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Procedia - Social and Behavioral Sciences 83 (2013) 522 – 527

Procedia
Social and Behavioral Sciences

2nd World Conference on Educational Technology Researches – WCETR2012

Factors Related to E-learner Dropout: Case Study of IUST Elearning Center

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Abstract

Dropout rate between 20 to 80 percent has been reported in e-learning, so decreasing dropout rate is one of the major challenges of e-learning systems. The aim of this study is to identify the theories that explain the success rate of elearners. We used a quantitative content analysis by reviewing the findings of 24 major studies in this field. Findings revealed that motivational theories(f:13); self-regulated learning(f:6) and interaction(f:5) are the most important explanatory theories for elearner success. Results from 223 elearner at IUST elearning center showed that there are relationship between self-regulation and elearner dropout, in addition the results of t-test revealed that persistence elearner (M=3.50,SD=.66) had significantly high self-regulatory score than the dropout group (M=3.24,SD=.80), t=-2.54(221),p=.01.

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Selection and/or peer-review under responsibility of Prof. Dr. Hafize Keser Ankara University, Turkey

Keywords: E-learner, Virtual University, Persistence, Motivation, self-regulation, Interaction.

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doi:10.1016/j.sbspro.2013.06.100

1. Introduction

Elearning as a new paradigm for teaching and learning is in its rapid development, so nearly all educational institutions have some sort of elearning center or web based educational services. These services are used as a single mode or at least in parallel with their traditional educations. At the beginning of 21st century elearning defined promising visions to the learning community such as learning anywhere and anytime.

With rapid development of information and communication technology in education, broad terminology have been created to describe this new learning system, some of them but not all are: computer-based learning(CBL), e-learning, Internet based learning(IBL), online learning(OL), resource-based learning, technology-based learning, Web-based learning (WBL) and so on. Based on Anahina(2005) findings we can put CBL, IBL, OL and WBL under the umbrella of elearning, therefore, elearning term is selected in this paper. For the sake of normalization and also to avoid any misconception with informal learning, similar to the Kerr, Rynearson and Kerr(2006), we use online learning for the learning achieved in formal university courses, in which all instructions occur online using the Internet.

According to the above mentioned promises and ideals of elearning , Iranian higher education institutes especially engineering institutions started to integrate elearning in their education; Iran University of Science and Technology(IUST), the subject of this paper is one pioneer of them at the beginning of 2005. After more than 6 years of progress we found around 30% of undergraduate IT students have dropped out. Concentrating in per course performance, we found more depressing results because in some courses student failing (F. grade) was over than 60% (Mozayani&rostaminezhad,2010). Because of the importance of problem, the literature in dropout rate and dropout causes is reviewed in depth.

Literature revealed that elearner dropout rate as opposed to traditional student is too high. For instance Levey(2007) reported from several researchers that dropout rate were around 25%-40% as compared to 10%-20% in on-campus course. In UK open university Smith(2006) reported 35% for dropout rate , in Turkey it was 36% (Yukselturk & Inan,2006), 54% for US Midwestern University (Park& Choi,2009) and also 23.9% at the Ludwig-Maximilians-Universität (LMU) of Munich, Germany(Nistor & Neubauer,2010). There are Many more reports stating relatively same statistics. Roughly concluding from the international reports, in average dropout rate were around 40%. Therefore our dropout rate in IUST university is similar to that of others. Although this rate is tolerable but is not acceptable. It means that elearner can learn anywhere and anytime but he/she should accept the risk of going out without anything and also with considerable waste of time and money.

With regard to this problem the main aim of this study is to find most frequent factors related to elearner dropout and examine this factor among Iranian elearner at IUST elearning center. In the remaining sections of this paper we will discuss the factors related to elearner dropout which are extracted from literature, after that the test of main frequent factors will be reported and discussed.

