Trend of "Distance Education" in the last three Decades

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Abstract

In the literature, there weren't any up-to-date reviews of Distance Education (DE) documents. This reveals that there was a research gap for a detailed review of distance education articles to find an up-to-date trend of distance education. The purpose of this study is to examine research and trends in DE, from the 160 selected documents, during 1972 and 2008 June. A Review of 160 distance education documents is done to investigate documents related to DE that are indexed by the Web of Science, Scopus, EBSCO host and Science Direct. "Distance Learning", "Online Learning", "Online Education", "Distance Education", "DE" were the keyword used for searching documents, and total 9866 documents analyzed that were judged to be relevant to the field of DE. The principal documents related to DE published in the publications during 1972–2008 June; were article. "English" was the most frequently used language. The most frequent publishers of documents related to DE were ASEE Annual Conference Proceedings, Turkish Online Journal of DE, and Proceedings Frontiers in Education Conference. The majority of the publications were in the subject area Social Sciences. Distance Education, Students and Humans were the keywords in the first three ranks. The trend line is an increasing DE trend in the number starting from the year 1972. It was recommended that, a combination of content analysis and citation analysis should be used in future research studies.

Keywords: Distance Education; Content analysis; Research; Trends; H-index.

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1. INTRODUCTION

From time immemorial, documents were published to reveal changes and challenges in the world. They are like a mirror of the past-present and future. DE emerged in response to the need of providing access to those who would otherwise not be able to participate in face-to-face courses. It encompasses those programs that allow the learner and instructor to be physically apart during the learning process and maintain communication in a variety of ways (Keegan, 1986). That's why most of the researchers, up to today, have several content analyses, citation analysis, and reviews of education subjects. However, DE is one of the most popular education types in the last decade.

It's a fact that the greater the economical chances, the greater the technological opportunities and the more are the virtual universities; and the more are the researches. They are all correlated and interrelated. With these countries equal access to learning, more opportunity to join to the development of global knowledge is necessary. In this sense, technology is helping to reduce the education gap between developed countries and those that are still developing (Breen, 2006). What researchers must do is to draw attention to the most up-to-date technological changes in the education to countries to see their horizon for more success.

As Conrad (2007) stated researches must consider the future. Knowing the shape of the field about which you write will help direct you to potential future research while at the same time validating your current concern. In future, researchers believe that these developmental differences will be the main issue of the DE studies. The findings of this article are intended to bring a new perspective to the DE trend. In this sense, it is a unique study considering 160 DE journals, published in the last 3 decades. Koble and Bunker (1997) have studied the articles published in the American Journal of Distance Education from its interception (1987) until 1995. They classified the articles into the following categories: Theory, policy and development; media and delivery system with institution, staff, and management; student psychology, motivation, and characteristics; faculty participation and instructional process; and course design and curriculum development trends. Here, the some of the noted trends were: Change in emphasis from correspondence study to telecommunication technologies and interaction in DE; expansion of initial emphasis on the delivery of higher and continuing education for adults, to be inclusive of secondary students. On the other hand, they found that there was an increase in articles concerning faculty concerns, but a lack of articles on student administration and student support issues.

Lau (2000) has described the alliances of distance learning at the university level by raising certain issues like the depth of the alliances (simple exchange, partnership, virtual university), educational matters curriculum, finance, competition, accreditation) and new trends (control in the consortium, redefinition of roles, identity of members). Later, Berge and Mrozowski (2001) have identified DE research by reviewing four DE journals and dissertations based on the categorization system. Strivastava (2002) has done a comparative study on current trends in DE in Canada and India. In this study some of the conclusions were: Many trends are putting new pressures on the conventional education system, forcing many institutions to review and amend their existing policies and procedures. Most of the trends identified are due to the following reasons: The changing workplace

which calls for constant upgrading of skills; the changing nature of work – more serial careers, contracting etc., the changing workforce itself and not to forget the information age itself. All these form rapid trends stem developments in communication and information technologies.

