GESTÃO & PRODUÇÃO

ISSN 0104-530X (Print)
ISSN 1806-9649 (Online)

ORIGINAL ARTICLE

Critical factors of pedagogical management that influence the evasion in higher education distance learning courses: a case study

Fatores críticos da gestão pedagógica que influenciam na evasão em cursos superiores de educação a distância: um estudo de caso

Márcio José Käms Senhorinha[1], Marco Aurélio de Oliveira[2], André Hideto Futami[2], Luiz Veriano Dalla Valentina[2]

[1]Centro Universitário Sociesc - UNISOCIESC (Núcleo de Engenharia, Curso de Graduação em Engenharia da Computação), Joinville, SC, Brasil. E-mail: marcio.jks@gmail.com

[2]Centro Universitário Sociesc - UNISOCIESC (Programa de Pós Graduação e Mestrado), Joinville, SC, Brasil. E-mail: marcoo@unisociesc.com.br, andre.futami@unisociesc.com.br, luiz.valentina@unisociesc.com.br

How to cite: Senhorinha, M. J. K., Oliveira, M. A., Futami, A. H., & Valentina, L. V. D. (2021). Critical factors of pedagogical management that influence the evasion in higher education distance learning courses: a case study. *Gestão & Produção*, 28(1), e4726. https://doi.org/10.1590/1806-9649.2020v28e4726

Abstract: Society is currently experiencing scientific, technical and social progress, requiring constant renewal with higher quality dedicated to higher education. Distance education (EAD) allows the raise of new learning forms. EAD uses new technologies and the internet to raise the population education level, creating a higher professional qualification and providing training for specialists in several areas of knowledge. Despite the existing facilities and technologies, EAD has evasion rates that are around twenty-five percent. The question that raises from this data is; what are the critical factors associated to pedagogical management that led to this high evasion rate? The objective of the research was to determine the critical factors of pedagogical management, which have an impact on the evasion in undergraduate courses in the EAD. The research place was a higher education center in the north of Santa Catarina state. The identification of the critical factors and main variables that can cause evasion makes use of a method developed for this analysis, with data confronted with the literature, considering the main authors dealing with this topic. The tool chosen for the results analysis was the statistical correlation. Among the critical factors related to pedagogical management, it is possible to mention the adaptation to distance education, and support and feedback as fundamental questions to reduce evasion.

Keywords: Distance Learning; School evasion; Pedagogical Management.

Resumo: A sociedade vive atualmente um progresso científico, técnico e social que exige renovação constante com cada vez mais qualidade no ensino superior. A educação a distância (EAD) permite o surgimento de novas formas de aprendizagem. A EAD utiliza as novas tecnologias e a Internet para elevar o nível de educação da população, criar uma qualificação profissional superior e formar especialistas em diversas áreas do conhecimento. Apesar das facilidades e tecnologias existentes, a EAD apresenta índices de evasão que giram em torno de vinte e cinco porcento. A partir deste dado fica a seguinte questão: Quais são os fatores críticos associados à gestão pedagógica que influenciam na gestão da evasão escolar em cursos

Received: Apr. 19, 2018 - Accepted: May 21, 2019
Financial support: None.

superiores na EAD? Para responder a essa pergunta estabeleceu-se como objetivo da pesquisa a determinação os fatores críticos de gestão pedagógica, que têm impacto na evasão em cursos de graduação na EAD. A pesquisa aconteceu em uma Instituição de Ensino Superior do norte de Santa Catarina. Foi desenvolvido um método para identificação de fatores e variáveis que podem causar a evasão. Estes dados foram confrontados com a literatura, levando em consideração os principais autores que lidam com o tema. A ferramenta escolhida para a análise dos resultados foi a correlação estatística. Entre os fatores críticos relacionados à gestão pedagógica, é possível mencionar a adaptação à educação à distância, o apoio e o feedback como questões fundamentais para reduzir a evasão.

Palavras-chave: Ensino a Distância; Evasão escolar; Gestão Pedagógica.

1 Introduction

The traditional teaching system, in schools and universities, for a long time has been a classroom with the Professor at the front of the room and students listeners who perform the notes of the content taught. The communication between the Professor and the students is identified as a critical component to learning in this teaching method (Harandi, 2015). Based on this statement, many educational institutions use Distance Education (EAD) as their primary form of transmitting knowledge and training to their students (Tamrakar & Mehta, 2011).

EAD is a modality in growth, this mainly in function of the globalization of economic, social and cultural development, as well as educational and technological advances, thus having its space and importance in discussions and studies (Duarte, 2011).

According to Mendonça (2007), EAD provides a breakdown of traditional pedagogical concepts by presenting an emerging culture in which the communication through the computer breaks down the barriers of time and space, uniting people with a common goal which is to teach and learn.

Because it is an education based on Information and Communication Technology (ICT), EAD is characterized by its participants and involved people being physically distant. Therefore, it differs from the classroom education and has the teaching organized so that the activities occur without students and Professors being on the same site (Almeida & Pimenta, 2014). The Professors and students are physically separated, but this does not preclude the interactivity (Loro & Costa, 2009).

Despite the existing facilities and technologies, EAD has evasion rates that need to have a special look. Data from the census conducted in 2014 by the Brazilian Association of Distance Learning (ABED), reported an evasion rate around 25% (ABED, 2014). Comparing these data with the in-class education, the Trade Union of Higher Education Sponsors (SEMESP) indicates the average index also around 25% of evasion in in-class higher education courses (SEMESP, 2015).

Evasion is the act of the student's withdrawal, along the course, in any phase or stage. It might occur soon after the registration, either a temporary interruption or abandonment without expectations of return (Laguardia & Portela, 2009; Netto et al., 2012). In this article, it is considered evasion, the student who does not perform the re-registration for 2 consecutive semesters.

According to Navimipour & Zareie (2015), the results of their research showed that the technology and the educational content significantly influence satisfaction with learning. Songkram et al. (2015) indicate updated information and feedback as points to be observed, which is in line with the studies of Truskolaska et al. (2015) that in

addition to these factors they also add the domain of computer on the part of the student.

Oproiu (2015) argues that the student should be informed and enlightened regarding the needs and previous knowledge that the same needs before joining in the studies. Harandi (2015) complements with a content always updated in a pleasant environment of learning platform.

Within the EAD universe, the authors cited previously relate factors related to pedagogical management, important factors to ensure the success of the courses. Thus, what motivated to conduct the research with this focus on teaching institution in question.

According to the participants' opinion, the EAD requires administrative and technological innovation, technological infrastructure and support to students in higher levels when compared to in-class educational modality (ABED, 2014).

Therefore, it is intended to answer: what are the critical factors associated to pedagogical management that influence on the school evasion management in EAD higher education courses?

2 Research method

In this phase, the foundations are prepared to carry out the research and planning of activities required in the data collection and analysis, in a way that the answers for the problem be highlighted. That is when the details are specified for obtaining the necessary data, which will be analyzed with the objective of solving the problem in question.

It is conducted an applied nature survey, aiming to generate information for a practical application addressed to solve a specific problem.

In terms of the classification on the problem approach, it fits as quali-quantitative, seeking to understand the evasion phenomenon from the student's perspective. With the data survey, one has a quantitative analysis, envisioning the construction of a model to be validated based on statistical studies.

