DOCUMENT RESUME

ED 436 178 IR 019 803

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TITLE The Major Themes and Trends in Doctoral Dissertation Research in Educational Technology from 1977 through 1998.
PUB DATE 1999-02-00
NOTE 10p.; In: Proceedings of Selected Research and Development Papers Presented at the National Convention of the Association for Educational Communications and Technology [AECT] (21st, Houston, TX, February 10-14, 1999); see IR 019 753.
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Bibliographic Databases; Computer Uses in Education; Content Analysis; Department Heads; *Doctoral Dissertations; *Doctoral Programs; *Educational Technology; Higher Education; *Instructional Design; Instructional Development; Instructional Systems; Literature Reviews; *Research Methodology; Schools of Education; Tables (Data); Trend Analysis
IDENTIFIERS *Research Trends

ABSTRACT

This paper presents a content analysis of doctoral dissertations in the field of educational technology from 1977 through 1998. Specific research questions include major research themes, how the themes have changed, how the research methodologies have changed, and research trends. The author's "Doctoral Research in Instructional Design and Technology: A Directory of Dissertations, 1977-1998," containing entries for 2,689 dissertations, was used for the study. Initial analysis of the dissertation data showed a wide variety of topics being investigated. Prominent themes included research on computers, instructional development/design and systems, simulation and games, and television and video. Research methodology trends included a reduction in the number of comparison studies, a reduction in the number of experimental studies, and an increase in the number of qualitative studies. Figures present data for each year on: the number of dissertations completed; percentage of dissertations dealing with computers; percentage of dissertations dealing with instructional development, design, or systems; percentage of dissertations dealing with simulation and television; percentage of dissertations dealing with film, videodisc, multimedia, and hypermedia; percentage of dissertations using comparative research methodology; percentage of dissertations using experimental and qualitative research methodologies; programs with the largest number of graduates; and chairpersons with the largest numbers of graduates. (MES)

The Major Themes and Trends in Doctoral Dissertation Research in Educational Technology From 1977 Through 1998

By:

Edward P. Caffarella

THE MAJOR THEMES AND TRENDS IN DOCTORAL DISSERTATION RESEARCH IN EDUCATIONAL TECHNOLOGY FROM 1977 THROUGH 1998

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Each year an average of about 120 doctoral students graduate from 55 educational technology programs at universities across the United States. Each of these students completes a dissertation as part of their initial preparation as a researcher in the field. The topics for these dissertations vary widely with no standard dissertation type, topic, nor methodology within the field. This variability is reflection of the educational technology field and indicative of the multiplicity of research concerns for the students and their faculty advisors.

Statement of Purpose

The purpose of this research project was to review the dissertations that have been done in the field from 1977 through 1998. During this period of time more than 2,689 dissertations have been completed at 55 United States institutions. Approximately 87% of these dissertations were completed at the 25 larger programs. This review reveals what has been done in doctoral programs and student interest over the past two decades. The specific research questions addressed were:

What are the major themes over the past 22 years?

1. How have the themes changed over the 22 years?
2. How have the research methodologies changed over the past 22 years?
3. What trends are evident in the field?
4. What are the emerging trends in dissertation research?

The answers to these questions lead to a better understanding of doctoral dissertation research in the field of educational technology but also an understanding of the evolving nature of the field as reflected in the research.

Methodology

The methodology used in this study was a content analysis. The use of content analysis enabled the researcher to identify major constructs within the dissertation research and to classify these constructs. Content analysis, as described by Weber (1990), has been used in a number of studies to show trends within a field or body of literature. The basic premise of content analysis is to classify words of text into content categories. This technique was used by Ely (1996) in his series of reports on trends in the field. Insch, Moore, and Murphy (1997) provide further support that content analysis is an appropriate methodology for analyzing written textual materials. Evans (1996) describes recent advances in computer software for supporting content analysis.