Rourke and Szabo (2002) analyzed articles that were published in the Journal of DE from 1986 to 2001. On the other hand, Howell, et. al. (2003) and Lorenzetti (2003) have also stated 32 distance learning trends that affect distance learning where these trends were organized into categories: 5 student enrollment trends, 7 facility trends, 9 academic trends, 3 technology trends, 3 economic trends and 5 Distance learning trends. It is possible to add between these trends the evaluation of the scientific studies, psychological studies, and countrywide studies of the DE. Lee, Driscoll, and Nelson (2004) have also done a content analysis in four prominent DE journals (The American Journal of Distance Education, Distance Education, Open Learning and the Journal of Distance Education, between 1997 and 2002. Here, research topics, methods, and citation trends are analyzed. However, this is not up-to-date results and the research sources are limited with 4 journals published in the 6 years.

On the other hand, Karataş (2008) has examined the articles concerning interaction in the Internet-based distance learning the articles in the journals American Journal of Distance Education, Quarterly Review of Distance Education and Distance Education, which were published in three most outstanding journals in 2003, 2004 and until March of 2005. However, this research study had limitations of not including editorials or book summaries; restricting with just 27 months and not including developing country journals. For more global results, to conduct researches with more documents published more than 27 months is necessary.

Although there are several related researches (Keagan, 1986; Koble and Bunker, 1997; Berge and Mrozowski, 2001; Strivastava, 2002; Rourke and Szabo, 2002; Conrad, 2007, in the literature, there were not any up-to date researches conducted with more than 100 publications, for duration of 3 decades as conducted by the researches. In order to obtain more global results the number of publications used is very important. This current research study is in all these means.

1.1. Purpose of the Study

The purpose of this study is to examine research and trends in DE, from the 160 selected sources during 1972 and 2008 June (which makes 366 months). The research questions that were addressed in this article are: What are the most frequent keywords conducted? How do these keywords fluctuate over the decades? What types of documents have been published? How do these documents fluctuate over the 3 decades? In which languages documents have been published more? Which authors write more documents to these journals? Among these in which subject areas, these DE search documents were conducted?

2. METHOD

Content Analysis was used in this study to investigate documents related to DE that are indexed by the Web of Science, Scopus, EBSCO host and Science Direct. Using the keywords "Distance Learning", "Online Learning", "Online Education", "Distance Education", "DE", etc. to search documents published and indexed in the Web of Science, Scopus, Science Direct and EBSCO host during 1972-2008 June, total 9866 documents were found (June 20, 2008). Based on these documents, a content analysis was carried out, using article abstracts and publication information indexed in these data bases. In cases in which the publication information was insufficient or missing from the Web of Science, Scopus, Science Direct and EBSCO host the researchers used the complete documents for analysis. The selection of documents was processed by two doctoral researchers in educational technology and further validated by an associate professor in the field. This procedure identified 9866 documents that were judged to be relevant to the field of DE. This process took three months.

Documents identified were analyzed according to the document types, language of documents, documents from the sources, years of publication, authors and the most frequently used keywords. All key words from each document in selected data bases were classified and cumulated from 1972 to 2008 June. Trend Line provides the number of keywords by the total number of documents published in that year. Microsoft Office Excel 2007 was used to calculate the trend line and to draw charts. Also, the H- index documents were analyzed on the bases of content analysis (topic and research design) methodology. Descriptive statistics were used to analyze and report this data.

2.1. Procedure

Review analysis was chosen as the main methodology to analyze each document in the 160 publications. Using review analysis methodology; tentative categories of keywords, authors and document types, document subject areas, document languages, documents authors' universities were developed. Thus, up-to-date information about the DE keywords, DE authors and document types were presented. The data was obtained by searching and listing the related documents in Scopus.

3. RESULTS AND DISCUSSIONS

3.1 Distribution over the Years

The number of documents and their percentages is calculated (see Figure 1). The distribution of the documents of DE according to the years are: 2008 June (n=451, %4.51), 2007 (n=1168, %11.84), 2006 (n=1437, %14.57), 2005 (n=1374, %13.93), 2004 (n=1172, %11.88), 2003 (n=846,%8.57), 2002 (n=675,%6.84), 2001 (n=705, %7.15), 2000 (n=625, %6.33), 1999 (n=450,%4.56), 1998 (n=337,

