



RESEARCH TRENDS OF INSTRUCTIONAL TECHNOLOGY DISSERTATIONS IN TURKEY

Kadir Yuçel Kaya, Kastamonu University, Mustafa Gulec, Sezin Esfer, Middle East Technical University, Secil Tisoglu, Kastamonu University, Ersin Kara, Middle East Technical University, Turkey

Introduction

Every planned research study begins with the analysis of previous studies and gains a new form by their help. The capacity to be able to conduct a research is crucial for graduate students to survive in their future. While graduate students try to fulfil academic requirements and to have a career advancement beyond the university, they should develop skills of research and utilize higher order thinking processes (Liu & Breit, 2013). Also, during PhD programs, they receive training on how to apply various research methods, and the variety of available methods makes it possible for students to investigate many research problems in the field. The literature indicates numerous differences between quantitative and qualitative methods in each of step in the research process, including identifying the research problem, reviewing the literature, collecting the data, analysing the data, and reporting the results (Creswell, 2008). Garrison (1991) argues that in order for learning to be meaningful, the cognitive process needs to involve critical thinking that is grounded in the analysis, synthesis, and assessment of newly acquired knowledge. When applied to mastering research methods, this argument means that students need to be in charge of their learning and take an active role in determining the context within which they acquire new content (Edwards & Thatcher, 2004).

Theoretical Framework

In 1920's, Instructional Technology (IT) viewed as Instructional Media. In 1950's IT was defined as a process. It is important to examine the research studies and doctoral dissertations based on their methodology and topics to understand the future of the IT field. When we look at the research studies, Caferalla (2005) determines the topics of computer based instruction, instructional design, simulations, games, television and video are very popular and there are a few numbers of experimental studies. In addition, the number of media comparison studies have decreased and the attention was in qualitative studies in these years (Caferalla, 2005). As Brown and Green (2014) explained; online learning, mobile devices, and social media studies continue to gain in popularity in IT. From the sampling aspect, generally, target groups are K-12 and higher education students in the recent studies (Brown & Green, 2014).

Karadag (2009) showed that thematic orientation of doctoral thesis in the field of education in Turkey was majorly on the subjects of attitude and achievement and the level of methodological qualification was not proper and the level of mistakes in studies made was quite high. These findings show that there has been important qualification problem in product of doctoral thesis made in the field of education in Turkey. Göktaş et al. (2009) state that the researchers evidently have not acquired enough experience in the practice of different research methods, which might be useful for studying and overcoming many current educational research problems. In addition, they determine that the most frequently studied samples subjects were undergraduate students and teachers. This result showed that the researchers mostly directed their research toward undergraduate level, as this provides an easy to reach sample population and convenient sampling procedures.

Erdoğan and Çağiltay (2009) have investigated 248 Master's and doctoral theses in Educational Technology and reached the conclusion that research studies in this area have been limited in scope, and have mostly been produced by only a few universities. In addition, they also found that these studies display several methodological weaknesses and there is a tendency for the studies that compares different medium to provide better learning (Erdoğan & Çağiltay, 2009). Şimşek, Özdamar, Becit, Kılıçer, Akbulut, and Yıldırım (2008) have also analysed dissertations in IT field for last decade and found that generally, experimental studies have been preferred and the sample has been chosen from K-12 students. Achievement and perception tests were the popular data collection tools among studies and there are a few studies explain validity and reliability issues and the others have serious problems (Şimşek et al., 2008).

While graduate students try to fulfil academic requirements and to have a career advancement beyond the university, they should develop skills of research and utilize higher order thinking processes (Liu & Breit, 2013). In this manner, to be successful in the process of conducting research; Sockalingam, Rotgans, and Schmidt (2011) determine that identifying a high quality research problem should be “relevant, realistic, engaging, challenging, and instructional (built upon prior knowledge)” (p.3). Based on the literature, this study is related to the research trends in terms of topic, research methods and research preferences in terms of sample selection method, sample size and sample level.

Purpose

The aim of this study is to analyse the dissertations which were published between 2002 and 2015 in IT field in Turkey. Thus, dissertations (accessible ones) were selected and their contents were analysed according to specified criteria. In this respect, the main and sub-research questions are given below:

- What are the general research trends in dissertations conducted in IT field in Turkey?
 - Which topics were studied?
 - Which research methods were used?
 - Which type of data were preferred?

