responsibilities.

Additionally, male teachers who are in the rural areas can also benefit from distance learning for their own professional development and for educational development in their regions.

Table 1:
Costs and benefits: Conventional Education vs. ICT or Distance Education

Conventional education	ICT or distance education
Teachers will have to bear the cost of residence and travel if they are attending an institution that is far from their own homes	Teachers will save on this cost as they will not have to leave their homes to study.
More faculty time is required to teach in face-to-face sessions	Less faculty time is required for materials development and tutoring
Low or no cost with regards to use of media and technology	Costly media and technology might be required
Costs with regards to student support are lower and are determined by amount of field supervision provided	Costs to student support might be higher considering isolation
<p>Opportunity costs are higher as teachers will have to take leave from their schools</p> <p>Opportunity costs for schools will also be high as they will have to bear the cost of replacing the teacher</p>	Opportunity costs are lower for both the teacher and the school as the teacher will not have to leave the school to study and the school will not have to bear additional costs to replace the teacher.
Logistical costs on transport, travel and subsistence is high	Teachers might not have to incur this cost as they will study from home

Distance learning is one of the applications of ICT (searchsmb.com), which can provide opportunities for access to education for those teachers who come from remote areas and cannot for a variety of reasons attend conventional institutions. According to Perraton et al (2002), the use of ICT or distance learning in teacher education has been seen as having high fixed and low variable costs where economies of scale come into use: with more students being enrolled, costs are reduced.

Comparisons between courses offered in the conventional mode and using ICT or distance education highlight the costs involved and detail the benefits in the following table adapted from Perraton et al (2002). According to Perraton (in Binns and Wrightson 2006) costs per student can be reduced by a third to a half by using distance education in the training of teachers. In-service teacher education programmes can be successful if they capitalize on the strengths and avoid the weaknesses detailed above.

Where necessary, programmes can be offered in mixed mode to cater for face to face teaching (Perraton et al 2002). Careful consideration on the use of ICT and the choice of media for delivery is vital for implementing ICT in teacher education; otherwise it may further marginalize those who are already at a disadvantage. Developing countries are still struggling with technology infrastructures and one must acknowledge the fact that women still have fewer opportunities for access to technology as compared to men (Wikibooks 2006).

One of the recommendations made by Abbasi and Millar (1996) which was based on a need analysis was that priority should be given to distance learning techniques and equipment capable of supporting distance learning in the rural areas. Abbasi and Millar (1996) also made a recommendation to suggest media/technologies which are most appropriate for use in Pakistan. These are audio cassettes, printed books-textbooks, posters, charts, maps etc., video cassettes, TV and radio, computer, role plays and simulation games, projectors and slides etc. (Abbasi and Millar 1996). All these, especially the printed materials could become a permanent resource for the trained teacher, which could later be accessed and used by other teachers (Perraton et al 2002).

According to Perraton et al (2002), distance education can meet the demand of the shortfall of teachers, of increasing the number of female teachers in developing countries of training untrained teachers and facilitating the ever changing role of the teacher in today's world. Distance education goes beyond conventional methods by increasing access to teacher education, disseminating knowledge and good teaching practises, strengthening the educational system by reaching the teacher and the community at large and enabling professional development of inservice teachers by strengthening the links between theory and practice (Perraton et al 2002).

By increasing access to in-service teacher education programmes, more opportunities are being created for teachers, especially females for their professional development which leads to private, social and economic returns.

Perraton et al (2002: 24) comment on the private returns to investment in teacher education by distance education:

"Distance education has been used for teachers' career development. As they seek promotion or aim for the next qualification level, or aspire to become a headteacher, or work in a teachers' college, or become an inspector, teachers need to acquire new skills".

The social returns on investments in teacher education via distance education are also enhanced by increasing access to a greater number of teachers, especially female teachers.

These teachers can contribute towards educational and national development by way of imparting better knowledge and skills, improved teaching methodology, human resource development, better application of skill and knowledge, acquisition of better jobs and eventually a rise in earnings.

ANALYSIS USING CULTURAL PERSPECTIVES

Focusing on the post-modern approaches of culture which are concerned with the "politics of culture, focusing on living, experiencing, thinking and affectingly engaged human beings who follow a myriad of particular ways of life" (Aikman and Spronk 2004:9), this analysis presents how important it is to consider culture when working on education and development, how ICT can help to remove some barriers to education for female teachers that have been constructed due to cultural constraints and the cultural impact of using ICT to educate female teachers.