%3.42), 1997 (*n*=208, %2.11), 1996 (*n*=199,%2.02), 1995 (*n*=27,%0.27), 1994 (*n*=31, %0.031), 1993 (*n*=44, %0.45), 1992 (*n*=26, %0.26), 1991 (*n*=15, %0.15), 1990 (*n*=15, %0.15), 1989 (*n*=16, %0.16), 1988 (*n*=18, %0.18), 1987 (*n*=7, %0.07), 1986 (*n*=4,%0.04), 1985 (*n*=6, %0.06), 1984 (*n*=3, %0.03), 1983 (*n*=3, %0.03), 1982 (*n*=2, %0.02), 1981 (*n*=2, %0.02), 1980 (*n*=1, %0.01) and 1976 (*n*=1, %0.01).
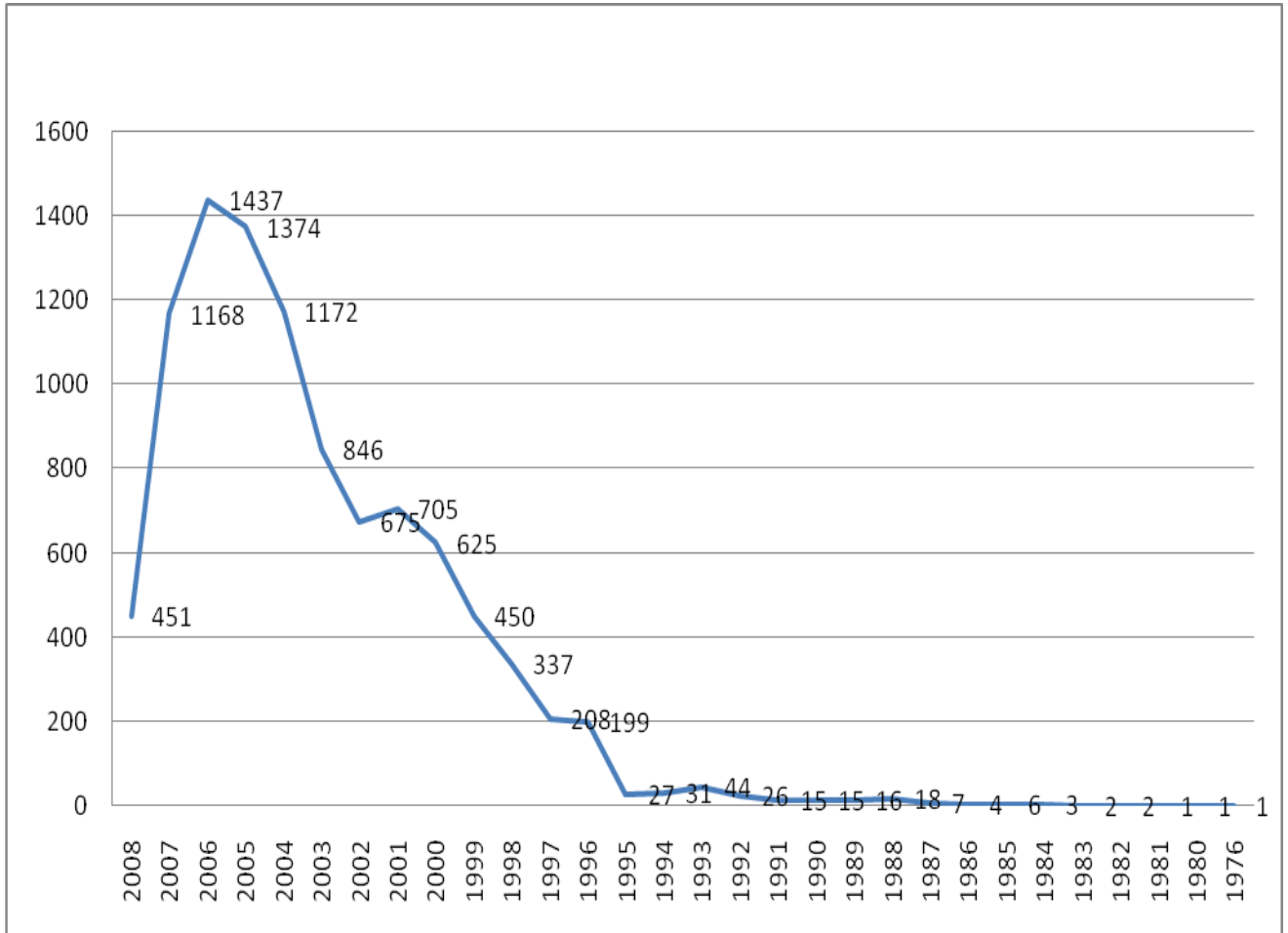

Figure 1 Distribution of documents according to the years

There is an increase in the number of published documents starting from 1995. From this year on, each year the number of published documents has shown an increase. The highest frequency of the documents is in the year 2006.