- What were the sample levels?

Significance

Generally, educational researchers utilize previous studies and they gain key findings to develop their conceptual and theoretical frameworks (Karadağ, 2009). It is crucial to conduct a research study with the basis of the other studies in the literature since technology always change rapidly and scientist should be aware of all the differences and similarities from past to present. From the academia perspective, if it can be possible to examine the doctoral dissertations in our country, we may draw a general picture of Instructional Technology (IT) field and detect the trends and the situation for new studies.

Methodology

The study employs a document-review approach that evaluates the population of 197 dissertations (accessible ones) between 2002 and 2015. To gain insight into the dissertations in IT field in Turkey, this study has been conducted as a content analysis study. As stated in Fraenkel, Wallen, and Hyun (2012), content analysis has a large applicability in educational research and “a passport to listening to the words of the text and understanding better the perspective(s) of the producer of these words” (Berg, 2001; p.242). This technique can provide us “more about the social context” and its’ impacts (Cohen, Manion, & Morrison, 2007).

Scope of the Study has planned according to following criteria:

- From the first dissertations (2002) in IT field to 2016.
- Instructional Technology field covers Computer Education and Instructional Technology (CEIT) and Educational Technology (ET) departments in Turkey.
- Seven universities which have doctoral degree program in IT field.
- Online accessibility to full of the dissertations.
- Only the authors of the dissertations own statements have been accepted as data source.

Data Collection

From total 242 theses, only 197 of them were allowed to read full paper (Table 1). So the accessible ones were reviewed based on the year, topic, purpose, sample size, research design/model, sampling method, and instrumentation. Analysis of the data was based on descriptive statistics. Only open to access dissertations were included, the others which are not given permission to access were excluded. During the content analysis process, five doctoral students have worked together in order to achieve a reliable classification of the theses. Sets of the dissertations were classified due to their universities. Disagreements were discussed and resolved, and then the rest of the papers were classified by collaborative work between the researchers. Also, expert views were taken for validity issues.

Table 1: Number of thesis in each IT department and university in Turkey

Universities	Computer Education and Instructional Technology-CEIT (146 / 170)			Educational Technology-ET (51 / 72)			Sum of CEIT & ET PhD theses
	# of accessible PhD theses	# of unaccessible PhD theses	# of CEIT PhD theses	# of accessible PhD theses	# of unaccessible PhD theses	# of ET PhD theses	
Anadolu	36	4	40	0	0	0	40
Ankara	0	0	0	28	20	48	48
Atatürk	14	1	15	0	0	0	15
Gazi	15	5	20	23	1	24	44
Hacettepe	20	4	24	0	0	0	24
Marmara	1	0	1	0	0	0	1
ODTÜ	60	10	70	0	0	0	70

Results

After examining 197 dissertations regarding topic, the researchers found 20 categories. As seen in the Figure 1, the results showed that online learning (29.9%) and ICT integration (11.7%) has been the most popular topics in IT dissertations in Turkey.