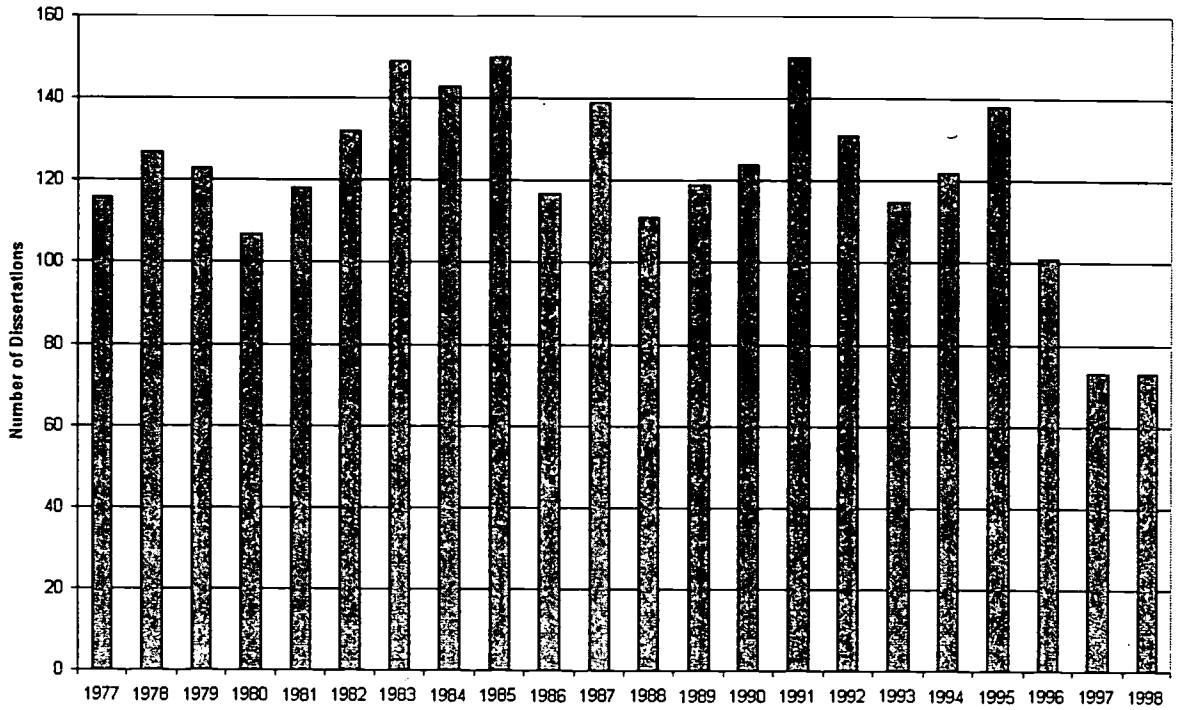
The *Doctoral Research in Instructional Design and Technology: A Directory of Dissertations, 1977-1998* (Caffarella, 1999) database of dissertations was used in this study. This database is available on the Web at http://www.edtech.unco.edu/disswww/dissdir.htm. The database directory is divided into five major sections including the student listing, key word in context index, institution listing, chairperson listing, and year listing. The student section lists the student's name, graduation year, dissertation title, institution, and chairperson. The key word in context index makes it possible to look up any of the major words in a title. The institution section lists all of the dissertations completed at a specific institution. The chairperson section lists all of the dissertations directed under the guidance of a particular chairperson. The year index lists all dissertations completed in a particular year. These indexes provide access to the dissertation data in a variety of ways.

The data for the directory is supplied directly by the universities in the United States offering graduate programs in instructional design and technology. These various programs are offered under a wide variety of titles including educational technology, instructional development, educational media, instructional technology, and instructional systems. The basic list of institutions was taken from the list of doctoral programs in the *Educational Media and Technology Yearbook 1996* (Ely & Minor, 1996). This list was checked against the membership list for the Professors of Instructional Design and Technology for the locations of additional programs. The intent was to be as inclusive as possible so that the wide variety of dissertations in the field of instructional design and technology would be included in the directory. The decision to participate and which dissertations to submit was left to the individual institutions.

The directory currently contains entries for dissertations completed by 2,689 students during the period from 1977 through 1998. As shown in figure 1, the dissertations are distributed relatively evenly over the years with an average of approximately 120 dissertations completed each year. The numbers shown for 1997 and 1998 are

probably underestimates of the actual number of dissertations. Due to the way dissertations are reported the institutions tend to be delayed in forwarding the entries and there are always additions to the database that are for dissertations completed two to three years earlier.

Figure 1. Number of Dissertations Completed for Each Year from 1977 through 1998



The dissertations were coded using multiple coding points to identify the major themes and constructs within the field. The QSR NUD*IST software was used for the coding and the analysis. The coding was an evolutionary process of data extraction and reduction to identify both major themes and trends within the dissertation research.