3.1.1. The Publications

Annual Conference Proceedings (*n*=395, %6.85), Turkish Online Journal of Distance Education (TOJDE) (*n*=260,%4.51), Proceedings Frontiers in Education Conference (*n*=245, %4.25), Lecture

Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics (*n*=238, %4.13), Computers and Education (*n*=190, %3.30), International Review of Research in Open and Distance Learning (*n*=170, %2.95), Educational Technology and Society (*n*=169, %293), ASEE Annual Conference and Exposition Conference Proceedings (*n*=157, %2.72), Internet and Higher Education (*n*=153, %2.65) and British Journal of Educational Technology (*n*=121, %2.10) are the journals in the first 10 rank (see Table 1).

Table 1 The *Distribution of Published Documents*

Rank	Title of Source	N	Percentage of Total Articles
1	ASEE Annual Conference Proceedings	395	6,85
2	Turkish Online Journal of DE	260	4,51
3	Frontiers in Education Conference	245	4,25
4	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	238	4,13
5	Computers and Education	190	3,30
6	International Review of Research in Open and Distance Learning	170	2,95
7	Educational Technology and Society	169	2,93
8	ASEE Annual Conference and Exposition Conference Proceedings	157	2,72
9	Internet and Higher Education	153	2,65
10	British Journal of Educational Technology	121	2,10

3.1.2 The Document Types

The journal articles (*n*=6606, %66.94), the conference proceedings (*n*=2764, %28.01), the book series (*n*=309, %3.13), the trade publications (*n*=145, %1.47), the books (*n*=39, %0.40) and the reports (*n*=5, %0.05) are reviewed. The document types are shown in Figure 2.
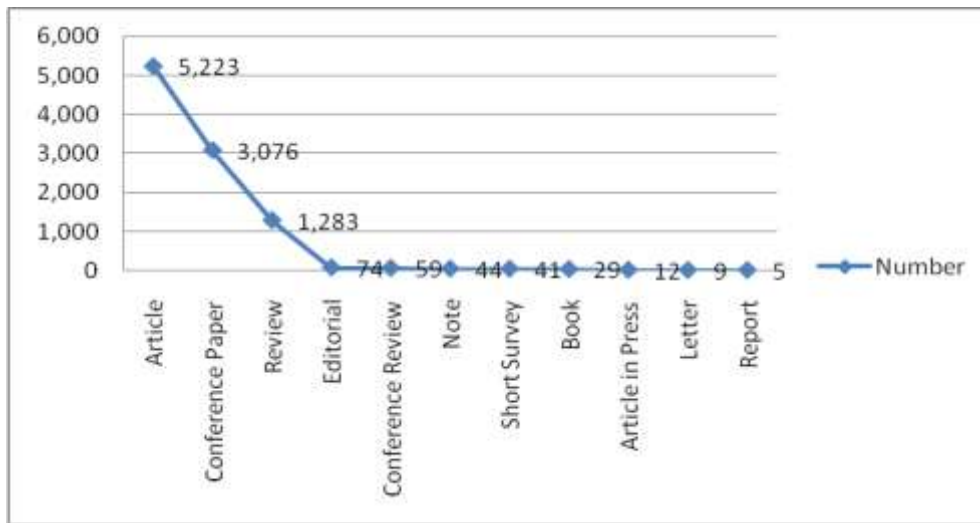
Figure 2 Frequencies of Document Types