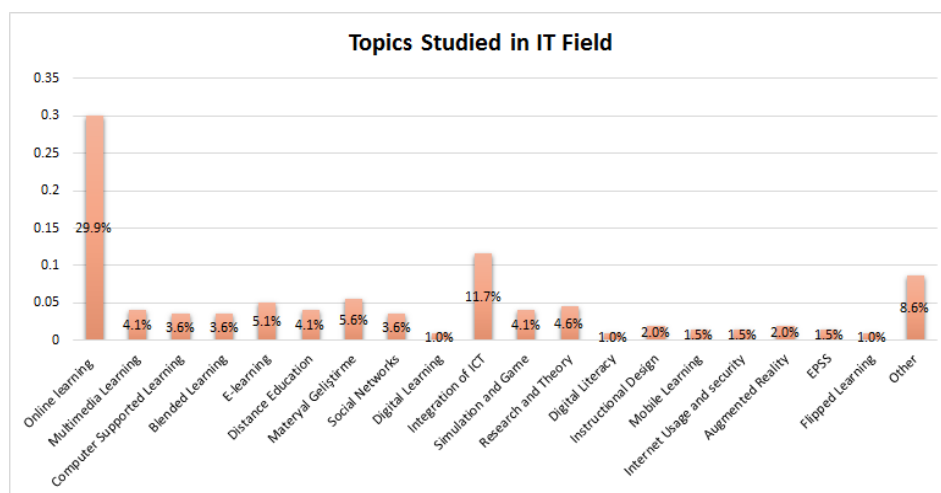


Figure 1. Preferred topics in PhD Dissertations in IT Field

As seen from the Figure 2 experimental (30.5%) has been the most used in dissertations and in order, the other popular methods in order are mixed method (26.4%), and case study (12.7%). These research methods were always popular in the past of the field as mentioned in the literature part but especially in recent years majority of doctoral students prefers case study. After 2008, design based research (9.6%) and action research (8.7%) have become more popular in IT field in Turkey and there is a trend to use qualitative research methods unlike past of the field.

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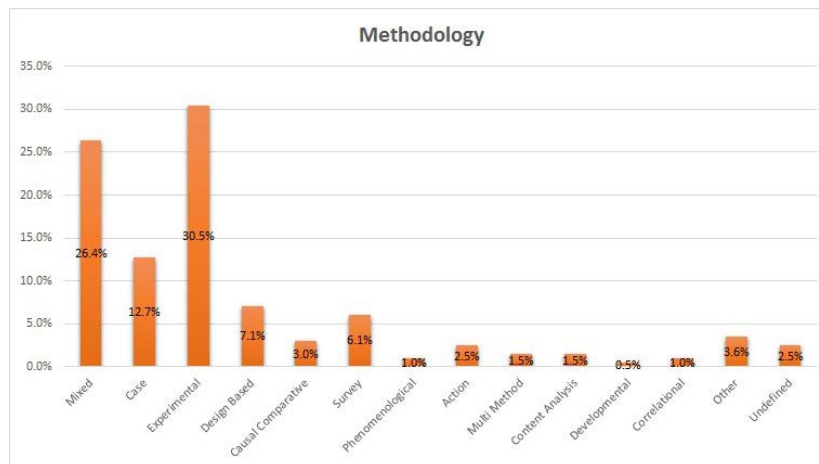


Figure 2. Preferred methods in PhD dissertations in IT field

In majority of examined dissertations, both qualitative and quantitative data (52%) have been collected and it seems like using one type data is less preferred (Figure 3). This finding can be explained by the researchers' concerns of validity while gathering the data and also it could be related with the nature of the research. At the same time, we can interpret this finding due to the researcher's methodology that they had used.

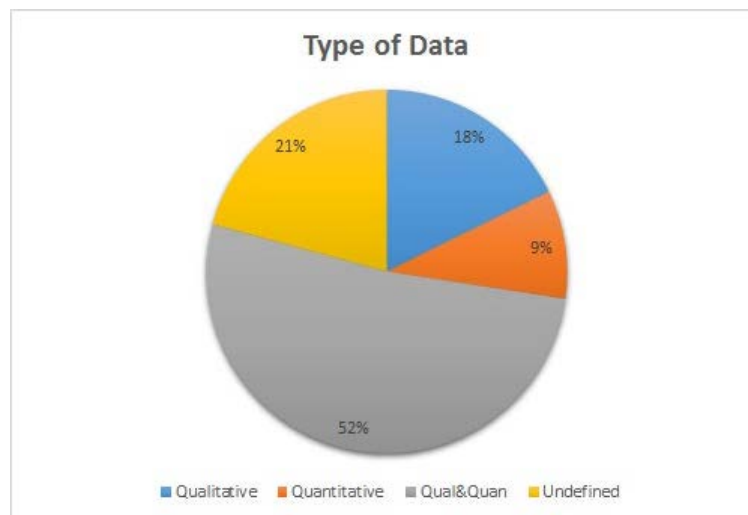


Figure 3. Type of Collected Data

Figure 4 shows that sample levels which have used in IT dissertations and it is clear that the researchers mostly tend to study with undergraduate students from Faculty of Education (44.7%; 44.7% of the dissertations, undergraduate students were preferred), teachers (12.8%) and elementary school students (6-8) (11.3%). This tendency may be related to that these students are more accessible for the researchers in a university campus or as another reason, researchers have used these participants since research question or topic require him/her do so.