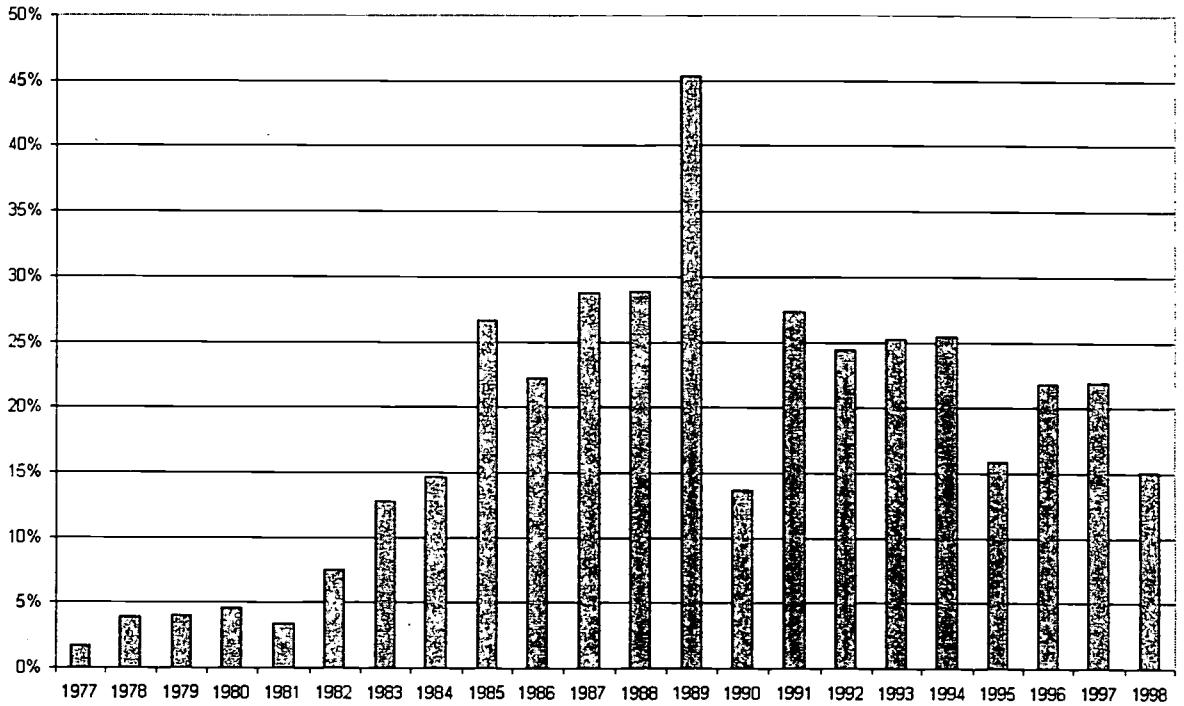
Ely (1996) did a similar, but different, content analysis study of literature sources in the field. His study was limited to one year but included journals, dissertations, conferences, and ERIC documents with the overall purpose of identifying trends for a single year, 1995. Among his documents were 37 dissertations from five large doctoral programs completed during that year. This study builds upon the Ely study but looks at only dissertations for multiple years.

Findings

Initial analysis of the dissertation data showed a wide variety of topics being investigated by students in the educational technology field. This is indicative of the eclectic nature of the field of educational technology and the widely divergent topics that are included in the field. There are no predominate themes or topics for the dissertation research. There were, however, several themes that were prominent in the data that will be discussed in the following section.

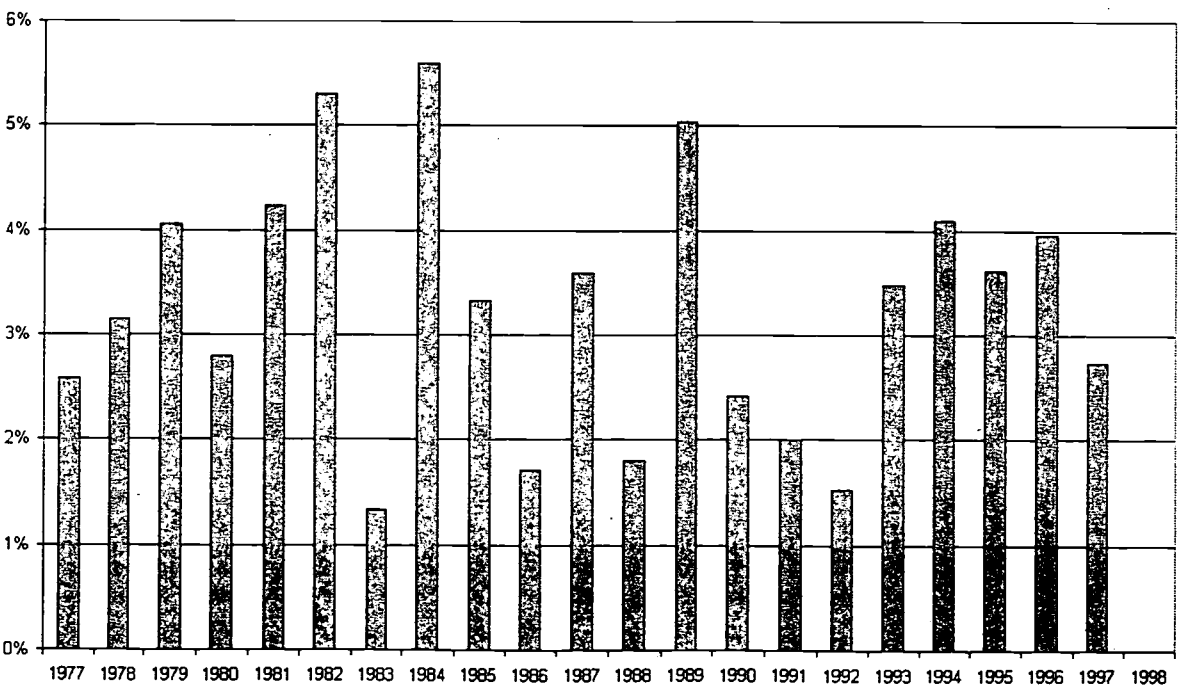
Clearly the most popular topic was research on and about computers. This took many forms including appropriate uses, software design, individual differences, as well as the effectiveness of computers as a teaching tool. As shown in Figure 2, the number of studies dealing with computers grew with the introduction of microcomputers. The Apple II was introduced during the late 70s, the IBM PC arrived in the early 80s, and the Macintosh was released in the mid 80s. With the introduction of each of these technologies there was an increase in the number of studies and for the past 14 years between 15 percent and 25 percent of all dissertations have dealt with computers.