3.1.3 The Authors

The number of documents of the authors in the last 30 years was counted. The authors in the first 10 rank are shown in Figure 3. These authors are: Shih, T.K. (n=33, %2.75); Fun, H.K. (n=20, %1.67); Carnevale, D. (n=16, %1.33); Kirschner, P.A. (n=16, %1.33); Rovai, A.P. (n=14, %1.17); Arbaugh, J.B. (n=13, %1.08); Demiray, U. (n=13, %1.08); Richardson, J.T.E. (n=12, %1); Pullen, J.M. (n=12, %1) and Billings, D.M. (n=12, %1),Ellis, T.J (n=12, %1). Thus, Shih, T.K. was the author in the first rank.
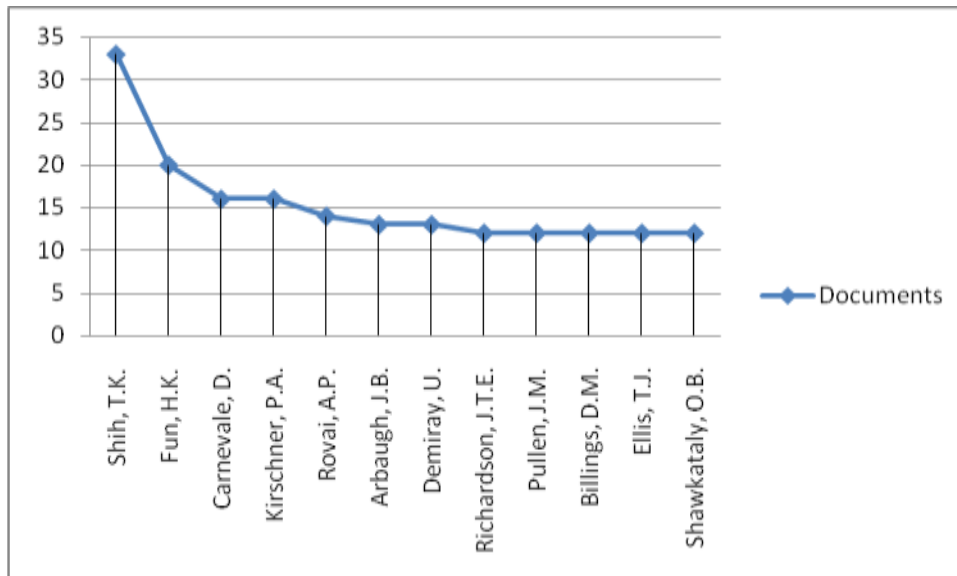

Figure 3 Authors in the first 10 Rank.

3.1.4 The Subject Areas

The documents are also reviewed for their subject areas. The most popular 10 subject areas are listed in Figure 4. Subject areas in the first 10 rank are the following: Social Sciences (n=3.816, %28.45), Engineering (n=3.408, %25.41), Computer Science (n=2.033, %15.16), Medicine (n=864, %6.44), Nursing (n=481, %3.59), Mathematics (n=442,%3.30), Business, Management and Accounting (n=405, %3.02), Psychology (n=357, %2.66), Biochemistry, Genetics and Molecular Biology (n=328, %2.45), Agricultural and Biological Sciences (n=166, %1.24). From these Social Sciences and Engineering are the leading subject areas.
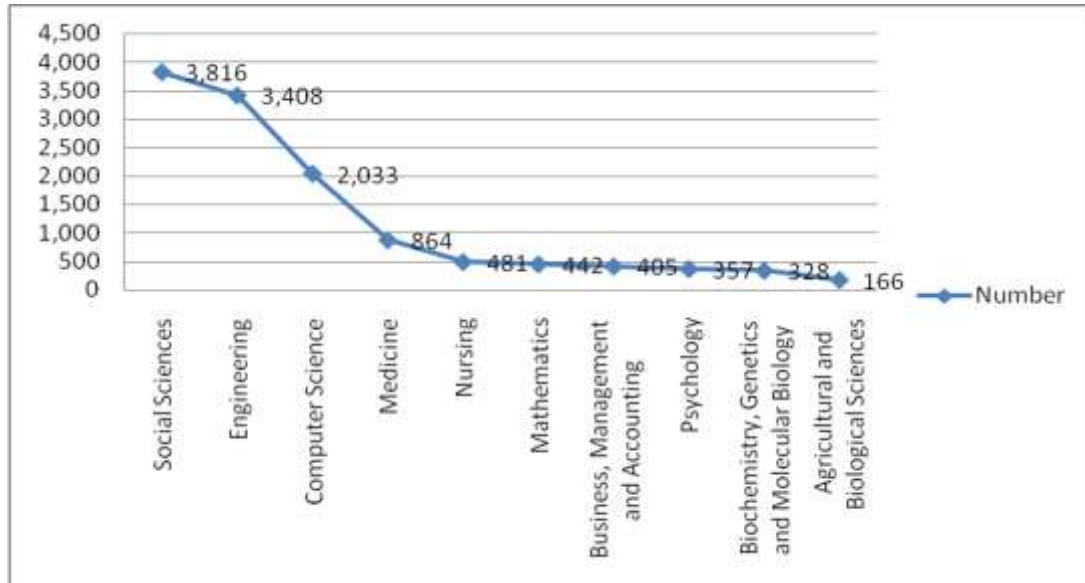

Figure 4 The most Popular subject Areas.