2. Theoretical background

Researchers used several terminologies to describe elearner unsuccessfulness that include but not limited to: withdrawal, non-completion, dropout, attrition and failing. Similarly, for successful student the terminology is diverse, some of them are: retention, persistence, graduates, completion and passing. Once more, for the sake of unifying concepts let's put them in two groups. Most frequent term are dropout for unsuccessful student and persistence for successful one. To clarify, we define the dropout elearner as a person who is not qualified in their courses and is excluded from online campus voluntarily or forcibly.

As discussed in the introduction, elearner dropout rate is relatively high, but to respect brevity of the paper the dropout rate will be excluded in this part so the main focus of remaining sections is about elearner dropout causes. As we know dropout are complex phenomena and affected by numerous factors. That is to say, technological, infrastructural, content related, teacher and support system factors are undoubtedly important, but due to learner-centric nature of elearning systems, this study concentrate on e-learner side factors .

Many researchers have conducted studies on e-learner side factors that affect elearner dropout; this study analyzed 24 published papers in scientific data bases such as Scopus, Proquest dissertation database and Elsevier. These studies examine different factors for instance Levey(2007) compare the role of Academic Locus Of Control(ALOC) and student Satisfaction or Holder(2007) surveyed the role of Hope, Academicals , Environmental and Motivational factors in online learner persistence.

In this paper we studied the main findings of these studies and calculated the frequency of important factors. For example levey(2007) find ALOC have no impact but in contrast dropout student have lower satisfaction with online learning. As we know, according to Keller's ARCS motivational Model (Keller, 1987; Keller,1999), Satisfaction is motivation factor, therefore in our content analysis, we put this result in motivational category. This process was continued for all 24 researches. The content analysis results are summarized in table 1

Table 1, Frequency table of previous research about factors related to elearner dropout

Factors	Study	Frequency
Motivation	Chyung (2001); Muse Jr(2003); Bernath & Rubin(2004); Willging&Johnson (2004); Bedore Jr(2005); Jun (2005); Levy,(2007); Womble(2007); Holder (2007); Cain(2008); Park& Choi (2009); López-Pérez., Pérez-López & Rodríguez-Ariza,L.(2011); Joo.,Joung & Sim (2011).	13
Self-regulation	Giles(1999); Xenos , Pierrakeas& Pintelas(2002); Bernath & Rubin(2004); Doherty (2006); Yukselturk & Inan (2006); Holder (2007).	6
Interaction	Shin,N& Kim(1999); Tello (2002); Willging&Johnson (2004); Doherty (2006); Hernandez (2008).	5
Academic Locus of Control	Parker (1999); Joo.,Joung & Sim (2011).	2
Learner Autonemy	Hughes (2002);Kerr., Rynearson & kerr (2006);	2
Social presence	Hernandez (2008); Liu., Gomez &Yen(2009).	2

Table 1 displays that motivational factors especially elearner satisfaction, self- regulatory especially elearner time management and interaction are much more frequent factors. It should be reminded that some of these studies found that more than one important factor, hence total frequencies are more than 24.

This article selected most frequent important factors and studied them in IUST elearning center, So the hypothesis, based on the literature, are as follow:

Hypothesis1. There will be relationship between E-learner low satisfaction as a motivational factor and elearner dropout.

Hypothesis2. There will be relationship between low Self-regulation and elearner dropout.

Hypotheses3. There will be relationship between low Interaction and elearner dropout.

3. Method

3.1. Participant and procedure

The population of this study was 877 undergraduate online learner who studied IT and Industrial engineering at IUST elearning center. The sample size of 250 was planned and selected randomly for this study. Twenty-seven of them did not complete or partially responded to the survey; therefore, they were excluded from the study.127 of sample were male;106 were IT students and 107 of them were Industrial engineering student. Considering higher education regulations in Iran, 128(57.4%) of them were in dropout group.

