

The Effect of Technology-Based Education on Iranian Pre-Service English Teachers' Transferable Skills

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Abstract: The current study aims at investigating the effect of technology - based education, mainly computer and the internet, on the pre-service English teachers' transferable skills. In order to achieve the goal of the study, a transferable skills' questionnaire was employed. Instead of teaching pre-service English teachers by using traditional lecture method, they worked in teams and conducted researches by means of computers and the internet. To determine the effect of the treatment on pre-service English teachers' transferable skills, transferable skills questionnaire was administered as post test following to the treatment. The findings of the study shows that the technology using skills remained stable and did not change a lot in comparison with other skills, while personal development skills were greatly developed. This proved the fact that, in the context of Iran, applying computer and the internet in education is hugely ignored and most of the students are growing computer illiterate.

Key words: Pre-service Teacher Education • Pre-service Teacher • Technology-based education • Transferable Skills

INTRODUCTION

Transferable skills which are extensively applicable are completely autonomous from disciplines. As many scholars [1] argue transferable skills can be recognized as adapting the knowledge and skills into varying situations. These skills are different from basic skills. Transferable skills are very essential for mental and personal development of the individuals. Individuals are born with some skills but these skills need to be discovered and further enhanced. The transferable skills are usually assigned to 7 groups as follow: searching skills, team working skills, communication skills, written and oral presentation skills, problem solving skills, personal development skills and using technology skills. Consequently, for effective English education, developing and using transferable skills play an important role [1].

Unfortunately, not all Iranian universities, especially teacher - training universities, have an acceptable level of access to the internet and computers. So, many university students have problems regarding the use and application of new technologies i.e. the internet and computer, in their studies and projects. More importantly, use of technology

is not extensively integrated into the syllabus and curriculum of teaching. Use of technologies especially the internet may have effect on the improvement of students skills. One group of these skills is called transferable skills. In this study we have attempted to understand whether providing Pre-Service English Teachers with computer and the internet can influence their transferable skills or not. The significance of the study stems from the nature of the subjects concentrated on. The results of this study could help Iranian government and administrators to understand the significant role of new technologies i.e. the internet and computer, in improving the processes of learning and teaching specifically improving the skills underlying these two categories. As mentioned in the Introduction, transferable skills are very important for mental and personal development of the individuals particularly for those who are going to be the future teachers of a country. So, the results of this study could offer good suggestions for those principals and authorities who are involved in providing new educational technologies for universities, in particular Teacher - Training universities across Iran. If the use of computers and the internet have influence on the pre-service teacher's transferable skills, we can say, probably, in the

future we will have technologically - educated teachers who can be beneficial both for society and for students. However, the current study was confined to a sample of Pre-service English teachers attending at Teacher - Training Universities in Iran.

Background

Use of it in Pre-Service Teacher Education

The Need for Innovative Learning Environments: Today's students are growing up immersed in digital media which they use for entertainment, communication, learning and even shopping. Students without access to digital media face the prospect of being developmentally delayed and disadvantaged. Increasingly, net generation learners will demand that educational institutions provide technology-rich learning environments [2]. As [3] proposed current learning theory concentrates on interactivity, activation of prior knowledge, connecting the theoretical to the experiential and using relevance and efficacy to assess information. In the constructivist approach, there is a primary alter in the educational paradigm from instruction to construction and delivery. Learning is not simply assimilating knowledge transmitted by textbooks and instructors but personally building and communicating knowledge [3,4]. Education research on designing learning environments that optimize learning have been identified as being learner-centered, knowledge-centered, assessment-centered and community-centered [5]. In learner-centered environments, teachers create challenges for students and its role changes from the instructivist to the constructivist [2]. Technology is a tool that can help teachers represent best practices to create enriched and collaborative learning environments, meet a variety of learning style needs, support learning transfer, address high-level thinking, make education equitable, incorporate real world problems and authentic assessments and prepare students for the need of lifelong learning [6-8, 3]. However, recent studies shows that most teachers spend few time preparing learning materials and have some conflict regarding the adoption of innovative technological learning practices that could modify their classroom schedules. The reasons they point out refer to the bad quality of the software available in the schools, the difficulties they have in getting "comfortable" in technological learning environments, the few opportunities to gain this type of professional development, the feeling that learning outcomes won't change and even the fear for the future of the profession [3]. Nevertheless, teachers acknowledge the need for technology education and recognize the importance of integrating the computer and the internet in teaching and

learning practices [8, 9, 10]. The reason for this incongruity is with teacher education programs that do not prepare them for an effective use of technologies in the classrooms: teachers only incorporate technology in their teaching practices if they feel "at ease" with technologies, but research also illustrates that when familiarized with information technologies teachers integrate technology frequently in their classroom activities [11, 1, 8]. If we believe technology can be a first step towards transforming teaching and learning, then understanding its pedagogical possibilities can assist teachers in transforming their classroom practice [11, 3].

