Current Trends in Educational Technology Research in Turkey in the New Millennium

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Abstract

This study examined 259 master's theses in the field of educational technology completed in Turkey during 2000-2007. The results suggested that quantity and quality of educational technology research varied according to years and universities. A great majority of the theses employed quantitative paradigm, and qualitative studies made about one fourth of the total studies. Approximately 80 % of the theses were based on descriptive models using questionnaires, tests, and scales as data gathering instruments. The samples included university students in three out of every four theses. A significant majority of the theses employed descriptive statistical techniques and only a limited number of experimental theses conducted inferential statistical analyses. The most frequently investigated topics were computer-assisted instruction, alternative teaching and learning approaches, web-based learning, difficulties in integrating information technologies into educational practice, Internet-based learning, and distance education.

Key Words

Educational Technology Research, Evaluation of Theses, Master Theses of Educational Technology.

Over the decades, the definition of educational technology has been changed. It is not constrained to "the use of audio-visual media in education" anymore. In the new millennium, the concept of educational technology covers issues from human-technology interaction to performance technologies and from computer-assisted instruction to virtual learning environments. Alkan (1997) contends that educational technology refers to operationalizing scientific knowledge produced in educational sciences by converting them into more effective teaching and learning practices.

An accurate understanding of the concept of educational technology is possible partly through grasping the radical changes in theory and practice of the field. Because research conducted over the years directly reflects those changes, the best possible way may be to analyze the existing educational technology research in details. For this purpose, a number of reviews on existing research have been conducted in different countries.

Costa (2007) reviewed 226 master's theses completed in five universities in Portugal since 1986. He found that most of the theses were completed during 2001-2005. Topics usually involved integrating information and communication technologies in educational practices. The samples of the theses generally consisted of instructional materials. Most theses employed qualitative paradigm and data were gathered through observations and interviews.

Caffarella (1999; 2007) conducted two separate reviews about doctoral dissertations on educational technology in the United States and analyzed how research topics as well as issues have changed during 1977-2006. He found that the interest on media comparison studies deceased and the number of experimental studies went down, while studies on various applications of computer-based instruction and instructional design have increased.

Altın (2004) reviewed 397 master's theses on curriculum and instruction completed in three big universities in Turkey during 1985-2002. Although not all studies in this review were related to educational technology, the results demonstrated that research topics ranged from technological matters to teacher competencies. However, a great majority of the theses were conducted with students in public schools and employed survey methods.

Şimşek and associates (2008) conducted a comprehensive analysis on doctoral dissertations in the field of educational technology in Turkey. They reviewed a total of 64 doctoral dissertations completed in five major universities during the last decade. They found that experimental studies conducted in formal education settings dominated the field; data were gathered through questionnaires, tests, and scales; popular research topics were computer-based learning, instructional design, and alternative approaches to teaching and learning. The present study extends this review to master's theses.

Purpose

The purpose of this study was to examine topics, methodologies, and results of master's theses in the field of educational technology completed in Turkey during the new millennium. The idea behind such a choice was to assess current trends in terms of the most commonly-investigated areas, the dominating methodological preferences, major issues which are worthy of discussing, and implications of the existing studies for the future research. Toward this purpose, the study focused critically upon topics, objectives, paradigms, models of investigation, samples, data-gathering instruments, statistical techniques, and results of the master's theses completed during the period of 2000-2007.

Method

The study covered master's theses completed in Anadolu, Ankara, Çukurova, Gazi, Hacettepe, Karadeniz Technical, Marmara, Middle East Technical, and Sakarya universities which comprise all the universities offering master's programs with a thesis in the field of educational technology in Turkey. The study employed a document-review approach which evaluated the population of 259 master's theses. All the theses were reviewed based on the year, topic, objective, paradigm, design/model, sampling, instrumentation, statistical analysis, results, and recommendations.

Results

The first three of the most productive universities in terms of the number of theses were Ankara University (25%), Anadolu University (17%), and the Middle East Technical University (13%). The reason for this find-

ing may be that these are the universities which have the oldest graduate programs in the field.

Although the number of theses has increased since the year 2000 gradually, the highest number of theses (n=56) was produced in 2006 (22%) and the year 2005 followed with 51 theses (20%).

As far as the topics of the theses were concerned, the most investigated area was teaching and learning approaches with 125 theses (49%), and this was followed by instructional technologies with 52 theses (20%). The least investigated areas were educational communications and administration of educational media applications, each with 2 theses.

Alternative approaches to teaching and learning were the most intensively investigated topic, followed by web-based learning. Online learning has received considerable attention recently. Within technology-related areas, educational uses of computers and the Internet have been the most heavily investigated research topic. Integration and diffusion of various technologies in educational settings have also received attention, particularly in theoretical studies. Educational websites were the dominant topic within the area of multimedia-based learning. There were a few studies evaluating distance education programs at the associate degree and undergraduate levels. Although many topics have received serious attention in master's theses, there are still many issues that were not dealt with in the current studies.

Objectives of the studies have been reported in the form of questions in 190 (73%) theses, plain sentences in 44 (17%) theses, and in the form of hypotheses in 15 (6%) theses. Interestingly, 10 (4%) theses used both questions and hypotheses in stating research objectives.

As far as research paradigms were concerned, 204 (79%) theses were based on quantitative, whereas 21 (8%) were based on qualitative paradigms and 34 (13%) theses employed mixed (integrating both quantitative and qualitative) paradigm. Within the quantitative studies, survey models (160 studies–55%) were preferred more than experimental models (79 studies-27%). Of the qualitative studies, 45 (15%) were case studies, 4 (1%) were phenomenological analysis, 3 (1%) were cultural analysis, and 2 (1%) were action research.

Approximately 27% of the theses selected their subjects/participants from higher education and adult education settings, followed by elementary education (19%) and secondary education (9%). There was

almost no study using pre-school students as subjects, although 9% of the studies used more than one sub-groups. It is interesting that 40% of the theses preferred convenient sampling, followed by random sampling (particularly in experimental studies) as one of probability sampling procedures. The theses using the whole population were about 20%. In addition to these, 11% of the studies employed purposeful sampling, 4% used cluster sampling, 1% employed stratified sampling, and another 1% used systematic sampling. Some studies employed more than one sampling technique such as both random and cluster sampling.

Approximately, one in every three theses employed questionnaire as data-gathering instrument. Test were used in one-fifth of the studies, the same ratio is also true for scales. Taking together, two-third of the theses employed questionnaires, tests, and scales. Other instruments included interview (11%), document review (8%), observation (5%), checklist (5%), personal data files (5%), video-recording of events (3%), and personal journals or reflections (1%). It seems that quantitative studies usually preferred survey instruments, while qualitative studies preferred in-depth interviews and participatory observations.

As far as statistical analysis techniques were concerned, 35% of the theses used simple descriptive statistics; 20% used t-test and 17% used analysis of variance. In general, a great majority of master's theses employed basic and intermediate level statistical techniques.

Finally, recommendations of the theses should be evaluated cautiously due to two reasons. Most of the recommendations do not appear to be functional for initiating new studies or improving the current practices of educational technologies. It is also true that majority of the recommendations are not grounded in or supported by the results of the studies, they are simply personal wishes or general views of the researchers. Generally speaking, future studies in the field of educational technology should be more concerned about accommodating individual differences (Kuzgun, & Deryakulu, 2006), technology-based training systems, teaching various types of content (Şimşek, 2006), qualitative research methodologies, and interdisplinary approaches (Gülbenkian Komisyonu, 1996).

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