3.1.5 The Document Languages

The documents were written in 20 different languages. The frequencies and percentages of the languages which were in the first 10 rank are: English (n=9661, %97.83), Chinese (n=71,%0.72), Spanish (n=29,%0.22), Portuguese (n=22,%0.22), Japanese (n=19, %0.19), German (n=18, %0.18), French(n=15,%0.15), Italian (n=10,%0.1), Croatian (n=6,%0.6) and Russian (n=5,%0.5) (see Figure 6). From these, English was the leading language (see figure 5).
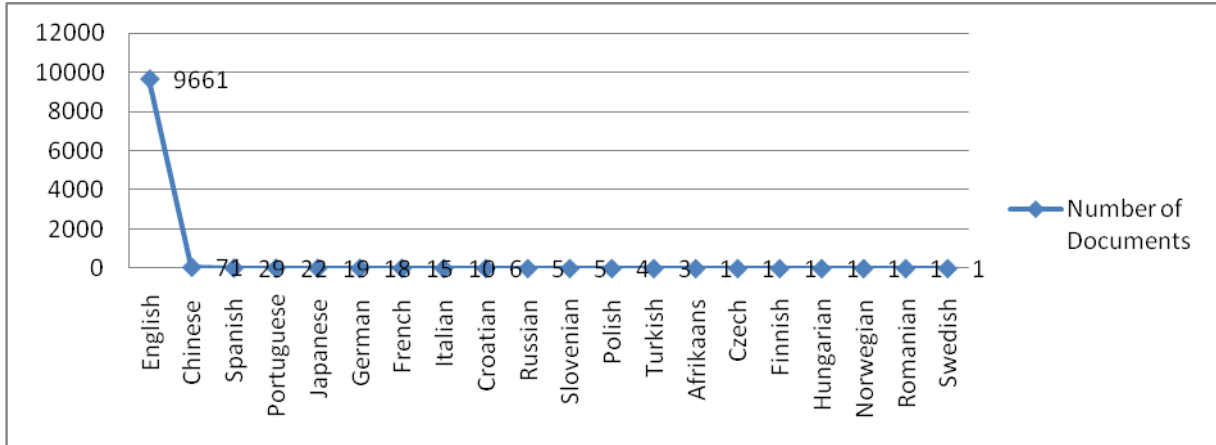
Figure 5 Most popular document languages