Preparation of New Teachers: On a nationwide basis, approximately 3/4 of the college work of a pre-service teacher is taken outside a school, department, of college of education [10]. Thus, it is very important to identify potential pre-service teachers before they go through a teacher education program. Good advising for these students can contribute significantly to their success in getting into a teacher education program, graduating from such a program and then getting a teaching job. Such advising can help point Pre-Education majors toward well taught courses that are making good use of IT. Teacher education programs vary substantially in the nature and extent of IT knowledge and skills required of their students. They vary tremendously in the IT-oriented and IT-using courses that are required and/or available to students. Both of these situations provide opportunities for improving the IT education of students in a pre-service teacher education program. Colleges of education are seeking to provide beginning teachers with the skills, knowledge and attitudes necessary to infuse technology into the instructional process. It is not an easy task. In 1995, the Office of Technology Assessment (OTA) report, *Teachers and Technology: Making the Connection*, noted that although advances have been made, in far too many colleges, technology is not central to the teacher preparation experience in most colleges of education; technology instruction in colleges of education is teaching *about* technology as a separate subject, not teaching *with* technology across the curriculum; and that even though placing students with technology-using teachers in technology-rich environments can provide valuable apprenticeships and can extend the quality and quantity of "hands-on" technology experience for many teacher candidates, such placements are not always easy to find. The OTA report did find in institutions where technology was being infused that the following characteristics were evident:

- Administrators, especially deans, are key players in any effort to improve teacher preparation programs.
- Technology forged stronger connections among student teachers, mentor teachers in classrooms and university faculty, whether through lab schools, professional development schools, or traditional student placement activities.
- Electronic networks can provide a safety net for communication, knowledge and experience for student teachers in the field, as well as for new teachers launching their careers.

Tomorrow's colleges of education and schools will look much like the one described by [12] where technologies will link school computers to services providing databases, research engines (such as ERIC), electronic mail, electronic libraries and other services. "Information utilities may be the best innovation in schools since chalk!" [12]. In order to work effectively in these environments, college faculty and teachers must be literate and confident in using technologies, as well as in developing strategies for implanting the technology. While [12] may have had a broad vision of what would be in the classroom, the present concept of educational technology has not been well defined. "In educational circles mention the word 'technology' and most will defer to technology as computers" [13]. In a research study, [14] found that of a group of 106 pre-service teachers who were asked to map their ideal classrooms, 75 percent included electronic learning resources. Seventy-three percent included computers. A quarter of the pre-service teachers included video technology in their maps and, 17 percent included audio media. Two resources noted the competencies or skills pre-service teachers should acquire. [15] describe the Alabama Plan, designed to prepare practicing teachers and pre-service education students with technical skills to foster a wider use of technology in the classroom. The article lists 25 primary computer skills and 13 primary instructional-design skills for teachers. Boise State University has identified 135 computer competencies that a student must meet in order to graduate [16].

Needs and Challenges: With the fast-paced changes in the learning environments, several needs and challenges appear at the higher education level. The American Association of State Colleges and Universities' (AASCU) report entitled *Changing Course: Teacher Education Reform at State Colleges and Universities* (1995) is a compendium of over 200 successful reform initiatives.

Of this group, 10 vignettes focused on integration and/or use of technology. The common needs of these institutions included:

- Research
- Access to equipment and connectivity
- Professional development -- skills and pedagogy
- Logical scheduling/sequencing of courses
- Funds for initial cost and continuous maintenance
- Building partnerships with schools and businesses
- Placing more teachers in the field

Many challenges face deans of education as they encourage the integration of technology into the pre-service program. Even with a cooperative administration and a program in place for teaching and integrating technology, successful integration is not assured. One college that received part of a \$1.4 million grant to install multimedia equipment, college-wide networking and to conduct faculty workshops, found that after 18 months of the project, few faculty were using the skills or the products provided. Barker concluded that even with sufficient funding, changing attitudes towards integration of technology can be very challenging for a college faculty [17].