To achieve success in the study, a sequence of activities was traced that must be followed and that will assist in the course of work. Figure 1 shows the sequence and organization of the main research activities.

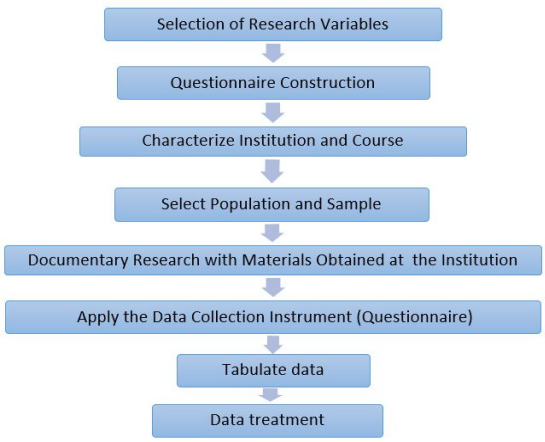

Figure 1. Activities organization. Source: Author, 2016.

In order to understand the factors that influence and contribute in the phenomenon of EAD evasion, and also analyze the causes of greater impact from the authors' point of view of greater relevance to the theme, Table 1 is proposed.

Table 1 has its origin in the literature research with search parameters, based on recent articles. The articles were searched in the databases: *Google Scholar*, *Scopus* and Science *Direct* (Senhorinha et al., 2015).

Table 1. Critical factors in the vision of the main authors of the theme.

Source	Authors	Academic System		Didactic Materials and AVA			Didactic Model		
		Updated Information	System Availability	Content	Interface	Feedback	Technology	Computer Mastery	Internet
Journal Of Cleaner Production	Azeiteiro et al. (2015)	X							
Computers & Education	Barbour & Reeves (2009)							X	
Procedia Computer Science	Benta et al. (2015)					X	X		
Procedia - Social And Behavioral Sciences	Cavus (2015)					X			
Computers & Education	Chang et al. (2009)						X		
Expert Systems With Applications	Chao & Chen (2009)				X				
Procedia - Social And Behavioral Sciences	Emil et al. (2015)		X					X	X
Computers & Education	Gikandi et al. (2011)					X	X		
Procedia - Social And Behavioral Sciences	Harandi (2015)			X				X	
Procedia - Social And Behavioral Sciences	Hubackova & Ruzickova (2015)					X			X
Computers & Education	Hung et al. (2010)					X			
Computers & Education	Joksimović et al. (2015)			X	X	X			
Procedia - Social And Behavioral Sciences	Khlaisang & Likhitdamrongkiat (2015)						X		

Table 1. Continued...

Source	Authors	Academic System		Didactic Materials and AVA			Didactic Model		
		Updated Information	System Availability	Content	Interface	Feedback	Technology	Computer Mastery	Internet
Computers & Education	Kim et al. (2011)			X			X		
Procedia - Social And Behavioral Sciences	Kovacova & Vackova (2015)								X
Computers In Human Behavior	Navimipour & Zareie (2015)		X	X	X		X		
Procedia - Social And Behavioral Sciences	Oproiu (2015)							X	
Computers & Education	Petrakou (2010)			X			X		
Procedia Computer Science	Rohayani et al. (2015)							X	
Computers & Education	Shea & Bidjerano (2010)		X				X		
Procedia - Social And Behavioral Sciences	Simonova (2015)							X	
Procedia - Social And Behavioral Sciences	Siri & Rui (2015)				X	X		X	X
Procedia - Social And Behavioral Sciences	Slechtova (2015)							X	
Procedia - Social And Behavioral Sciences	Songkram et al. (2015)	X				X			
Procedia - Social And Behavioral Sciences	Tîrziu & Vrabie (2015)					X			
Computers In Human Behavior	Truong (2016)			X					
Procedia - Social And Behavioral Sciences	Truskolaska et al. (2015)			X		X		X	
Procedia - Social And Behavioral Sciences	Vinogradova & Kliukas (2015)			X	X				

Source: Adapted from Senhorinha et al. (2015).

For the authors, 90% of the evasion causes are related with the factors Didactic Material/Virtual Learning Environment (AVA) and Didactic Model. In Figure 2, the percentage is observed that each factor was mentioned by the surveyed authors.

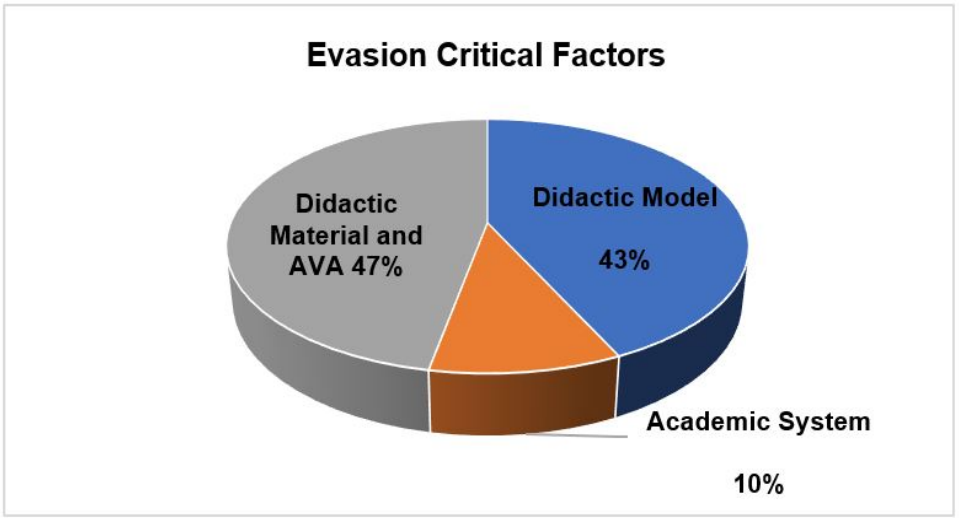

Figure 2. Critical evasion factors. **Source:** Adapted from Senhorinha et al. (2015).

The critical factor Didactic Material/AVA is subdivided into: Content, Interface and Feedback. The content needs to be updated, the interface must be friendly and the Professor's or tutor's feedback with a rapid return.

Whereas the Didactic Model factor is subdivided into: Technology, Computer and Internet Mastery. The platform technology and content availability must be mastered by the users, as well as the same need to master the computer and have a fast internet.

2.1 Selection of research variables

For a better selection of the study variables, it was sought to understand what are the factors that contribute to the smooth progress of the activities at the institution from a literature review.

Then, it was possible to glimpse greater criticality factors that need attention for a good progress of the activities and that consequently may influence the EAD evasion.

The result of the study shows relevant aspects related to the EAD management, with a direction to pedagogical management and its consequences. Within these developments and with the objective to determine the critical factors are the three Pedagogical Management components: Academic System, Didactic Materials/AVA and Didactic Model.

Still based on a literature review a diagram is made that can be observed in Figure 3. It contemplates the pedagogical management components, its subgroups and its most significant variables.