3.1.6 The Author Affiliation

There were more documents from the following the author affiliation: Open University (*n*=187, %4.03), Athabasca University (*n*=97, %2.09), Pennsylvania State University (*n*=93,%2.0), Monash University (*n*=73, %1.57), University Sains Malaysia (*n*=72, %1.55), Indiana University (*n*=69, %1.49), Purdue University (63, %1.36), IEEE (*n*=61, %1.31), Florida State University (*n*=60, %1.29) and University of Florida (*n*=56, %1.21) than the other universities.
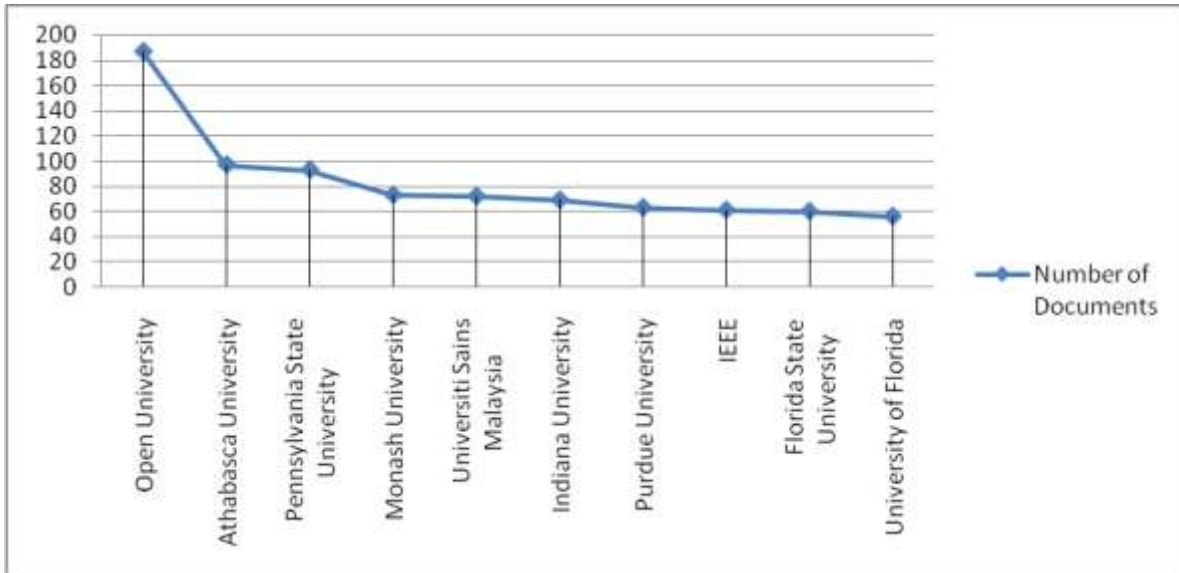

Figure 6 Universities and the Number of Documents

3.1.7 The Keywords

The frequencies and the percentages of the documents in the first 20 rank are shown in the brackets: DE (*n*=3931, %8.82), Students (*n*=1934, %4.34), Humans (*n*=1805, %4.05), Learning

systems (*n*=1592, %3.57), Teaching (*n*=1443, %3.24), Internet (*n*=1442, %3.23), Education (*n*=1150, %2.58), World Wide Web (*n*=1054, %2.36), Engineering Education (*n*=996, %2.23), Article (*n*=982, %2.2), Curricula (*n*=972, %2.20), Online Systems (*n*=877, %1.97), Computer Aided Instruction (*n*= 759, n=1.70), Distance Learning *(n*=690, %1.55), Information Technology (*n*=641, %1,44), E-learning (*n*=625, %1,40), Multimedia Systems (*n*=551, %1.24), Societies and Institutions (*n*=505, %1,13), Virtual Reality (*n*=442, %0,99) and Education (*n*=436, %0,98).
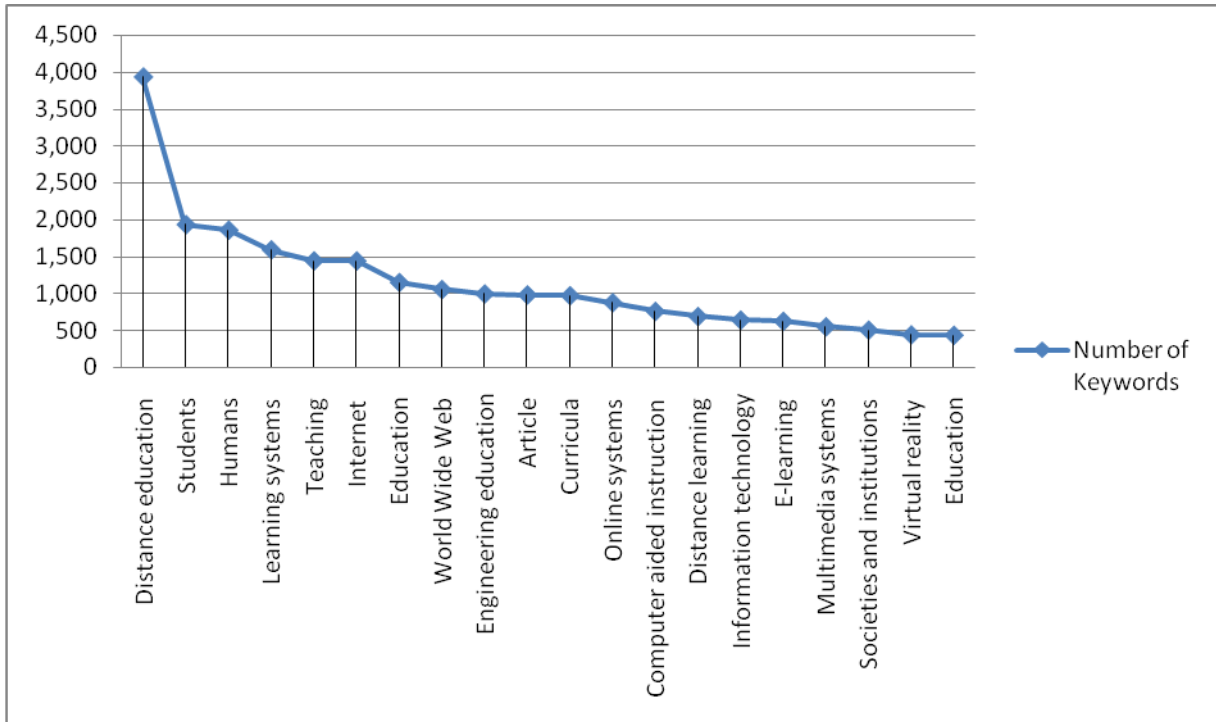