Figure 2. Percentage of Dissertations Dealing with Computers for Each Year



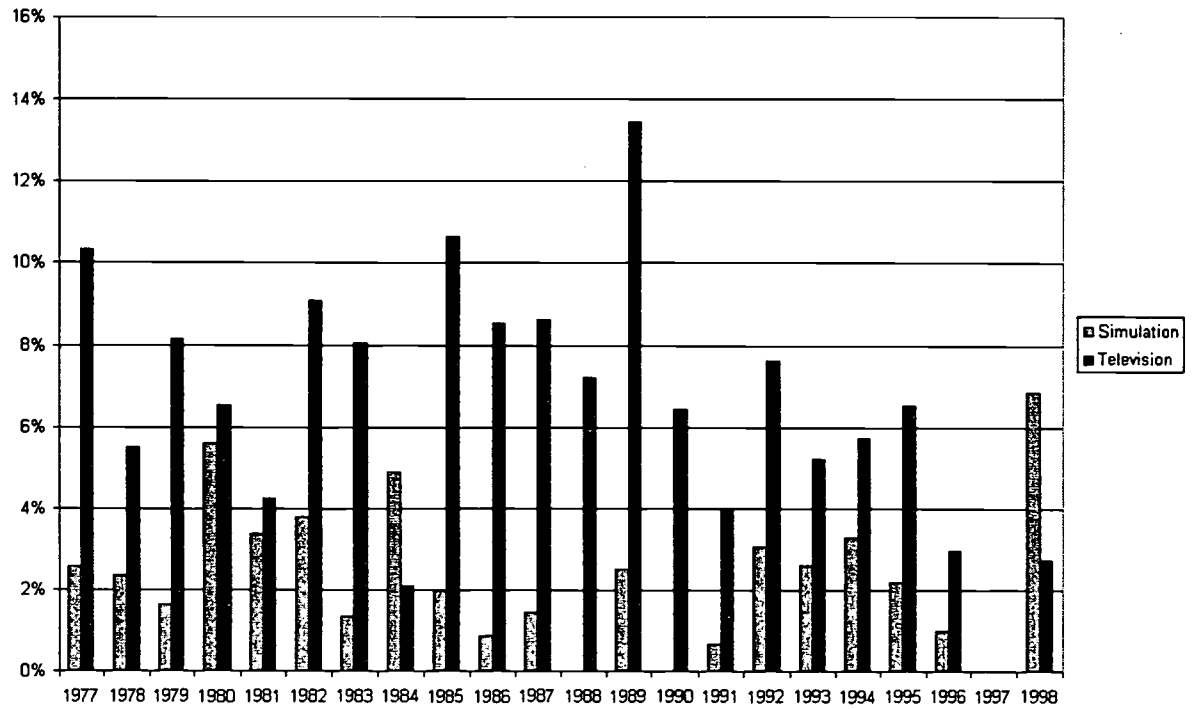
One theme that was constant throughout the 22 year period was research on instructional development, instructional design, and instructional systems development (see Figure 3). This research amounted to approximately two percent to five percent of the dissertations in a given year. This was not an overwhelming number of dissertations but was the most constant theme of interest over the years.

Figure 3. Percentage of Dissertations Dealing with Instructional Development, Instructional Design, or Instructional Systems Development Each Year