"Although everyone is expected to possess and use the skills necessary to move into the 21st century, few educators have had the opportunities and experiences necessary for successful implementation." [18] Pre-service education faculty reluctance to become comfortable with technology and integrate it into their classrooms is a major concern of surveyed deans. Several articles and papers address this problem and offer suggestions. In two articles, [19] described several strategies for pre-service teachers that have been successful in reducing computer anxiety and increasing computer confidence.

Over-emphasizing educational technology can lead to problems. According to [20], computerization does not necessarily support instructional goals. It is a misconception to believe that technology alone is a quick fix to educational problems. She suggests that technology must be accompanied by a restructuring of educational practices and, if used properly, can "promote the type of learning described as most beneficial to student development" [20].

Modeling Use of Instructional Technology: It is one thing to have technology available, but it is a different issue to have to use it as an instructional tool or method.

In a paper describing a model for technology integration into teacher education, [21] identifies three key elements for success: equipment, faculty training and expectations. Faculty should have the necessary equipment, be expected to actively include technology in their teaching and they should be trained in the use of technology. According to [21], every faculty member must have a computer on the desk and know how to use it. The computer becoming a necessary tool for the teacher is logically followed by the use of the computer in the classroom.

[22] proposed that teachers who are literate and confident in using technologies, as well as in developing strategies for implanting the technology, will be the catalyst for improving education in this country. He makes several suggestions for successfully modeling and integrating technology into professors' classrooms:

- An electronic classroom that utilizes a wide variety of equipment
- Portable technology/learning stations that can be moved from location to location as needed to provide technology in different settings
- Multimedia development/production laboratory
- Distance learning center utilizing telecommunications for exchange of ideas with remote locations
- An instructional video program that would produce segments locally

In another paper, [17] describes a model developed at Western Illinois University to prepare instructors and pre-service teachers with knowledge and expertise in a wide variety of technological resources. The model was funded by a \$500,000 grant and, among other things, helped teacher education faculty model the use of technology and integrate it into their classrooms.

General Transferable Skills: The general transferable skills are defined as abilities not limited to the learning or application of a specific subject. There is a large literature on general transferable skills, much of which produces very varied lists of what should be included under this heading.

Here, general transferable skills are identified as the following:

Communication: The ability to present a communication in written and oral form and to use language appropriately in complex argument.

Problem-Solving: The ability to identify and analyze practical issues arising in a situation and to offer a practical solution, making effective use of time and resources available

Teamwork: The ability to establish working relations with others, to interact effectively and to promote productive cooperation

Personal Development Skills: The ability to act independently, to deal with the unexpected, to reflect on one's own actions and to accept and provide constructive feedback

Technology Using Skills: The ability to use IT tools and develops that use by integrating it into their own work.

Searching Skills: Use of library to supplement information given in lectures; literature projects (finding information, both in traditional and electronic forms; critical evaluation); designing experiments; fourth-year research project

Written/Oral Presentation Skills: expressing ideas clearly, preparing written and oral presentations, speaking in society comfortably, preparing effective reports and presenting reports.

Transferability: The issue of transferability is important and relates to the nature of the skills developed in education. Some would challenge the view stated above that general transferable skills are just a language to describe what students achieve in their subject studies [2].

[2] argues that the idea of transferability of such skills is questionable; we learn to perform tasks in particular contexts and may not be able to apply them to others. For instance, the ability to communicate by means of a coursework essay describing the law of privacy does not necessarily equip a student to write a policy paper for the Law Commission, *let alone* for another government department.

The student needs to know something about the audience, the genre of writing, the appropriate register of vocabulary and so on. A graduate does not have one generic ability to communicate, but several abilities to communicate in several contexts. Skills are thus related to contexts, albeit generic rather than specific contexts. The ability to transfer learning to different contexts can be seen as a skill in its own right, or at least as a distinct

attribute in the development of skills. Transferability is an appropriate term to describe the applicability of skills from one context to another [19]. In order to talk sensibly about general transferable skills types of context in which the skills are applicable should be specified. If academic and vocational education is concerned, necessarily focusing on the skills that are specific to higher level learning and the contexts in which that kind of learning has a distinctive contribution to make is important and these are often described as professional contexts. Ways of giving students confidence and experience in making use of their skills in different contexts is also of high significance.