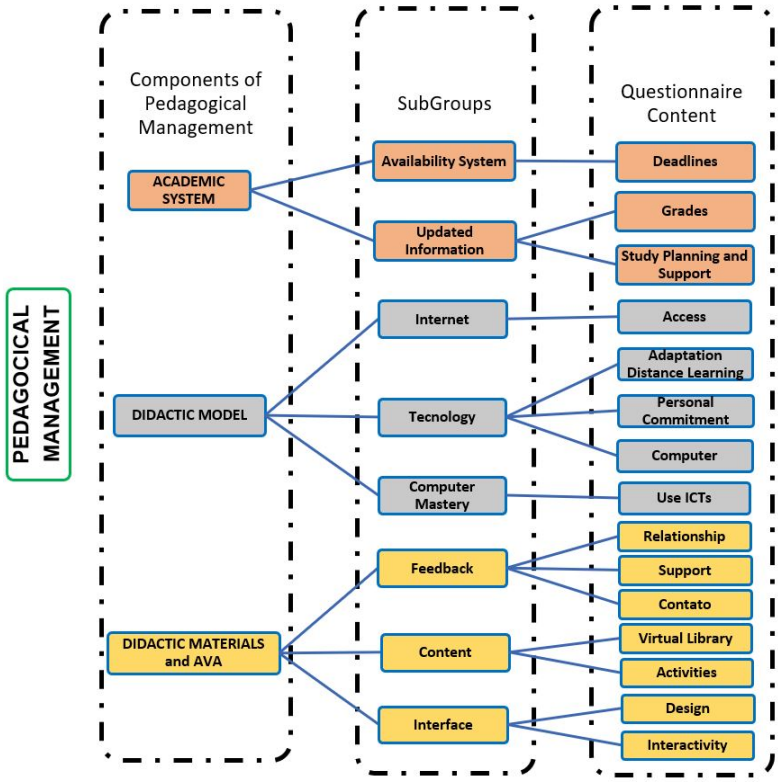

Figure 3. Structure of the analyzed variables associated to pedagogical management.
Source: Author, 2016.

2.2 Questionnaire construction

For the preparation and subsequent application of the questionnaire, it was sought to work with issues already applied in previous studies. This method of sampling questionnaire is characterized as a tool for data generation widely used in several scientific areas. With a quantitative approach, it is aimed the highlight the rapidity in its filling, and with a wide range of responses, which leads us to reach a large population.

The questionnaire was prepared with an handful of authors' questions which already validated them previously. The questions and their methodologies, already used previously in other papers, were extracted from: Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira – INEP (2014), Almeida (2007), Moura-Walter (2006), Machado (2009) and Chao & Chen (2009).

2.3 Characterize institution and course

In this step, one should characterize the institution source of study as well as the course or courses that will be analyzed.

Regarding the evasion analysis, depending on the educational institution, the indicators may vary or be a different consequence in relation to the other. These indicators will depend on characteristics such as: number of students, the number of

Centers or Campi, if the institution is private, how much the EAD represents the invoicing of the HEI.

2.4 Documentary research with materials obtained at the institution

These data are obtained in the own educational institution, where it is intended to work further numbers of school evasion. Along the institution data are raised such as: number of registered students per year or semester, number of students that evicted or put a hold on the registration. It will be necessary to investigate some personal information of each student, such as: name, e-mail, telephone and address so that they may be used in research work.

2.5 Select population and sample

The population is characterized by students evaded in the Course or Courses in question, thus the number is formed for later analysis. It is also necessary to check with the HEI, when the student is considered to be evaded.

Because this is an important indicator and that causes a significant impact on the Educational Institution, this population should be composed by the largest possible number of students who evaded in the period.

One should consider the socioeconomic scenario and political changes in the country, the period of three years is a considerable number to analyze the dropouts, because a very long period may reflect different motives and distort the final values of the research.

2.6 Apply the data collection instrument (questionnaire)

To answer the questionnaire, the course dropout student had multiple choices questions, where in the first step there is a survey of more personal information so one can make an analysis of the profile of the same.

The questionnaire also presents a step geared specifically to the course in which the student is no longer attending, and thus a Likert scale with 5 answer options will be used.

The questionnaire is sent via e-mail, which must contain a standard text, explaining the objectives of the same, as well as explanations of its completion. The questionnaire is sent by electronic means but has the possibility to be answered via telephone contact or even in the form of an interview in person.

2.7 Tabulating data

After the completion of the data collection step, through the responses received, the data tabulation and analysis are started. The tabulation aims the data organization and standardization into subgroups in order to facilitate the analysis.

In this step the data classification is performed in order to group them into categories to obtain answers to the questions that this study aims. Upon tabulating the received data from the directed questionnaire responses, they will be arranged on tables in software spreadsheets for the data statistical analysis.

2.8 Data treatment

The next step, after the data organization and tabulation is the data analysis. For this analysis, the data are arranged in a matrix for the organization of the questionnaire variables responses.

The correlation analysis is widely used in the study of the relationship among the variables, because it meets the need to establish the existence or not of a relationship among these variables.

This analysis will provide a number that will be the result of how two or more indicators vary simultaneously, as well as indicate the intensity and direction of the relationship among the variables.

Table 2 presents the model of the matrix which will be structured with the data obtained from the research feedback, thus being possible to present the probable correlations among the variables.

Table 2. Matrix structure.

		Academic System			**Didactic Model**					**Didactic Materials and AVA**						
		Deadlines	**Grades**	**Regarding Study Planning and Support**	**Access**	**Adaptation to Study and Distance**	**Personal Commitment**	**Computer**	**Use ICTs**	**Relationship**	**Support**	**Contact**	**Virtual Library**	**Activities**	**Design**	**Interactivity**
Academic	Deadlines	**1**														
	Grades		**1**													
	Regarding Planning and Study Support			**1**												
Didactic Model	Access				**1**											
	Adaptation to Distance Study					**1**										
	Personal Commitment						**1**									
	Computer							**1**								
	Use ICTs								**1**							

Table 2. Continued...

		Academic System			Didactic Model					Didactic Materials and AVA						
		Deadlines	Grades	Regarding Study Planning and Support	Access	Adaptation to Study and Distance	Personal Commitment	Computer	Use ICTs	Relationship	Support	Contact	Virtual Library	Activities	Design	Interactivity
Academic Materials and AVA	Relationship									1						
	Support										1					
	Contact											1				
	Virtual Library												1			
	Activities													1		
	Design														1	
	Interactivity															1

Source: Author, 2016.

It was used the correlation analysis, a method which is widely used in the study of the relationship among the variables, because it meets the need to establish the existence or not of a relationship among these variables.

This analysis will provide a number that will be the result of how two or more indicators vary simultaneously, as well as indicate the intensity and direction of the relationship among the variables.

The analysis of correlated data will be performed based on Franzblau (1958) by its interpretation that considers:

- If $| \rho | < 0.20$, the correlation is negligible;
- If $0.20 < | \rho | < 0.40$, the correlation is weak;
- If $0.40 < | \rho | < 0.60$, the correlation is moderate;
- If $0.60 < | \rho | < 0.80$, the correlation is strong;
- If $| \rho | > 0.80$, the correlation is very strong.

3 Results

This chapter presents the analysis of the data obtained through the survey conducted with drop-out students in EAD in General Processes Technology course

between the years of 2013 to 2015 of a Distance Teaching Institution of Higher Education, from the north of Santa Catarina with Centers in the states of Paraná, Santa Catarina and Rio Grande do Sul.