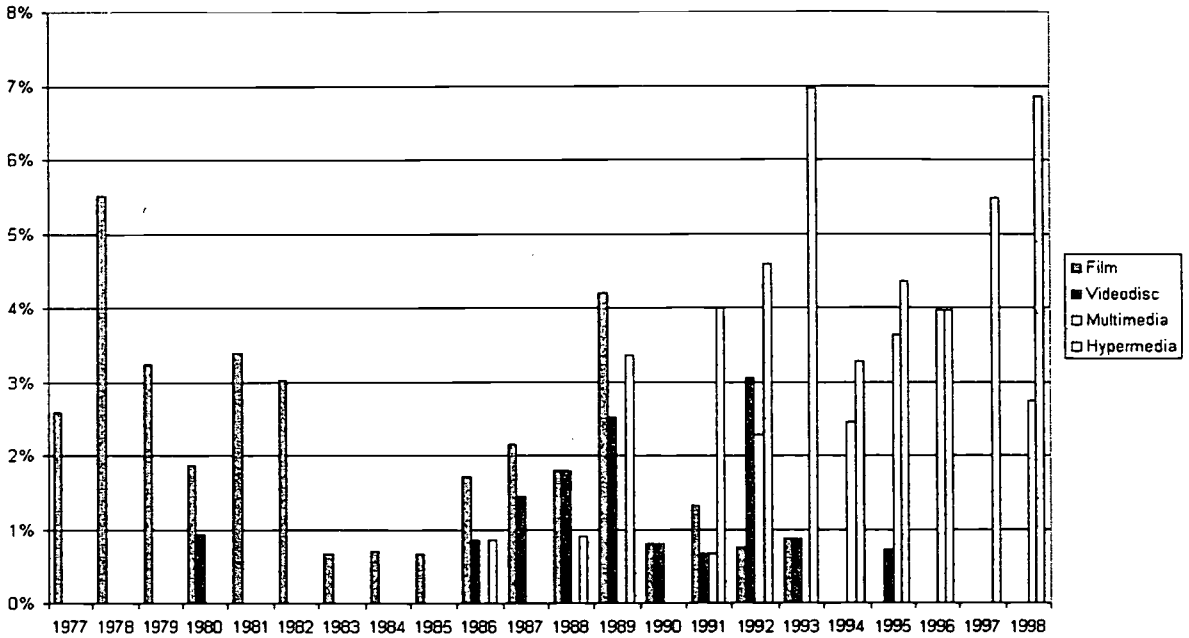
Two other themes seemed to persist throughout the period although both had years of popularity and years with very little research. These themes, shown in figure 4, are (a) simulation and games and (b) television and video. The kinds of research done on these topics varied greatly over the 22 years. The early simulation and game research was largely process and design related while the more recent research has looked at simulations and games within a computer environment. Likewise, the television research followed the evolution and change of this technology.

Figure 4. Percentage of Dissertations Dealing with Simulation and Television for Each Year



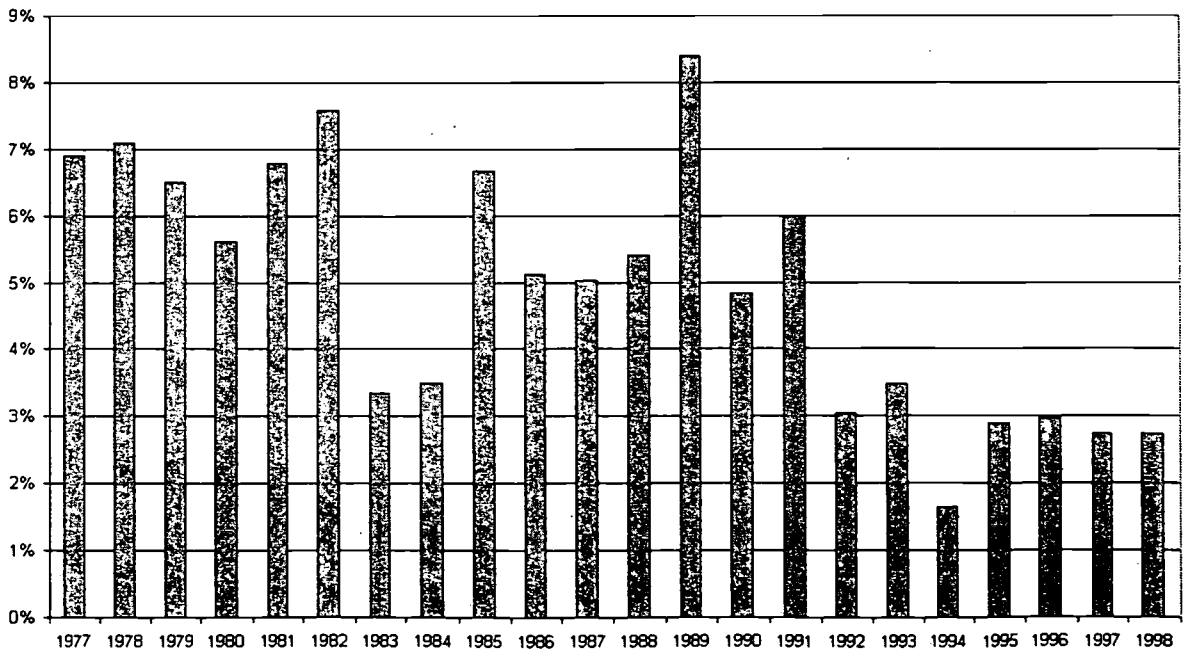
As might be expected, at any given point in time there is research dealing with the newest hardware/software technologies. For example, many studies in the late seventies dealt with the use of film and video but more contemporary studies have dealt with computer applications. The growth of research on computing, shown in figure 1, is one example of this change. The changing nature of the field of educational technology and the tendency of dissertation research to follow the new developments can be seen clearly in Figure 5. During the early years film research was a major segment of dissertation research. During the middle years research utilizing videodiscs was popular amongst doctoral students. In recent years multimedia and hypermedia have been major topics for research.