There is a complex interplay between the various types of skills and knowledge which contribute as a set of overlays to make the effective practitioner. One set of skills interacts with another to be mutually supportive and to build up an individual's competence.

In a similar way, general transferable skills may enable the same person to perform other specific professional or work roles, for example if s/he moves into management or politics [1] Those roles have their own specific skills requirements which have to be acquired, perhaps by further training or study, but the general transferable skills enable a wide range of such roles to be operationalised. To focus on describing general transferable skills is to focus on one overlay, but a holistic account of a student's abilities takes all the overlays together.

Methodology: To achieve the study purpose, the researcher used inferential approach to analyze the obtained data. In this study the researcher employed quasi-experimental pre-post test single group design.

Study Sample: Study sample consisted of all Pre-service English teachers attending at Teacher - Training Universities in Iran. In order for Transferable Skills Questionnaire Form to be given, a suitable random sample was selected from the study populations.

Study Instruments: Transferable Skills Questionnaire Form was developed to be used in the study. The transferable skills were classified and the questionnaire was developed with the emphasis on some researches such as [23- 26]. The questionnaire consisted of 7 main transferable skill groups. The transferable skills main groups and sub skills are: Searching skills: (finding sources, using knowledge and sources effectively, organizing information, making conclusions and summarizing skills), teamwork skills (working in groups,

respecting others' ideas, motivating people, being responsible, collaborating and making decisions with group members), communication skills (working with others positively, persuading people, respecting others, empathetic), written and oral presentation skills (expressing ideas clearly, preparing written and oral presentations, speaking in society comfortably, preparing effective reports and presenting reports), problem solving skills (noticing problems, creating new ideas, planning meetings, working independently), personal development skills (time management, being creative, working with discipline, being self-confident), using technology skills (using the computer, preparing reports with a computer, using presentation materials, conducting effective presentations). In the pilot study, the questionnaire was given to pre-service English teachers and its' Alpha reliability coefficient was calculated.

The Scoring of the Questionnaire Form Is Shown Below:

- 0 point: I don't have any skill in this field
- 1 point: I have not had any experience in this field before
- 2 point: I have noticeable skill in this field
- 3 point: I am skillful in this field

Reliability of Study Instrument: To establish reliability for the study instrument, test- retest approach was used. The instrument was used on a suitable pilot sample drawn from the study population. The instrument was administrated two times on the pilot study (at least 3 week-segmentation). Its' Alpha reliability coefficient for the pilot study responses was also calculated.

Validity of Study Instrument: To establish the validity of the study instrument, the instrument was given to a panel of specialized judges and then was modified based on their notes and recommendations.

Procedures: In the study, quasi-experimental pre-post test single group design was used. The application was conducted in different English language Departments at various teacher- training universities across Iran. At the beginning of the semester, Transferable Skills Questionnaire was administered as pre-test to the pre-service English teachers. Instead of teaching pre-service English teachers by using traditional lecture method, they worked in teams and conducted researches. The aims of the courses were teaching pre-service English teachers how to prepare a lesson plan and how to conduct the

learning activities in the classroom. Pre-service English teachers used computers and the Internet in their research process. Internet was the primary resource for students while developing the content of their presentation, searching experiments related to their subject and providing visual material. After completing their researches, pre-service English teachers presented their lesson plan in details to their classmates. After the presentations, in the discussion setting, pre-service English teachers asked questions, made comments and explained new ideas. With the help of that discussion setting the quality of the learning process was increased. In the applications, pre-service English teachers participated in the learning process actively, worked collaboratively, had opportunity to explain their ideas and discussed those ideas. To determine the effect of the applications on pre service English teachers' transferable skills, Transferable Skills Questionnaire Form was administered as post test following to the treatment. Each pre-service English teacher filled the form and evaluated their skills. At the end of the semester the pre test and post test results was compared by paired samples t -test.

Findings: The following table displays paired sample t-test results of Transferable Skills Questionnaire Form.