The students data with the status of registered students were extracted from the Educational Institution system. These data were transferred into a spreadsheet with the information of registration number, year of registration, registration status, name, e-mail and address that were used to map the students of the institution.

At the beginning of the questionnaire questions were addressed to assess more specifically the drop-out students' profile. These questions cover topics such as: gender, age, marital status, presence of children, schooling, working period, place of residence, family income. Figure 4 shows the percentage of questions relating to the respondents' profile.

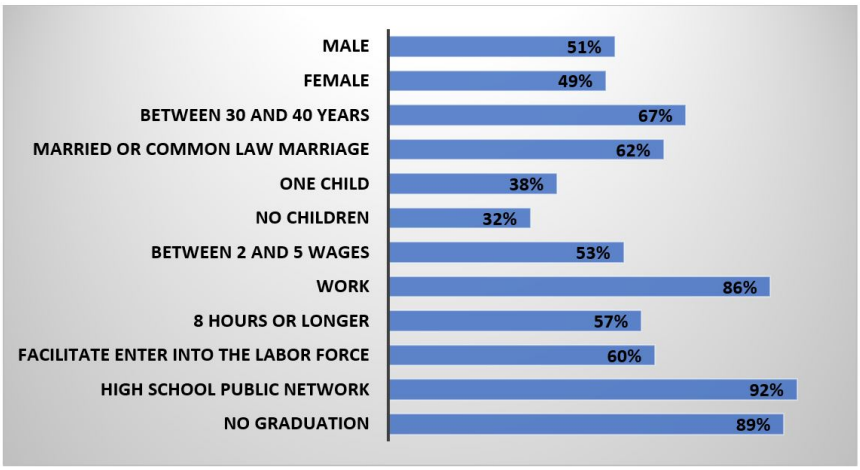

Figure 4. Respondents' profile. **Source:** Author, 2016.

Through the research it was evidenced, that there is no significant difference in gender among the survey respondents, i.e., 51% stated that they were male and 49% female.

Regarding the age range, 67% said to be between 30 and 40 years, this reinforces the EAD Brazil census of 2014, stating that 75% of the students are in this age range. Students who evaded respondents of the questionnaire claimed to be married or under common law marriage, representing 62% of the total. Furthermore, 38% claimed to have a son and 32% no son.

The evaded students' average family income is between 2 and 5 minimum wages, which represents 53%. The necessity of dividing the academic activities with work, is the reality of 86% of the respondents, with 57% having a course load of at least 8 hours of daily work.

For 60% of the respondents, the choice of the course was to believe that it would facilitate their ingress into the labor market. Still for 92% the completion of secondary education was in public school and finally, 89% said they would not have another graduation.

3.1 Correlations

After the data treatment and evaluation of individual issues, the analysis was performed to verify the correlation among the studied groups. The item 3.1.1 introduces some important correlations to understand the evasion phenomenon and Table 3 shows the correlation matrix with all the studied variables.

Table 3. Correlation Matrix.

			GENERAL INFORMATION						ACADEMIC SYSTEM			DIDACTIC MODEL					AVA DIDACTIC MATERIAL						
			General 1	General 2	General 3	General 4	General 5	General 6	System Availability	Updated Information		Internet	Technology			Computer Mastery	Feedback			Content		Interface	
	Variables								Info A	Info B	Info C	Info D	Info E	Info F	Info G	Info H	Info I	Info J	Info K	Info L	Info M	Info N	Info O
			Region	Year of Ingress	Gender	Age Range	Income	Participation another EAD	Dealines	Grades	Plannin	Access	Adaptation to EAD	Personal Commitment	Computer	Use ICT'S	Relationship	Support	Contact	Virtual Library	Activities	Interactivity	Design
GENERAL INFORMATION	General 1 - Region																						
	General 2 - Year of Ingress		-0.054																				
	General 3 - Gender		-0.114	-0.022																			
	General 4 - Age Range		-0.112	0.018	-0.235																		
	General 5 - Income		-0.085	0.183	-0.224	**0.422**																	
	General 6 -Participation another EAD		-0.006	-0.123	-0.174	0.159	0.026																
ACADEMIC SYSTEM	System Availability	Info A - Deadlines	0.005	-0.173	-0.063	0.116	-0.073	-0.164															
	Updated Information	Info B - Grades	0.018	-0.064	0.055	0.063	0.011	-0.101	0.298														
		Info C - Planning	-0.025	-0.070	0.178	0.090	-0.075	0.141	0.177	**0.417**													

Table 3. Continued...

			GENERAL INFORMATION						ACADEMIC SYSTEM			DIDACTIC MODEL					AVA DIDACTIC MATERIAL						
			General 1	General 2	General 3	General 4	General 5	General 6	System Availability	Updated Information		Internet	Technology			Computer Mastery	Feedback			Content		Interface	
	Variables								Info A	Info B	Info C	Info D	Info E	Info F	Info G	Info H	Info I	Info J	Info K	Info L	Info M	Info N	Info O
			Region	Year of Ingress	Gender	Age Range	Income	Participation another EAD	Dealines	Grades	Plannin	Access	Adaptation to EAD	Personal Commitment	Computer	Use ICT'S	Relationship	Support	Contact	Virtual Library	Activities	Interactivity	Design
DIDACTIC MODEL	Internet	Info D - Access	0.085	0.118	-0.112	0.117	0.101	-0.119	0.096	0.355	0.091												
	Technology	Info E - Adaptation to EAD	0.039	-0.135	-0.099	0.282	0.066	0.103	0.279	0.361	**0.549**	0.179											
		Info F - Personal Commitment	-0.126	-0.015	0.060	0.162	0.001	0.079	0.312	**0.458**	**0.444**	0.209	0.374										
		Info G - Computer	-0.052	0.146	-0.037	0.108	0.132	-0.044	0.162	0.338	0.205	**0.694**	0.203	0.340									
	Computer Mastery	Info H - Use ICT'S	-0.104	-0.090	-0.096	0.003	0.076	0.156	0.029	0.309	0.340	**0.418**	0.310	**0.484**	**0.404**								
AVA DIDACTIC MATERIAL	Feedback	Info I - Relationship	0.198	-0.098	-0.101	0.119	-0.047	-0.013	0.123	0.102	-0.026	**0.400**	0.176	0.054	0.329	0.068							
		Info J – Support	0.071	-0.198	0.121	0.014	-0.161	-0.108	0.158	0.327	0.049	0.289	0.054	0.124	0.245	0.047	**0.531**						
		Info K - Contact	0.081	-0.209	-0.129	0.063	0.053	0.009	0.323	0.283	0.179	0.144	**0.455**	0.154	0.303	0.017	0.332	0.345					
	Content	Info L - Virtual Library	0.183	-0.125	0.009	0.010	-0.035	0.071	-0.026	0.339	0.366	**0.427**	0.164	0.296	**0.408**	0.330	0.31	0.287	0.168				
		Info M - Actitivities	0.083	-0.022	0.231	0.106	0.024	0.151	-0.322	-0.114	-0.054	-0.149	-0.062	-0.038	-0.337	-0.067	-0.174	-0.091	-0.158	-0.068			
	Interface	Info N - Interactivity	0.166	-0.006	0.083	0.163	-0.058	0.062	-0.022	0.305	0.316	**0.491**	0.374	0.320	**0.445**	0.273	**0.457**	0.391	0.175	**0.545**	0.037		
		Info O - Design	0.105	-0.058	0.141	0.074	-0.106	-0.088	0.089	0.322	0.352	**0.475**	0.337	0.249	0.368	0.239	**0.406**	**0.458**	0.128	**0.562**	-0.082	**0.678**	

Source: Author, 2016.