Figure 5. Percentage of Dissertations Dealing with Film, Videodisc, Multimedia, and Hypermedia for Each Year



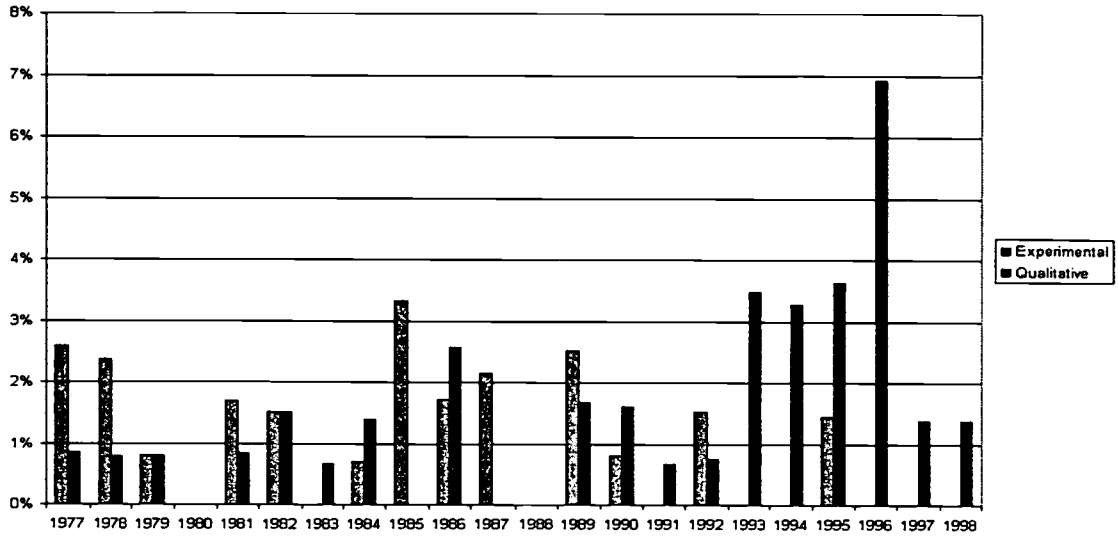
The research methodologies used in the dissertations show some interesting trends. The most startling trend is the reduction in the number of comparison studies from 1977 until 1998 as shown in Figure 6. Many of these studies compared one medium against another medium to determine if one medium was inherently better than the other. In 1983 Clark (1983) wrote about the problems with comparison studies and launched a debate that continued into the early 90s. During the late 70s, comparison studies represented around 7% of all dissertation research. During the late 80s and early 90s the number of comparison studies had dropped to around 5%. For the last five years comparison studies have accounted for less than 3% of dissertation studies.

Figure 6. Percentage of Dissertations Using Comparative Research Methodology for Each Year



Another clear shift in research methodology can be seen in a reduction in the number of experimental studies and an increase in the number of qualitative studies. In the late 70s, very few qualitative studies were done by students (see Figure 7) and these studies were clearly the exceptions to the norm. Now dissertations with qualitative research designs make up a substantial proportion of the studies and exceed the number of experimental studies.

Figure 7. Percentage of Dissertations Using Experimental and Qualitative Research Methodologies for Each Year



Institutions Offering Doctoral Programs

There were 55 institutions who graduated students with doctoral degrees in educational technology during the period 1977-1999. The programs with the most graduates included Indiana University, Boston University, the University of Southern California, Syracuse University, and Florida State University. Figure 8 shows the relative numbers of graduates for the 25 institutions with the largest numbers of graduates. These institutions graduated 2,287 students while the remaining 30 institutions graduated only 402 students. There is a clear variability in the size of the doctoral programs with many extremely small doctoral programs. Interestingly only four of the 25 are private institutions with the vast majority of large educational technology programs offered at public institutions.

Figure 8. Twenty-Five Programs with the Largest Number of Graduates from 1977 through 1998