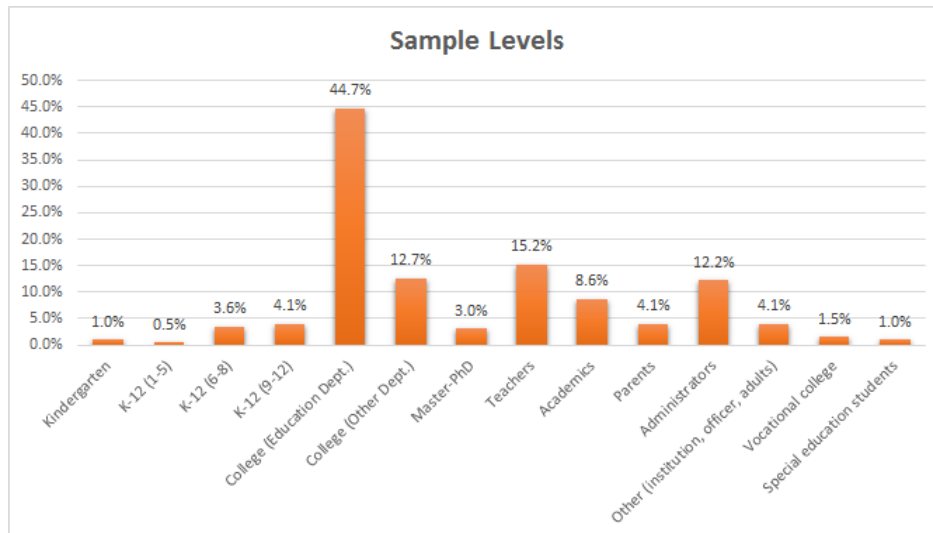


Figure 4. Sample levels in dissertations in IT field

Conclusion

Total of 197 dissertations conducted in seven Turkish universities between the years 2002-2015 were subjected to content analysis. The results showed that most of the dissertations were written based on the topics of online learning and ICT integration. Erdoğan and Çağıltay (2009) have stated that the topic of the dissertations aspect; there is a tendency for the studies which compares different instructional medium to provide better learning. In a similar vein, through the new technological and pedagogical innovations; flipped learning, mobile/multimedia learning and virtual environments have gain popularity in the scope of dissertations for the last years.

Regarding the research methods in dissertations, the popular ones are experimental and mixed methods. The reason for the predominance of this methodology may be general tendency in the world. Şimşek et al. (2008) found experimental studies have been preferred and the sample has been chosen from K-12 students in their study. In addition to this finding, mixed method is most popular in IT dissertations and as a sample level, undergraduate students had been mostly participated to studies. However, Yıldırım and Şimşek (2005) state that researchers in social sciences had a tendency to employ quantitative methodology in their studies for these years. However, based on our study, there is a growing trend to use more qualitative methods like case study, design based research or developmental research. There is still lack of using some methodologies in IT field (phenomenological, ethnography, historical), research methodologies that enables to use qualitative and quantitative data (case, design based, multimethod) to design more comprehensive research studies are began to selected and as a result, this trend can lead to use different methodologies in the future.

Göktaş et al. (2012) indicated that the most frequently studied sample subjects were undergraduate students and teachers in Turkish researchers' articles which we have similar findings in our study. Like in articles, most preferred group of population in dissertations are undergraduate students in college of Education Department and the teachers. Besides being related with the scope of the studies, sample selection strategies could be derived from the idea

of reaching the most convenient and reachable data. However, this sample selection tendency could be resulted in the lack of researches in different fields like kindergarten or special education.

To conclude, this study has some implications for our field. For instance, results of this study may be useful for future researchers in understanding the changing landscape of research methodologies in IT field. Since researchers learn not only how to conduct research differently, but also how to take apparently opposite paradigms and combine them into a complementary research design. Therefore, examining research studies in different ways can provide new questions and untouchable topics or different ideas.

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