3.1.1 Correlation Academic System Vs. Academic System

In this category, it was evidenced the moderate correlation between the variables Marks and Planning, as highlighted in Table 4, with a p-value of 0.417. These two variables relate to the subgroup of Updated Information.

Table 4. Correlation Academic System.

	Variables		ACADEMIC SYSTEM		
			System Availability	Updated Information	
			Info A	Info B	Info C
			Deadlines	Grades	Planning
ACADEMIC SYSTEM	System Availability	Info A - Deadlines			
	Updated Information	Info B - Grades	0.298		
		Info C - **Planning**	0.177	**0.417**	

Source: Author, 2016.

In Table 5, it is observed that the authors Azeiteiro et al. (2015) and Songkran et al. (2015) present the variables Marks and planning as important to the process, since the planning of activities must be fulfilled in order to obtain a satisfactory mark.

Table 5. Correlation Academic System.

Source	Authors	Academic System	
		Grades	Planning
Journal Of Cleaner Production	Azeiteiro et al. (2015)	X	X
Procedia - Social And Behavioral Sciences	Songkram et al. (2015)	X	X

Source: Author, 2016.

Upon analyzing the authors Joksimovic et al. (2015), Siri & Rui (2015) and Vinogradova & Kliukas (2015), it is verified that the category academic system was not relevant for the evasion upon analyzing the factors of educational management.

3.1.2 Correlation Didactic Model Vs. Didactic Model

The didactic model presents five variables for analysis. In Table 6, the variables and their respective correlations are highlighted.

Table 6. Correlation Didactic Model.

	Variables		DIDACTIC MODEL				
			Internet	Tecnology			Computer Mastery
			Info D	Info E	Info F	Info G	Info H
			Access	Adaptation EAD	Personal Commitment	Computer	Use ICTs
DIDACTIC MODEL	Internet	Info D - Access					
	Tecnology	Info E - Adaptation EAD	0.179				
		Info F - Personal Commitment	0.209	0.374			
		Info G - Computer	**0.694**	0.203	0.340		
	Computer Mastery	**Info H - Use ICTs**	**0.418**	0.310	**0.484**	**0.404**	

Source: Author, 2016.

The Table 7 brings in an illustrative form, the correlations among the variables studied by the authors.

Table 7. Overview of the authors about the Didactic Model.

Source	Authors	Didactic Materials and AVA					Didactic Model		
		Relationship	Virtual Library	Interactivity	Interface	Feedback	Access	Adaptation EAD	Computer
Procedia Computer Science	Benta et al. (2015)	X				X	X	X	
Computers & Education	Gikandi et al. (2011)					X		X	
Procedia - Social And Behavioral Sciences	Hubackova & Ruzickova (2015)								
Computers & Education	Kim et al. (2011)		X						X
Computers In Human Behavior	Navimipour & Zareie (2015)		X	X					X
Computers & Education	Petrakou (2010)		X						X
Procedia - Social And Behavioral Sciences	Siri & Rui (2015)	X		X	X		X		

Source: Author, 2016.

The variable internet access presented a strong correlation with the variable computer, with a p-value of 0.694. The variable internet access belongs to the subgroup internet, while the variable computer to the subgroup technology.

According to the literature of Emil et al. (2015) and Kovacova & Vackova (2015), the internet is a critical factor for the evasion with 18% of participation and technology 17% participation in the critical factors.

The strong correlation between both variables it is important for the EAD system, because the student needs to have a good computer to attend classes, and internet access with appropriate speed, because the distance learning process occurs virtually. The authors, Emil et al. (2015) and Kovacova & Vackova (2015) and Siri And Rui (2015) present these variables as important in the teaching-learning process, as well as for the factor remain in the course.

The variable access presented a moderate correlation with the variable use of ICT's with p-value of 0.418. The internet access belongs to the subgroup internet, while the use of ICT's to the subgroup computer mastery.

The relationship of these variables is presented as important, because for the use of ICT's knowledge is required for use of the internet for sending e-mail, chats and discussion forums. According to Emil et al. (2015), to use ICT's, it is crucial the internet access with quality connection.

Another moderate correlation presented in this category is among the variables personal commitment and use of ICT's. The variable personal commitment belongs to subgroup technology and the use of ICT's to the subgroup computer mastery.

Upon analyzing the studies in the literature, it is evident that none of the authors indicates a relationship between both variables. The authors Benta et al. (2015) and Harandi (2015) show the importance of these variables individually and not on the relationship between them.

The variable computer presented a moderate correlation with the variable use of ICT's with p-value of 0.404. The variable computer belongs to the subgroup technology, while the use of ICT's to the subgroup computer mastery.

With the review of previous studies, it is possible to check that none of the analyzed authors showed a correlation between these variables. The authors Navimipour & Zareie (2015) and Rohayami et al. (2015) present these variables as important individually, and not the relationship of both.

3.1.3 Correlation AVA and Didactic Model Vs. AVA and Didactic Material

AVA and Didactic Material comprises seven variables for analysis. In Table 8, the variables and their respective correlations are highlighted.

Table 8. Correlation AVA and Didactic Model.

Variables			AVA DIDACTIC MATERIAL						
			Feedback			Content		Interface	
			Info I	Info J	Info K	Info L	Info M	Info N	Info O
			Relationship	Support	Contact	Virtual Library	Activities	Interactivity	Design
AVA DIDACTIC MATERIAL	Feedback	Info I - Relationship							
		Info J - **Support**	**0.531**						
		Info K - Contact	0.332	0.345					
	Content	Info L - Virtual Library	0.31	0.287	0.168				
		Info M - Activities	-0.174	-0.091	-0.158	-0.068			
	Interface	Info N - **Interactivity**	0.457	0.391	0.175	**0.545**	0.037		
		Info O - **Design**	**0.406**	**0.458**	0.128	**0.562**	-0.082	**0.678**	

Source: Author, 2016.

Table 9 represents the correlations among the variables studied by the authors of the theoretical referential.

Table 9. Overview of the authors about AVA and Didactic Materials.

Source	Authors	Didactic Materials and AVA					
		Relationship	Feedback	Support	Interactivity	Interface	Virtual Library
Procedia - Social And Behavioral Sciences	Cavus (2015)	X	X	X			
Expert Systems With Applications	Chao & Chen (2009)				X	X	
Procedia - Social And Behavioral Sciences	Hubackova & Ruzickova (2015)	X	X	X			
Computers & Education	Joksimović et al. (2015)	X		X	X	X	
Computers In Human Behavior	Navimipour & Zareie (2015)				X		X
Procedia - Social And Behavioral Sciences	Siri & Rui (2015)	X			X	X	
Procedia - Social And Behavioral Sciences	Slechtova (2015)				X	X	
Procedia - Social And Behavioral Sciences	Songkram et al. (2015)	X	X	X			
Procedia - Social And Behavioral Sciences	Truskolaska et al. (2015)			X		X	
Procedia - Social And Behavioral Sciences	Vinogradova & Kliukas (2015)				X	X	X

Source: Author, 2016.

