EXPERIENCES OF TURKISH STUDENT TEACHERS IN PEDAGOGY AND EDUCATIONAL TECHNOLOGY DURING AN INTERNSHIP PROGRAM IN THE US

İsmail ŞAHİN
Selçuk University, Turkey
isahin@selcuk.edu.tr

Serkan TOY
Iowa State University, USA
serkan@iastate.edu

ABSTRACT
This quantitative research study was conducted to examine technological and pedagogical experiences of Turkish student teachers in a US Department of State sponsored international internship program. The internship program had a specific emphasis on student-centered teaching and technology integration. Turkish interns completed a 6-week teaching internship at rural Midwest high schools. The main objective of the internship program was to promote professional, cultural, and personal development of the Turkish pre-service teachers. The findings of the current study suggested that the Turkish student teachers had the opportunity to observe the professional and educational applications of computer technologies during their internship program.

Especially, those who reported to have student-centered teaching methodology, expertise in computer use, and a high level of technology integration in their teaching expressed more positive attitudes toward using computer applications for instructional purposes. Also, these student teachers reported to have observed instructional computer use by the mentor teacher, effective student learning, and a variety of teaching strategies more frequently.

Keywords: Turkish Student Teachers, Internship Program

INTRODUCTION

We have witnessed a wide spread of digital technologies in the schools over the last two decades. Among a number of developed countries, U.S. is leading these efforts and many developing countries are trying not to fall behind in providing cutting-edge educational opportunities for their youth. Some scholars suggested that the efforts to equip every classroom with computers are not justified because the technology is highly overrated as a tool to help make a difference in educating the young minds (Cuban, 2001; Postman, 1995). However, others suggested that technology could be an effective cognitive tool for learning when certain conditions are met (Becker & Ravitz, 2001; Jonassen, 1996; Mishra & Koehler, 2006).

As Becker & Ravitz pointed out, to make the technology effective tool for learning, the teachers themselves must have proficiency in using technology, have access to a reasonable number of (5 to 8) computers in their classroom, and "believe more strongly in a constructivist pedagogy that attends to making learning activities meaningful to students (rather than just transmitting content)" (Becker & Ravitz, 2001). Constructivism, a contemporary teaching philosophy, maintains that the students should no longer be the passive recipient of information but they should in fact be actively involved in constructing knowledge. Jonnasen (1996) argued that the technology should be used as a tool to learn with as opposed to using it as a teaching tool to learn from. This requires students to be in the center of learning while designing artifacts or manipulating information with technological tools. Mishra & Koehler (2006) further suggested that for an effective technology integration to occur in the classroom, teachers need to posses the knowledge of content, pedagogy, and technology.

International Student Teacher Internship Project

Parallel to rapid innovations in communication, travel and transportation technologies, the world has shrunk in an incredible size and people of the world have come into contact in many different ways as never seen before. In this fast changing world, people need to understand their own culture in a larger context of a global society and establish common understandings along which they can create mutual respect and appreciation towards each others' cultures. With similar concerns a unique international internship project called Turkish Student Teacher Internship Project, funded by U.S. Department of State, came to light.

At the core of this eight-week long project was a six-week teaching internship in an area high-school in Central Iowa. Two Turkish interns were paired with a mentor teacher who was selected for excellence as a teacher and the ability to work with and guide novice teachers. The mentor arranged activities for the students, including

observation of classes (both the mentor's and other teachers' classes), introduced the students to the school community, and helped them begin teaching–first by observing, then by assisting the mentor, and finally by taking more and more responsibility for teaching until they were teaching independently with full responsibility for lesson planning as well as teaching the class. The project had a specific focus on technology integration. In addition to mentor teachers support and guidance interns also participated in technology and content seminars at a large Mid-western university to learn more about current theoretical and pedagogical approaches in using technology in the classroom as well as effective teaching techniques in their respective content areas.

Purpose of the Study

As the internship program involved crucial elements of an effective professional development such as one-on-one mentoring, technical and pedagogical help and support, we wanted to investigate how international student-teaching experience contributed to Turkish student teachers' professional, technological, and pedagogical development. This study addressed the following research questions:

1. In the internship classrooms, how do Turkish student teachers' experiences in the following areas related to each other: personal computer use, use of computer technologies in the classrooms, instructional techniques, their perception of students' learning experiences, and instructional strategies?

2. How do Turkish student teachers' experiences vary according to their teaching methodology, computer proficiency level, and process of computer technology integration in education?

METHODOLOGY

This quantitative research study was conducted to examine technological and pedagogical experiences of Turkish student teachers in a US Department of State sponsored international internship program. In this section of the paper, the participants, instruments, procedures and data analysis of the study were explained.

Participants

Participants of the study were Turkish student teachers who took part in an international internship project in 2005 and 2006. The population for this study consisted of the total of 61 participants who completed their internship in the US. Of the participants, 80% were female (n = 49) and 20% male (n = 12). The average age of the participants was 24 years old. 46% were the first-year participants (n = 28) and 54% the second-year participants (n = 33). The student teachers were specializing in five different subject areas: Turkish language and literature, history, biology, mathematics, and English language and literature.