Figure 7 Trend of Distance Education

4. CONCLUSION AND RECOMMENDATION

   As technology evolves, so will the tools be available to make it happen (Beldarrain, 2006). With the utilization of technology, 21st century learning has the potential to be both exciting and inspiring, but only adept and motivated educators can make it happen (Leh, Kouba, Davis, 2005).The year 2006 was the year in which there was the highest frequency of publications about DE. This metaphor of technology bringing people from darkness into the light can be applied to many other contexts where professionals in the field of education are giving rather than taking from the developing world and offering hope that we can indeed create a world of shared republications and international unity, rather than division, in the future (Breen,2006). An investigation in Figure 5 brings the 5 important components (or 5 trends) of DE, which was not mentioned before: Humans,

students, teaching, internet and learning systems (see Figure 8). Several studies were based on this. DE programs are arranged for humans, they need special teaching techniques, instructions are generally delivered via internet, appropriate learning systems should be used to support student needs. This study is limited with the documents found in the Scopus during the listed above. Further studies, with more publications, for finding the trends and the new approaches of DE, to conduct similar studies at least at every decade are recommended.
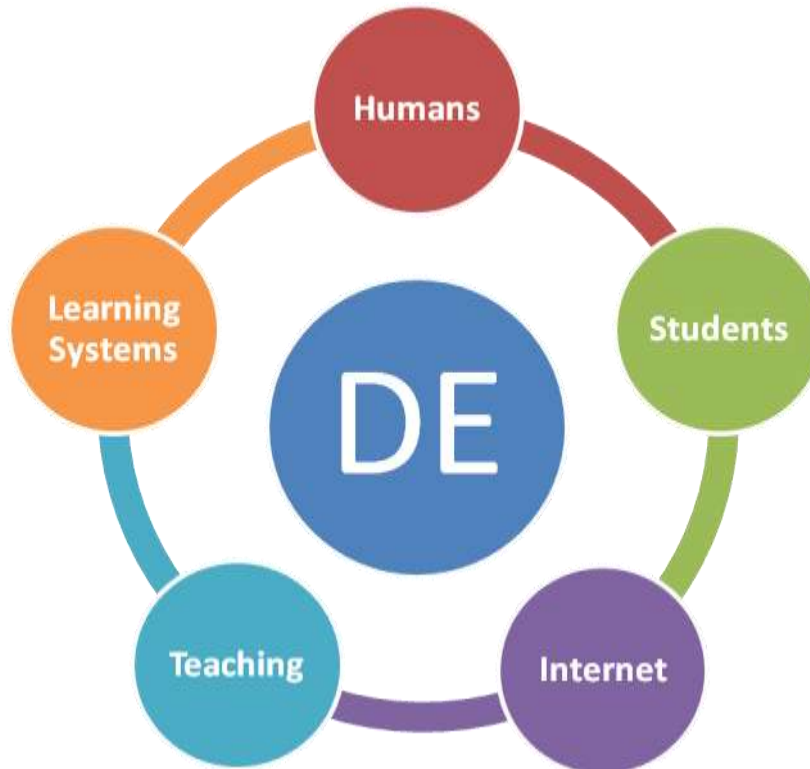

Figure 8 5 Trends of DE in the last 3 decades.

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