The variable relationship presented a moderate correlation with the variable support with p-value of 0.531. Both variables belong to the subgroup Feedback.

According to Cavus (2015), Hubackova & Ruzickova (2015) and Songkran et al. (2015), the relationship, the feedback with the tutors' and Professors' support to the students during the course, participation in chats and discussions is crucial to the success of the courses promoted in the EAD modality.

Another relationship indicated by the correlation is between the variable relationship and interactivity, with a p-value of 0.457. The variable relationship belongs to the subgroup Feedback, while the variable interactivity to the subgroup interface.

There is a relationship point among the variables, because the student needs a platform to communicate with them in a pleasing way stimulating even to have participation and relationship with other colleagues and Professors of the course. The authors Joksimović et al. (2015) and Siri & Rui (2015) point out these two variables as important.

The variable relationship, also relates to interface moderately, presenting a p-value of 0.406. According to the relation between these variables is shown also by the authors Joksimović et al. (2015) and Siri & Rui (2015), because the friendly and easy-to-use platform contributes to a good relationship and interactivity among students and Professors.

The support showed correlation with interface, presenting a p-value of 0.458. The variable support belongs to the subgroup Feedback, while the variable interface to the subgroup interface. The authors Joksimović et al. (2015) and Truskolaska et al. (2015) surveyed points that the interface presents 10% of participation in the critical factors, while Feedback 20% of participation.

The relationship between these variables is interesting for the study because it would make sense to have support and motivation on the part of the tutor, if the platform is not presented in a friendly and easy to use way to the user. The authors Joksimović et al. (2015) and Siri & Rui (2015) point out these two variables as critical factors to the evasion process.

Another existing correlation is between the variable virtual library and interactivity, with a p-value of 0.545. The variable virtual library belongs to the subgroup content, while the variable interactivity to the subgroup interface. The correlation of these variables is significant because the course subjects should have questionnaires and activities in their virtual library with a structured content interacting with the student.

The authors Navimipour & Zareie (2015) and Vinogradova & Kliukas (2015) present these two variables as important.

The variable virtual library also has a moderate correlation with interface, with a p-value of 0.562. This relationship has its importance in the sense of having the material available within a friendly, easy to consult and browse platform, according to a study of Vinogradova & Kliukas (2015).

In this category, the variable interactivity presents a strong correlation with interface, with a p-value of 0.678. The interactivity and interface variables belong to the same subgroup interface. According to studies conducted by Chao & Chen (2009) and Slechtova (2015), the relationship of these variables is significant, because the didactic material made available to the student must have an interactive structure with easy-to-use content in web platform.

3.1.4 Correlation Academic System Vs. Didactic Model

The correlation between the academic system and didactic model, resulted in three variables for analysis. In Table 10, the variables and their respective correlations are highlighted.

Table 10. Correlation between Academic System and Didactic Model.

		Variables	ACADEMIC SYSTEM		
			System Availability	Updated Information	
			Info A	Info B	Info C
			Deadlines	Grades	Planning
DIDACTIC MODEL	Internet	Info D - Access	0.096	0.355	0.091
	Technology	Info E - **Adaptation to EAD**	0.279	0.361	**0.549**
		Info F - **Personal Commitment**	0.312	**0.458**	**0.444**
		Info G - Computer	0.162	0.338	0.205
	Computer Mastery	Info H - **Use ICT**'S	0.029	0.309	0.34

Source: Author, 2016.

Table 11. represents the correlations among the variables studied by the authors of the theoretical referential.

Table 11. Overview of the authors about the Academic System and the Didactic Model.

Source	Authors	Academic System	Didactic Model
		Planning	Personal Commitment
Computers & Education	Gikandi et al. (2011)	**X**	**X**

Source: Author, 2016.

Upon analyzing the relationship between Academic System and Didactic Model, it is evident that the variable marks has a correlation with the variable personal commitment, moderately with p-value of 0.458. This correlation is justified, because if the student has not personal commitment to study and dedicate to the activities, his or her marks will not be satisfactory.

The variable planning and study support had a moderate correlation with EAD adaptation, with a p-value of 0.549. This correlation means that within the methodology of distance learning the student needs a good planning and organization in the form of studying.

Upon analyzing the literature, none of the studied authors presented these factors correlated as significant to the permanence of the student in the course.

The variables planning and personal commitment showed a moderate correlation between themselves, with a p-value of 0.444. Considering that before registering the

student must know beforehand the chosen course and be aware that should be committed to the activities proposed by the institution. Based on studies of Gikandi et al. (2011), these two variables are presented as critical for evasion.

3.1.5 Correlation Didactic Model Vs. AVA and Didactic Material

In the correlation between Didactic Model and AVA and Didactic Material, seven correlations were highlighted among the variables. In Table 12, the variables and their respective correlations are highlighted.

Table 12. Correlation didactic model.

	Variables		DIDACTIC MODEL				
			Internet		Technology		Computer Mastery
			Info D	Info E	Info F	Info G	Info H
			Access	Adaptation to EAD	Personal Commitment	Computer	Use ICT'S
AVA DIDACTIC MATERIAL	Feedback	Info I - **Relationship**	**0.4**	0.176	0.054	0.329	0.068
		Info J - Support	0.289	0.054	0.124	0.245	0.047
		Info K - **Contact**	0.144	**0.455**	0.154	0.303	0.017
	Content	Info L - **Virtual Library**	**0.427**	0.164	0.296	**0.408**	0.33
		Info M - Activities	-0.149	-0.062	-0.038	-0.337	-0.067
	Interface	Info N - **Interactivity**	**0.491**	0.374	0.32	**0.445**	0.273
		Info O - **Design**	**0.475**	0.337	0.249	0.368	0.239

Source: Author, 2016.

Table 13 represents the correlations among the variables studied by the authors of the theoretical referential.

Table 13. Authors' view about AVA and the didactic materials and didactic model.

Source	Authors	Didactic Materials and AVA					Didactic Model		
		Relationship	Virtual Libray	Interactivity	Interface	Feedback	Access	Adaptation EAD	Computer
Procedia Computer Science	Benta et al. (2015)	X				X	X	X	
Computers & Education	Gikandi et al. (2011)					X		X	
Procedia - Social And Behavioral Sciences	Hubackova & Ruzickova (2015)								
Computers & Education	Kim et al. (2011)		X						X
Computers In Human Behavior	Navimipour & Zareie (2015)		X	X					X
Computers & Education	Petrakou (2010)		X						X
Procedia - Social And Behavioral Sciences	Siri & Rui (2015)	X		X	X		X		

Source: Author, 2016.

The variable internet access presented a moderate correlation with the variable relationship, with a p-value of 0.400. In the EAD modality, the relationship between students and Professors in virtual form occurs in most situations, thus, this correlation between both is justified. In the literature, the authors Hubackova & Ruzickova (2015), Siri & Rui (2015) also presented this same relationship among the variables.

Another correlation presented by the study is between variables internet access and virtual library, with a p-value of 0.427. The interaction of these variables is important for the learning process in the EAD, because the study materials are posted on the virtual library, thus in order to have access an internet connection is needed.