As presented in Table 1, all majors had enough representatives in this study but mathematics was the most representative major (n = 15) among the subject areas. The majority of the participants described their teaching methodology as evenly-balanced between teacher-directed and student-centered (n = 27). 28 participants reported their computer proficiency level as "advanced", 23 as "average," seven as "expert," and three as "beginner." Turkish students' responses were distributed across the following stages related to the process of integrating computer technology in teaching activities: creative application (n = 25), adaptation (n = 18), familiarity (n = 15), and learning (n = 2).

Table 1: Participant Demographics

Survey Item	Option	Frequency	Percent
Subject Area	Biology	14	23.0
	English Lang. &Lit.	13	21.3
	History	9	14.8
	Mathematics	15	24.6
	Turkish Lang. &Lit.	10	16.4
Teaching Methodology	More teacher-directed than student-centered	3	4.9
	Even balance between teacher-directed and student-centered	27	44.3
	More student-centered than teacher-directed	15	24.6
	Largely student-centered	16	26.2
Computer Proficiency Level	Beginner	3	4.9
	Average	23	37.7
	Advanced	28	45.9
	Expert	7	11.5
Process of Integration	Learning	2	3.3
	Familiarity	15	24.6

Adaptation	18	29.5
Creative Application	25	41.0

Instruments and Procedures

The survey was administered to the Turkish students at the end of their internship. Data were collected from two consecutive years of their participating in the project. The instrument for the data collection was a survey that was originally developed by the Centre for the Study of Learning and Performance (CSLP) at Concordia University, Canada (2007). The survey consisted of six sections:

Section 1: Participant demographics contained items regarding gender, age, subject area, teaching style, perceived computer proficiency level, and process of integration.

Section 2: The second section consisted of items regarding computer use in general and in education. A five-point Likert-type set of alternatives ranging from "*1=strongly disagree*" to "*5= strongly agree*" was used. Higher scores in this subscale indicated more positive attitudes toward personal and educational computer use.

Section 3: In this section, the participants indicated that during their internship, how frequently computer technologies were integrated into teaching activities. A five-point Likert-type set of choices ranging from "*1=never*" to "*5=always*" was used to measure the frequency level of computer use in the class. Higher scores reflected more frequently uses of computer technologies for instructional purposes.

Section 4: In this section, the participants reported how often the listed instructional techniques were used during their internship. A five-point Likert-type set of alternatives ranging from "*1=never*" to "*5=very often*" was used. Higher scores indicated more frequent use of the instructional techniques in the class.

Section 5: This section included items regarding the participants' perception of high school students' learning experiences. A five-point Likert-type set of choices ranging from "*1= strongly disagree*" to "*5= strongly agree*" was used. Higher scores reflected stronger opinions regarding student learning experiences in the class.

Section 6: The last section contained items to find out how often the mentor teacher used the listed teaching strategies during their internship. A five-point Likert-type set of alternatives ranging from "*1= never*" to "*5= very often*" was used. Higher scores indicated more frequent use of the teaching strategies in the class.

Data Analysis

In this study, descriptive statistics and correlation analysis were used. Reliability analysis, which assesses the internal consistency among sets of survey items (Mertler & Vannatta, 2002), was employed to measure the reliability of each section of the survey. Cronbach's alpha value, usually ranging from 0 to 1, was used to report the reliability. One-way analysis of variance (ANOVA) was used to test the difference between the participants' teaching style, perceived computer proficiency level, and process of integration. Statistical analyses were conducted using SPSS (Statistical Package for Social Sciences) 13.0 software.

RESULTS

Turkish Student Teachers' Experiences in Pedagogy and Technology

The first research question investigated the relationship between student teachers' experiences in the five categories: personal computer use, computer use for instructional purposes, instructional techniques, their perception of high school students' learning experiences, and instructional strategies used in internship classrooms. Before reporting on the relationship between those categories, it would be helpful to discuss the mean score for each section, which were provided in Table 2. The highest mean score indicated that Turkish students had positive attitudes toward computer use (*M*=4.30). Also, the participants stated higher levels of perceived student learning experiences (*M*=3.97) during their internship. Overall, higher uses of computers for instructional purposes (*M*=3.78), different instructional techniques (*M*=3.46), and a variety of teaching strategies (*M*=3.86) were reported by Turkish students. The data analysis suggested that the student teachers gained and observed a high level of learning experiences during their internship.