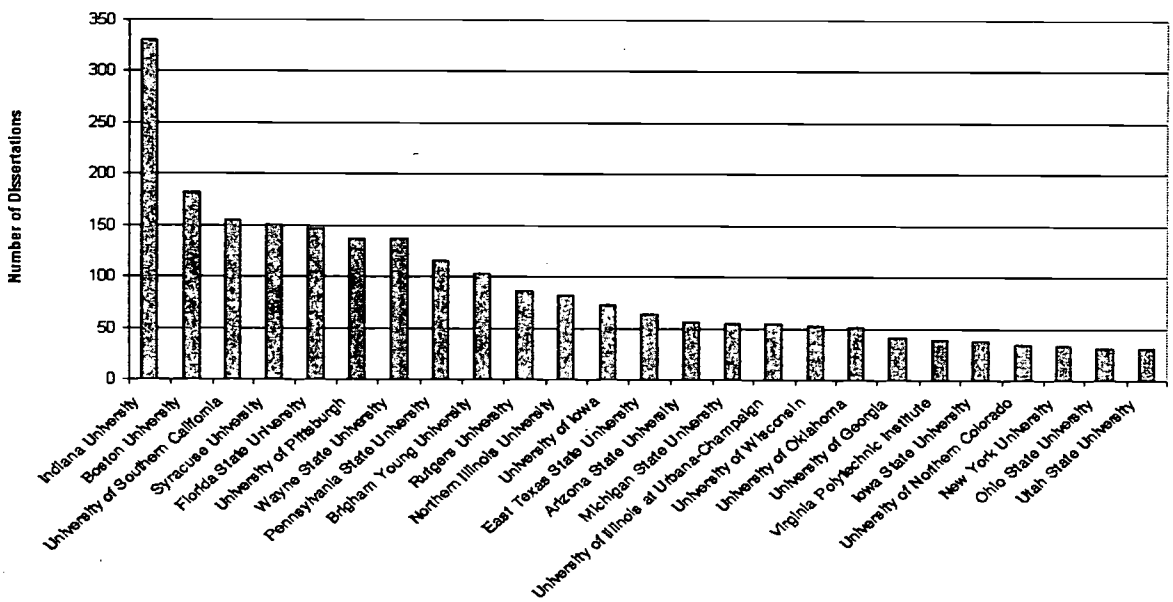
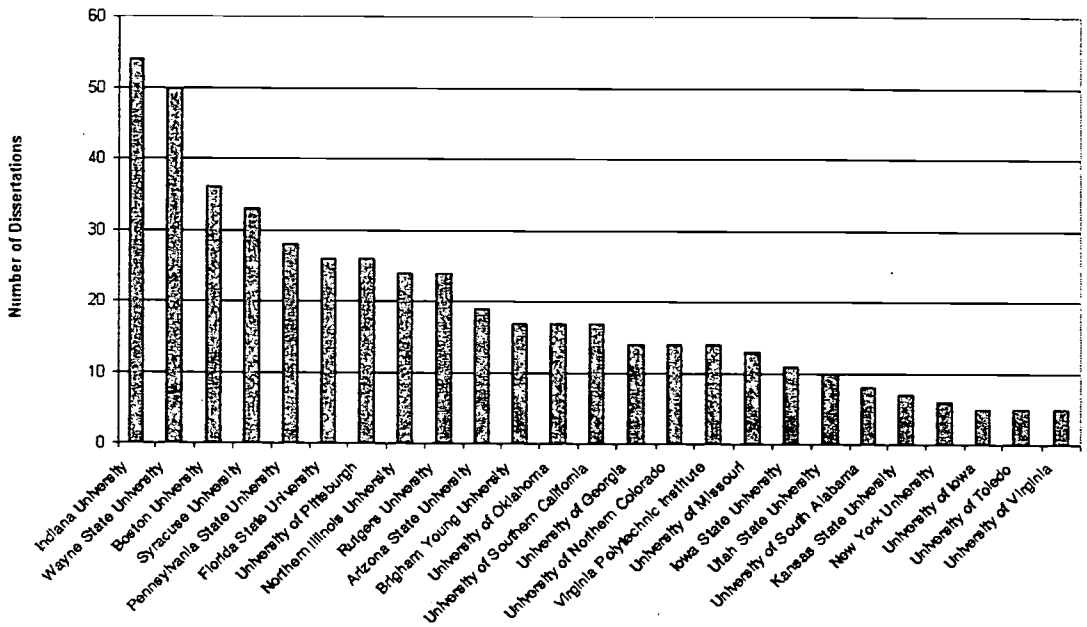


Figure 9 shows the number of graduates over the past five years for the 25 largest programs. The collection of institutions is essentially the same as the list in Figure 8 but the order of the institutions is different with some gaining in the ranking and others moving to the right. For the last five years, these 25 institutions graduated 483 students, which is 95% of the total graduates.

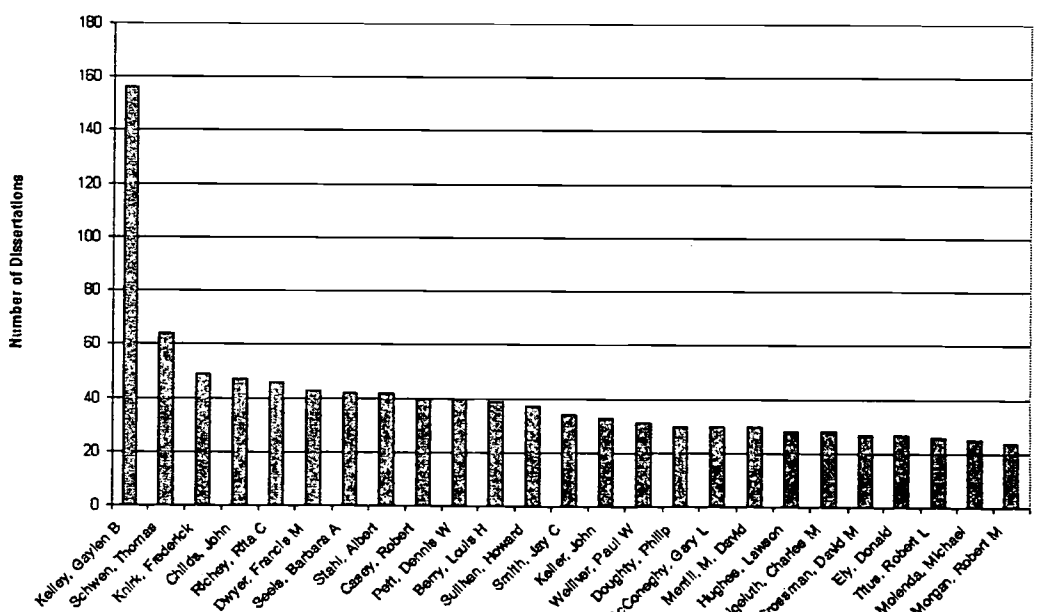
Figure 9. Twenty-Five Programs with the Largest Number of Graduates for the Past Five Years