According to Tucker (1997), culture means different things to different people. Approaches to understanding culture would be to look into the way of life of people: their language, ethnicity, diversity, religion, identity and community, their interaction with one another and with the global community. Culture is something that sets people apart from others. Tucker (1997) further goes on to say that culture is an important part of development. Just as development means different things to different people, culture also holds different meanings for different people. Development has in the past only been structured around economic development, but recently cultural analysis is being used to 'shape' development to make it more meaningful for the developing people. Culture cannot be isolated from development. If development were to occur in a nation, one would have to understand the culture and values of the people and what development means to them. Development otherwise would not be driven by the people but rather by external or political forces for their own advantage. Development by adopting westernized approaches doesn't work for most developing countries. A thorough understanding of people, what is meaningful to them, their culture, traditions, values etc. is necessary in the pursuit of development.

Pakistan, has a very rich culture and is very proud of its traditions. These cultures and traditions are ones that are being handed down over generations and a recognition of these cultures, especially with reference to women is very important if we are to consider any kind of development and in particular educational and other economic development.

In Pakistani culture, women play a very traditional role within their family and are encouraged to focus their entire lives around their homes (Farah and Bacchus 1999). They are given in marriage without their consent, sometimes at a very young age and once they are married their income, if they are working, becomes the earning of their household and is of no real monetary value to the women's parents (Farah and Bacchus 1999).

Some parents cannot afford the cost of education and are more willing to invest in educating the male members of the family rather than the female members as they feel that there are positive returns to investing in male members of the family due to more employment opportunities for men in the society (King and Hill 1993).

Parents are also wary of any opportunity costs involved in taking their girl child out of domestic work to send her to school (Farah and Bacchus 1999). They are more willing to educate the female members of their household if they are economically secure.

The Muslim religion of Islam does not in any way prohibit women from being educated, however, the importance given to the respect, honour and modesty of woman in the society sometimes creates a barrier for them to obtain an education (King and Hill 1993). Their access to educational institutions and mobility becomes a major factor in determining whether they can be educated or not (King and Hill 1993). If a woman is observing 'purdah' then she is sometimes restricted from being mobile in society and this creates a barrier to education (Farah and Bacchus 1999). Parents fear loss of honour and respect to the family if a woman interacts with men outside the family and of them being abducted (Farah and Bacchus 1999). Some women and girls who do venture out to get an education are vulnerable to the negative attitudes and behaviors of their teachers and abuse and harassment on their journey to school (UNESCO 2001). Educated women are also considered to be a threat to the family if they become independent thinkers and begin making their own decisions and questioning the decisions of others (King and Hill 1993). In a Pakistani society major decisions regarding women are taken by the male elders of the household, e.g. marriage, education etc.

Hence, enrolment and participation rates for girls in schools, especially in the rural areas are very low as education for women carries very little weight as it does not seem to reap any economic returns. Due to this cultural attitude towards women and education, many women are deprived of getting an education and cannot participate in training and professional development programmes.

The factors that influence these cultural barriers are interplay of economic, religious and socio-cultural barriers (Farah and Bacchus 1999). Female teachers also face similar issues. Many are deprived of further professional development because of these very same cultural barriers. If education and eventually national development in Pakistan is to be considered, these cultural issues have to be brought to light and kept in mind. Development cannot take place if these issues are ignored. The number of trained female teachers in the rural areas is low and there is a need for skilled teachers in those areas (Abbasi and Millar 1996).

Since female teachers face these barriers to education, Pakistan can increase and improve their access to education by providing them with alternate means of education. The use of ICT and especially, distance education could be a very good way to help remove cultural barriers and provide access to teachers for professional development or training programmes. They can get professional development without having to leave their homes, families and schools. Their professional development will lead to better quality education or educational development and eventually development of a better taskforce of individuals who will work towards the development of the nation.

The Aga Khan University-Institute for Educational Development (AKU-IED) in Karachi, Pakistan initiated an Open Learning Unit in 2001 with a view to provide access and flexibility in learning to educators across geographic regions.