Table 2: Correlations between Variables used in the Study

Variable	1	2	3	4	5
1. Personal Computer Use	-				
2. Instructional Computer Use	0.61**	-			
3. Instructional Techniques	0.49**	0.58**	-		
4. Perceived Student Learning Experiences	0.47**	0.61**	0.72**	-	
5. Teaching Strategies	0.47**	0.58**	0.64**	0.63**	-

Mean	4.30	3.78	3.46	3.97	3.86
Std. Dev.	0.49	1.07	0.64	0.77	0.75
Std. Item Alpha	0.72	0.90	0.64	0.93	0.79

*: $p<0.05$; **: $p<0.01$

It was found that there was a strong positive relationship between those five categories based on Turkish student teachers' observations during their internship experience. For instance, the highest correlation was found between instructional techniques and perceived student learning experiences. This result suggested that the students whose teachers used a variety of instructional techniques frequently had a high level of learning outcomes. In the correlation analysis, the second strongest relationship was between instructional techniques and teaching strategies. This result showed that the mentor teachers who used different instructional techniques more also used a variety of teaching strategies more. Similar to these findings, all other correlations among the variables were high and statistically significant. In addition, the results of the reliability analyses showed that the value of the Cronbach standardized item alpha for each section of the survey was either moderate or high, confirming the reliability of the instrument.

Turkish Student Teachers' Experiences based on Teaching Methodology, Computer Proficiency Level, and Process of Instructional Computer Use

The second research question addressed the difference between student teachers' experiences based on teaching methodology, computer proficiency level, and process of computer technology integration in education. Using one-way ANOVA, the variables were examined based on the participants' teaching methodology, computer proficiency level and process of computer technology integration in education (see Table 3).

Table 3. ANOVA F-Scores for Difference between Teaching Methodology, Computer Proficiency and Process of Integration

Variable	Teaching Methodology *F*	Computer Proficiency Level *F*	Process of Integration *F*
1. Personal Computer Use	3.22*	5.35**	3.79*
2. Instructional Computer Use	3.42*	6.15**	2.09
3. Instructional Techniques	1.58	2.30	1.99
4. Perceived Student Learning Experiences	3.31*	6.48**	1.03
5. Teaching Strategies	0.95	3.14*	1.62

*: $p < 0.05$; **: $p < 0.01$

The participants who had a largely-student centered teaching methodology had more positive attitudes toward personal computer use. Similarly, the participants who had a more student-centered than teacher-directed teaching approach reported a higher level of instructional computer use by the mentor teacher and student learning outcomes during their internship. Secondly, the participants who were experts in computer use reported more positive attitudes toward personal use of computers. They also observed a higher level of instructional computer use by the mentor teacher, student learning outcomes, and use of different teaching strategies during their internship. Finally, the participants who integrated creative computer applications into teaching stated more positive attitudes toward personal computer use.

CONCLUSIONS

The findings from the current study showed that the Turkish student teachers' experiences in the following categories were all related to each other: personal computer use, computer use for instructional purposes, instructional techniques, their perception of high school students' learning experiences, and instructional strategies used in internship classrooms. The high and statistically significant correlations between and the high mean scores for these variables suggested that the Turkish student teachers had the opportunity to observe the professional and educational applications of computer technologies in education during their internship program. Especially, the ones who had student-centered teaching methodology, expertise in computer use, and a high level of integrating instructional computer technologies in education reported more positive attitudes toward using computer applications for instructional purposes. These participants were also the ones who observed better instructional computer use by the mentor teacher, higher student learning outcomes, and a variety of teaching strategies.

These results suggest that increasing the student teachers' knowledge in constructivist learning approach, computer expertise, and educational technology integration might positively affect their attitudes toward instructional computer applications. Thus, it is crucial that they have the knowledge before starting their

internship. Also, it is important to highlight that the knowledge might better help them get benefit from the internship by observing the learning and teaching activities along with instructional computer use.

The findings show that the internship program is a successful attempt to reach the desired change in pedagogy and educational technology use. Although the evaluation of the effectiveness of the project is not the purpose of this study, the findings show that the project contributes substantially to the change process of the professional and pedagogical development of Turkish student teachers. It is clear that the project provided student teachers with experiences that fostered their information technology skills by observing successful uses of technology.

REFERENCES

Becker, H. J., & Ravitz, J. L. (2001, March 2001). *Computer Use by Teachers: Are Cuban's Predictions Correct?* Paper presented at the Annual Meeting of theAmerican Educational Research Association, Seattle.

Centre for the Study of Learning and Performance (CSLP) at Concordia University, Canada (2007). Retrieved February 26, 2007, from http://doe.concordia.ca/cslp/index.php

Cuban, L. (2001). *Oversold and Underused Computers in the Classroom*. London: Havard University Press.

Jonassen, D. H. (1996). *Computers in the classroom: Mindtools for critical thinking*. Prentice-Hall, Inc. Upper Saddle River, NJ, USA

Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods: Practical applications and interpretation* (2nd ed.). Los Angeles, CA: Pyrczak.

Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A new framework for teacher knowledge. *Teachers College Record. 108*(6), 1017-1054.

Postman, N. (1995). *The end of education: Redefining the value of school* (1st Ed). New York: Knopf.