Chairpersons of Dissertations

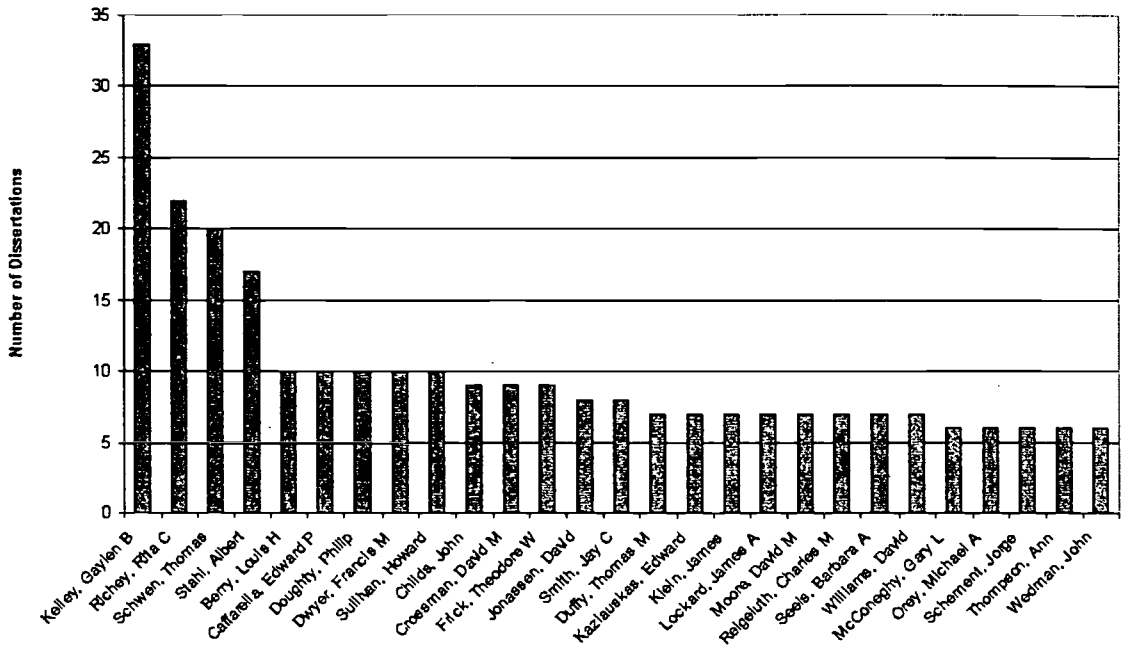
The 25 chairpersons with the largest numbers of doctoral graduates from 1977 through 1998 are shown in Figure 10. The institutions for these chairs are reflected in institutions shown in Figure 8. These 25 chairs worked with 1,018 students during this 22 year period of time which represents 37% of the total students. There were 205 chairs who chaired only one dissertation each. Clearly, the advisement of large numbers of doctoral students is being done by a relatively small number of educational technology professors.

Figure 10. Twenty-Five Chairs with the Largest Number of Graduates from 1977 through 1998



The cohort of chairs with the largest number of graduates over the past five years (see figure 11) includes a few new individuals. The 27 professors in this group chaired 271 out of a total of 518 dissertations representing 52% of the total. Many of these professors have actively chaired dissertations over the entire 22 years but there are several new names who have assumed responsibilities for supervising dissertations.

Figure 11. Twenty-Seven Chairs with the Largest Number of Graduates for the Past Five Years



Summary

The field of educational technology is a very varied field as reflected in the research of doctoral students. The students select a range of topics that have no particular theme not pattern with the research following the development of new technologies. The field utilized a variety of research methodologies with qualitative methodologies having a major role during the past few years. Most of the students graduate from a relatively small number of institutions although there are 55 institutions offering doctoral programs in educational technology. Likewise, a relatively small number of professors chair most of the doctoral dissertations. Thus, although the field is broadly based and draws upon many disciplines, the doctoral study is highly concentrated with a few institutions and professors.

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