The variable internet access presented correlation with the variable interactivity, with a p-value of 0.491. The authors Siri & Rui (2015), in their studies indicate the relationship of these variables as important, because it would be useless to have a good content with interactivity if there is not a proper internet connection.

The study showed a moderate correlation between the internet and the interface, with a p-value of 0.475. In the literature review, the authors Siri & Rui (2015) also evidenced this relationship, because without the connection to the internet, the web platform in an interactive way would not make sense.

The variable adaptation with distance education correlated with feedback, p-value of 0.455. This relationship is evidenced by the authors Benta et al. (2015); Gikandi et al. (2011) in their studies and makes sense, because even not having in-class instruction the student needs a return on the part of the professors and tutors, for a better adaptation to EAD, which presents no physical contact.

The computer presented a moderate correlation with the variable virtual library, with p-value of 0.408. In the virtual library all the necessary material is available for completion of the academic activities, to have access to this material it is necessary to use a computer. When reviewing the literature, the authors Kim et al. (2011), Navimipour & Zareie (2015), Petrakou (2010) also highlight these factors as relevant.

The variable computer presented a moderate correlation with the variable interactivity with p-value of 0.455. This relationship is presented, therefore, in order to enjoy an environment with structured content in an interactive way, it is necessary to use a computer. The literature review by Navimipour & Zareie (2015) also presented these factors as significant.

4 Conclusions

After analyzing the data with the answers of evaded students of Technology Course in General Processes in the EAD modality, it is possible to infer that the difficulties performing the activities proposed within the deadline can be a relevant question to tax evasion, since 35% of the respondents said that they almost always have difficulties performing the academic activities. These difficulties may be related to doubts in relation to activities or by the lack of time available by the student, since 86% reconcile academic activities with work and 57% work over 8 hours a day on average.

The personal commitment can also be considered a factor relevant to evasion, because the respondents stated that they rarely study at home or in alternative schedules. This assertion reaches 31% staring in the direct question that the main reason for put a hold on the registration is the lack of time to devote to studies.

Another relevant factor for evasion confirmed in the case study is the adaptation to distance education, given that 52% of the surveyed students reported missing physical presence and contact with other students. This assertion is reinforced by the result of

the feedback theme, in which 51% of the respondents claim not to with other students and professors.

The question regarding the support was also important as an evasion factor, because 36% of the respondents said they rarely felt supported or motivated by tutors for completion or participation in the activities.

The respondents also stated that they had a good internet access, followed by a good quality computer to watch the video lessons, perform the activities, keep in touch via chats discussion, this issue is fundamental for courses in the EAD modality, with this result, this was not considered a critical factor for the evasion.

The web platform had friendly language, easy to navigate. The virtual library had the materials used appropriately, facilitating the interactivity among learners, professors and tutors.

The respondents reported having a good relationship with colleagues, tutors and professors, thus facilitating the teaching-learning process. Table 14 presents a summary of the factors identified as critical by the result of the case study.

In addition to critical and non-critical factors, four factors that had means next to each other in the answers options “agree” and “do not agree” with the statements were identified. They were named as “factors of attention”, because they may not be influencing at this time, however, represent potential weak points for a portion of the respondents.

The factor mark is presented as a factor of attention, because 28% responded that are reasonably satisfied with their marks and 21% very little satisfied.

Whereas in the planning factor, 15% of the respondents do not agree nor disagree that planned themselves for the course, seeking information about the course and the EAD modality.

The factors interface and interactivity were also a factor of attention, because the systems are increasingly interactive, where a very static platform does not attract the student’s attention.

Table 14 represents in summary the results obtained in the case study. It is described in a visual way the classification of variables in the indicators of critical factor, non-critical factor and factor that deserves attention.

Table 14. Summary of the factors of the case study.

	Critical Factors for Literature Evasion			Critical Factors for Evasion in the Case Study		
	Category	**Subgroups**	**Variable**	**It is a critical factor**	**It is not a critical factor**	**Attention Factor**
Pedagogical Management	Academic System	System Availability	Deadlines	X		
		Updated Informaton	Grades			X
			Planning			X
	Didactic Model	Internet	Access		X	
		Technology	Adaptation to EAD	X		
			Personal Commitment	X		
			Computer		X	
		Computer Mastery	Use ICT’s		X	
	AVA and Didactic Material	Feedback	Relationship		X	
			Support	X		
			Contact	X		
		Content	Virtual Library		X	
			Activities		X	
		Interface	Design			X
			Interactivity			X

Source: Author, 2016.

5 Final considerations

At the end of the work, it is possible to state that the objectives were met, since that a model with the critical factors of Pedagogical Management to the evasion phenomenon was established, using the research already carried out by other authors on the subject. Through the research carried out, it was possible to determine the impact variables for the evasion and prepare the questionnaire answered by the sample of the selected evaded students.

With the research it was possible to establish five critical factors to the evasion phenomenon. The first factor determined by the research is related to the difficulty meeting the deadlines for completion of the proposed academic activities. The second factor is the adaptation to the EAD education, where the respondents claim to miss the in-class physical contact, since the contact in the EAD course is basically virtual courses among professors, colleagues and tutors.

The third factor reported by the students is related to personal commitment, they claim they do not have time to devote to studies in zones in schedules beyond the video classes periods.

As the fourth and fifth factors are the support and *feedback*, respectively. The students said they do not feel supported and motivated by the tutors and professors for the realization of the activities and continuity of the course. In addition, they stated not to receive *feedback* through meetings and in-class meetings with colleagues, professors and tutors.

Four points of attention can be reported at the end of this research. The factors interactivity and interface should be treated carefully by EIS, because this has to do with how the Web platform is offered to the students. In addition to these, the marks and planning require a follow up, because the students answering the questionnaire did not demonstrate total satisfaction with the marks. Regarding the planning, the students did not inform on the form of the course in the EAD modality.

As positive points, the students answering the questionnaires pointed not to experience difficulties using the ICT's, the study materials are available in the virtual library. Another positive factor is related to the use of appropriate computers and good connections to the internet, this is justified by the digital evolution of the 21st century.

In spite of these aspects not being mentioned as relevant in this research, they must be treated in order to maintain or improve the level of service provided, since that in the literature review all these factors were relevant in other studies carried out. If such factors nowadays are not critical for the evasion, they might become.

The questionnaire was considered easy to understand by the test performed previously, and this is a very important step for the good result later, i.e., good quality of the responses received. This questionnaire covered the issues necessary to ensure that the study was completed successfully.

Even with these limitations and difficulties, the research took place as planned, producing results that can produce practical actions in several HEIs, considering the model applied in this research.

The theme related to evasion is very important, and it is believed that this study can contribute to the literature, aggregating the deepening of the subject. Also, other researchers might give continuity in the study, allowing the EIS to have a more structured analysis of the potential causes of the evasion phenomenon and therefore promote actions in the students' retention.

References

Almeida, M. I., & Pimenta, S. G. (2014). Pedagogia universitária: valorizando o ensino e a docência na universidade. *Revista Portuguesa de Educação*, 2(27), 7-31. http://dx.doi.org/10.21814/rpe.6243.

Almeida, O. C. S. (2007). *Evasão em Cursos a Distância: validação de instrumento, fatores influenciadores e cronologia da desistência* (Dissertação de mestrado). Universidade de Brasília, Brasília.