Paired Samples t-test Results

| Transferable skills | N | X | S | T | P |
|--|----|-------|-------|--------|------|
| Team working skills pre test | 42 | 2,513 | | | |
| Team working skills post test | | 2,637 | ,2037 | -2,762 | ,011 |
| Personal development skills pre test | 42 | 2,604 | | | |
| Personal development skills post test | | 2,756 | 2637 | -2,618 | ,013 |
| Searching skills pre test | 42 | 2,596 | | | |
| Searching skills post test | | 2,742 | ,2812 | -2,387 | ,023 |
| Problem solving skills pre test | 42 | 2,175 | | | |
| Problem solving skills post test | | 2,418 | 3245 | -3,419 | ,002 |
| Technology using skills pre test | 42 | 2,456 | | | |
| Technology using skills post test | | 2,011 | 2379 | -3,002 | ,005 |
| Written/Oral presentation skills pre test | 42 | 2,485 | | | |
| Written/Oral presentation skills post test | | 2,666 | ,3271 | -2,518 | ,021 |
| Communication skills pre test | 42 | 1,923 | | | |
| Communication skills post test | | 2,613 | ,3572 | -3,616 | ,003 |

P<,05

RESULTS

When the findings were investigated, it was seen that in all of the 7 skill groups, there is a significant increase in favor of the post test. As a result of the applications, pre service English teachers' transferable skills have been developed. As a result of the activities pre service English teachers' team working skills

developed ($t = -2,762$, $p < 0.05$). As a result of the activities pre service English teachers' personal development skills developed ($t = -2,618$, $p < 0.05$).

When the pre and post test results of searching skills investigated, it is seen that there is a statistically significant increase in favor of the post test ($t = -2,387$, $p < 0.05$). As a result of the activities, in written/oral presentation skills, there is a statistically significant increase in favor of the post test ($t = -2,518$, $p < 0.05$). Written/oral presentation is one of the most important skills in our daily lives and developing this skill is the primary aim of the education process.

As a result of the activities pre service English teachers' technology using skills developed ($t = -3,002$, $p < 0.05$). In the applications pre service teachers used computers and Internet at every stage of their study, they helped them to develop these skills. As a result of the activities pre service English teachers' problem solving skills developed ($t = -3,419$, $p < 0.05$). When the pre and post test result are compared, it is seen that there is a significant increase in favor of the post test for communication skills ($t = -3,616$, $p < 0.05$).

In the study, when the pre test and post test results are explored, it can be clearly seen that the mean score of technology using skills are lower than the other ones. This reflects our countries' reality related to the technology usage in education process. Most of the schools do not have ample technology support. Unfortunately most of the students do not have computer literacy and adequate abilities to use technology. To solve these problems, students should be taught with technology supported education at all stages of their education process. Students should be computer literates and they should learn to use Internet. In the previous study conducted by [27], it was shown that most of EFL learners studying at the university level have an insufficient computer literacy [27]. In the education process, in addition to teach pre service teachers knowledge related to the study field, it should be aimed to develop their skills and some activities should be planned to develop these skills.

Discussions and Implications: Transferable skills can be defined as skills or abilities that can be applied uniformly from one job to another. They are skills that graduates have collected through volunteer work, hobbies, community work and can be utilized in their new careers. The magnitude of transferable skills for graduates cannot be overstated. There is an increasing demand from employers, for sturdy graduates with desirable

transferable skills. In this day and age, employers look forward to graduates to not only have knowledge of their area of study or expertise, but to have the intrinsic and learned ability to acclimatize to the new working environment they will be joining, bringing exceptional communication skills, the ability to lead and be led and the confirmed ability to function efficiently and successfully. Education does not mean merely to convey knowledge, but to contribute to the holistic development of the student. Skills, such as communication skills, planning skills and technology-using skills, among others, are known as transferable skills. In the ever-changing employment market, there is a growing need for graduates to move away from the usual market, as there is a various range of jobs for them. They need to execute efficiently as soon as they take up their new slot, utilizing the many transferable skills they may have gathered during their education. Today's work environment strongly endorses the transferable skills in a graduate seeking employment. There is research going on to identify the type of transferable skills that are required by graduates.

Nowadays, it has been significant to educate students as individuals who know how to get to and use the resources and can use knowledge in daily life situations. This case advocates meaningful learning. Students should develop themselves in addition to learning knowledge. Teachers are the people who educate students; therefore they should know searching, have good communication with their colleagues, follow innovations and develop their teaching strategies to meet different needs of students [1]. For this reason, pre service English teachers should be graduated with some skills in addition to the field knowledge. Transferable skills not only assist people in their professional lives, also help them in their daily lives while adapting knowledge to varying conditions. Searching and problem solving skills are very important for teachers. Therefore the educational activities make pre service teachers search and utilize resources. Instead of traditional lecture method, intensive research homework should be specified and project studies should be considered.

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