The data for motivational, self-regulation and Interaction were gathered with questioner that administered in LMS and data about student GPA obtained through Academic Administration System of IUST in the first semester of 2011-2012 academic years. More information about instrumentation will be discussed in reminding of this article

3.2. Instrumentation

To achieve the goal of this study a questioner was developed according to the literature and authors experienced that include but not limited to motivation, self-regulation and Interaction .The initial scale was constructed with 67

Items. In the next step 290 e-learners have been selected randomly and were asked to describe themselves in reference to a 5-point Likert-type scale, with anchors ranging from 1 (strongly disagree) to 5 (strongly agree). Exploratory Factor analysis with varimax rotation where used to analyze constructs validity of before mentioned tool. The result revealed that eleven-factor solution with Eignevalue over than one can count 62% variance of e-learner success construct. Three factors of eleven-factors were satisfaction (α=./84), self-regulation(α=./82) and interaction(α=./59) and Cronbach alpha were α=0/84 for entire set of questioner.

4. Results

Elearner persistence and dropout were dichotomous variable(1 for dropout, 2 for persistence) and also in satisfaction, self-regulation and interaction subscale ,students were assigned to low and high group for each subscales based upon median split, so for each student a dichotomous data were calculated in each subscale; 1 for low satisfaction and 2 for high satisfaction and so on. As all variable are dichotomous, the Pearson chi-square should be the best method, therefore it was used to test research hypothesis and to determine the relationship between research variable.

Table 2 provides a matrix of Pearson chi-square, df and the level of the significant for satisfaction, self-regulation and Interaction, with dependent variable dropout and persistence e-learner. As shown in table two elearner satisfaction and interaction had P value more than .25 , this indicates that the first and third hypotheses is not supported, but the significant level of self-regulation indicates that second hypothesis is supported. This means that persistent elearners are more self-regulated than dropout ones.

Table 2 Pearson chi-square test

Variable	Chi-square score	Df	Significance (2-tailed)
Satisfaction	0.078	1	.74
Self-regulation	10.18	1	.00
Interaction	1.45	1	.28

To ensure that dropout learner's self -regulation score are less than persistent one, after insuring from normality of the continuous score of elearner in self-regulation subscale, independent-sample T-test were computed. The results of t-test revealed that persistent elearners (M=3.50,SD=.66) had significantly high score than the dropout group (M=3.24,SD=.80), t=-2.54(221),p=.01

5. Discussion and conclusions

It is a fact that elearner dropout nearly in all educational systems is high, therefore it is necessary to find factors related to this complex phenomena. There are numerous factors that affect learner dropout, directly or indirectly. Because of learner-centric nature of elearning we examined learner related factors. Literature was reviewed and revealed that three factors are the most important ones in this regard: student satisfaction as a motivational factor, self-regulation and Interaction. This case study on Iranian elearners revealed that not also there are relationships between self regulated elearners and their success, but also successful students are more self-regulated.

Elearners should learn on their own, therefore it is rational that much researches have emphasis on self-regulation. The importance of this factor in elearning can also be understood from Zimerman (2000) definition. He introduced the self-regulation as a way to compensate individual differences of students in learning, defined the essential qualities of academic self-regulation, described the structure and function of self-regulatory processes and gave an overview of methods for guiding students to learn on their own.

Besides the above mentioned reasons, for Iranian e-learners the self-regulatory is most essential due to some regulatory obstacles. For instance each student should take at least 12 credits in one semester, this means that student with job and family responsibility should select minimum 4 courses in each semester. Surprisingly, to shorten the education period, some of these students take even more than 20 credits in a semester. In consequence courses load are too much, therefore, more self-regulated students are more likely to succeed. It should indeed be noted that time management skills are very important in online learning which is also, according to Zimerman

(2008), one dimension of self-regulation.

Regarding the student satisfaction and interaction, obviously more researches are required. Finally, according to the findings of this study one practical result for Iranian elearner is that:

To improve persistence and to reduce dropout, institutions should improve self-regulatory skills of elearner, and insure these ability in their online learners

Acknowledgements

The authors would like to thank the administrative board of Iran University of Science and Technology, especially Dr Mohammad Reza Jahed Motlagh for his support to this study.

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