One of the first of its kind in Karachi, Pakistan, the in-service teacher education programmes offered through Open Learning were a success and encouraged course participants to focus on alternate modes of delivery, independent study and provided access and flexibility in learning through the use of information and communications technology. The distance education courses cater to those who are unable to attend a course in the regular face to face programmes. The courses mostly use print based media with some use of audio and video resources due to the lack of access to technology (computers and internet). A virtual learning environment (VLE) has recently been introduced to integrate technology into education for on-campus course participants and distance learners who have access to technology. Since its inception, AKU-IED has offered nine Certificate Programmes in the distance education mode in various disciplines, along with offering electives for on-campus course participants who are enrolled in the Masters in Education Programme. Upto the year 2005, 124 females and 97 male teachers had enrolled in these Certificate Programmes. 76 females and 60 males successfully completed all the requirements of the programmes and were awarded Certificates.

The Aga Khan University-Institute for Educational Development is one example of an institution that uses ICT to train teachers, especially women and those who come from rural/remote areas. Enrollment and success rates show that the percentage of female teachers is higher than male teachers. Feedback received from the in-service teachers trained at the institution has been positive. The female teachers in particular, have expressed an appreciation of the effort and have mentioned that doing a professional development course by distance education has enabled them to educate themselves while not having to attend face to face sessions. They found the courses useful as they could meet all the requirements of the course while studying from home and attending to work and domestic responsibilities. Although the use of ICT to increase access to in-service teacher education programmes is a relatively new concept it is making an impact on culture. The cultural attitude towards women and education will eventually change when there is a realization of the importance of education for women and the impact that it could have on culture and development. For women, education could be the key to enhancing their status, bringing them to par with their male counterparts and providing them with opportunities for employment (Mithani et al 2003).

Education enhances an individual's role in society, increases personal opportunities and improves their quality of life (Iredale 1996). Female teachers by engaging in professional development facilitated by the use of ICT or distance education will become empowered members of society and could bring about social change. The promotion of female education will lead to better lifestyle opportunities for families. The mindset of the Pakistani nation towards women and education can be changed by introducing alternate means of delivering education for female teachers. ICT can widen access to education for female in-service teachers for cultural impact. It can introduce a culture of learning where one is not bound by space or time.

In a place where people are not aware of the importance of education and learning and schooling to them is only known in the traditional face-to-face mode, ICT can introduce alternate means of learning in a flexible manner. ICT can also promote a culture of networking and communication between teachers for purposes of collaborative learning and resource sharing.

Studies have shown that teachers trained by distance education have had quite an impact on in their communities and culture. Their communities are proud of their achievements, support their endeavors, look up to the trained teachers as responsible role models, there is an increase in the level of respect for the trained teachers from the community and empowerment of trained teacher (Binns and Wrightson 2006).

All these factors can have a positive cultural impact especially for women, where they will be regarded with respect, as knowledgeable members of the society and as role models for others within that culture. In a society where education for women is not priority, ICT can go beyond conventional methods of education to reach out to those female teachers in their homes and in their communities to bring about educational development and change in the way people perceive education and access to education for women.

CONCLUSION

In this new era of economic and technological advances where there is a need for a skilled taskforce and knowledge, education can play a vital role in developing human resource for further economic and national development. Trained teachers by imparting knowledge and skills in the society can bring about change not only in the educational systems by bringing about quality in education but also to the society as a whole.

The returns to investing in teachers' education can reap private and social returns. This venture can further be enhanced by using ICT to increase access to in-service teacher education programmes as distance education can go beyond conventional methods of teaching and reach out to those teachers who do not have easy access to education.

The use of ICT to deliver teacher education programmes can overcome the cultural and socio economic barriers that restrict female teachers from getting from getting opportunities for education or professional development.

The cultural impact of using ICT to enhance access to inservice teacher education programmes is that there will be a greater awareness of the importance of trained female teachers and how they can impact society. Female teachers can explore alternate methods of acquiring an education and engage in collaborative learning and resource sharing. All this will impact the culture towards learning and education in Pakistan.

Educational development brought about by this venture will provide for much needed quality in education in Pakistan. Pakistan will benefit as a nation by having not only a trained taskforce of teachers but also trained individuals or human resource who will contribute to society in a more effective and productive manner because of improvements in the quality of education. These contributions will lead to overall better standards of living for the citizens of Pakistan due to an increase in job opportunities for educated individuals and improvement in earnings.

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