Associação Brasileira de Ensino a Distância – ABED. (Org.). (2014). *Censo EAD Brasil 2014: relatório analítico da aprendizagem a distância no Brasil*. Retrieved in 2015, November 30, from http://www.abed.org.br

Azeiteiro, U. M., Bacelar-Nicolau, P., Caetano, F. J. P., & Caeiro, S. (2015). Education for sustainable development through e-learning in higher education: experiences from Portugal. *Journal of Cleaner Production*, 106, 308-319. http://dx.doi.org/10.1016/j.jclepro.2014.11.056.

Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers & Education*, 52(2), 402-416. http://dx.doi.org/10.1016/j.compedu.2008.09.009.

Benta, D., Bologa, G., Dzitac, S., & Dzitac, I. (2015). University level learning and teaching via e-learning platforms. *Procedia Computer Science*, 55, 1366-1373. http://dx.doi.org/10.1016/j.procs.2015.07.123.

Cavus, N. (2015). Distance Learning and Learning Management Systems. *Procedia: Social and Behavioral Sciences*, 191, 872-877. http://dx.doi.org/10.1016/j.sbspro.2015.04.611.

Chang, Y., Kao, W.-Y., Chu, C.-P., & Chiu, C.-H. (2009). A learning style classification mechanism for e-learning. *Computers & Education*, 53(2), 273-285. http://dx.doi.org/10.1016/j.compedu.2009.02.008.

Chao, R., & Chen, Y.-H. (2009). Evaluation of the criteria and effectiveness of distance e-learning with consistent fuzzy preference relations. *Expert Systems with Applications*, 36(7), 10657-10662. http://dx.doi.org/10.1016/j.eswa.2009.02.047.

Duarte, Z. M. C. (2011). *Educação a Distância (EAD): estudo dos fatores críticos de sucesso na gestão de cursos da região metropolitana de Belo Horizonte na visão dos tutores* (Dissertação de mestrado). Curso de Administração, Universidade FUMEC, Belo Horizonte.

Emil, V., Roza, V., & Anastasia, F. (2015). Prospects for the use of foreign experience of Distance Learning. *Procedia: Social and Behavioral Sciences*, 191, 1909-1912. http://dx.doi.org/10.1016/j.sbspro.2015.04.457.

Franzblau, A. (1958). A primer of statistics for non-statisticians (Cap. 7). Oxford, England: Harcourt, Brace.

Gikandi, J., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: a review of the literature. *Computers & Education*, 57(4), 2333-2351. http://dx.doi.org/10.1016/j.compedu.2011.06.004.

Harandi, S. R. (2015). Effects of e-learning on students' motivation. *Procedia: Social and Behavioral Sciences*, 181, 423-430. http://dx.doi.org/10.1016/j.sbspro.2015.04.905.

Hubackova, S., & Ruzickova, M. (2015). ICT in lifelong education. *Procedia: Social and Behavioral Sciences*, 186, 522-525. http://dx.doi.org/10.1016/j.sbspro.2015.04.176.

Hung, M., Chou, C., Chen, C.-H., & Own, Z.-Y. (2010). Learner readiness for online learning: scale development and student perceptions. *Computers & Education*, 55(3), 1080-1090. http://dx.doi.org/10.1016/j.compedu.2010.05.004.

Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira – INEP. (2014). Retrieved in 2015, September 21, from http://portal.inep.gov.br

Joksimović, S., Gašević, D., Loughin, T. M., Kovanović, V., & Hatala, M. (2015). Learning at distance: effects of interaction traces on academic achievement. *Computers & Education*, 87, 204-217. http://dx.doi.org/10.1016/j.compedu.2015.07.002.

Khlaisang, J., & Likhitdamrongkiat, M. (2015). E-learning System in Blended Learning Environment to Enhance Cognitive Skills for Learners in Higher Education. *Procedia: Social and Behavioral Sciences*, 174, 759-767. http://dx.doi.org/10.1016/j.sbspro.2015.01.612.

Kim, J., Kwon, Y., & Cho, D. (2011). Investigating factors that influence social presence and learning outcomes in distance higher education. *Computers & Education*, 57(2), 1512-1520. http://dx.doi.org/10.1016/j.compedu.2011.02.005.

Kovacova, L., & Vackova, M. (2015). Implementation of e-learning into the Process Security Education in Universities. *Procedia: Social and Behavioral Sciences*, 182, 414-419. http://dx.doi.org/10.1016/j.sbspro.2015.04.810.

Laguardia, J., & Portela, M. (2009). Evasão na educação a distância. *Educação Temática Digital*, 11(1), 349-379.

Loro, A. P., & Costa, S. M. (2009). A formação do professor e do tutor de educação especial nos cursos de graduação e pós-graduação a distância. *UNOPAR Científica Ciências Humanas e da Educação*, 10(1), 69-73.

Machado, M. R. (2009). *A evasão nos cursos de agropecuária e informática: nível técnico da Escola Agrotécnica Federal de Inconfidentes-MG (2002 a 2006)* (Dissertação de mestrado). Curso de Educação, Universidade de Brasília, Brasília.

Mendonça, A. F. (2007). Docência on-line: a virtualização do ensino. In: *Congresso Internacional de Educação a Distância-ABED*. Curitiba: ABED. Retrieved in 2016, August 27, from http://www.abed.org.br/congresso2007/tc/552007112719PM.pdf.

Moura-Walter, A. (2006). *Variáveis preditoras de evasão em cursos a distância* (Dissertação de mestrado). Instituto de Psicologia, Universidade de Brasília, Brasília.

Navimipour, N. J., & Zareie, B. (2015). A model for assessing the impact of e-learning systems on employees' satisfaction. *Computers in Human Behavior*, 53, 475-485. http://dx.doi.org/10.1016/j.chb.2015.07.026.

Netto, C., Guidotti, V., & Santos, P. K. (2012). A evasão na EaD: investigando causas, propondo estratégias. In: *Conferencia Latino Americana Sobre el Abandono de la Educación Superior*. Porto Alegre: PUCRS. Retrieved in 2015, April 30, from http://www.alfaguia.org/wwwalfa/images/ponencias/clabesII/LT_1/ponencia_completa_26.pdf

Oproiu, G. C. (2015). A study about using e-learning platform (Moodle) in university teaching process. *Procedia: Social and Behavioral Sciences*, 180, 426-432. http://dx.doi.org/10.1016/j.sbspro.2015.02.140.

Petrakou, A. (2010). Interacting through avatars: virtual worlds as a context for online education. *Computers & Education*, 54(4), 1020-1027. http://dx.doi.org/10.1016/j.compedu.2009.10.007.

Rohayani, A., Kurniabudi, & Sharipuddin, (2015). A Literature Review: Readiness Factors to Measuring e-Learning Readiness in Higher Education. *Procedia Computer Science*, 59, 230-234. http://dx.doi.org/10.1016/j.procs.2015.07.564.

Senhorinha, M. J. K., Back, T., & Oliveira, M. A. (2015). Fatores Críticos da Gestão Pedagógica que Influenciam na Evasão do EAD: Uma Revisão da Literatura. In: *Anais do Congresso Internacional De Conhecimento E Inovação* (p. 976–994). Florianópolis: Ufsc.

Shea, P., & Bidjerano, T. (2010). Learning presence: towards a theory of self-efficacy, self-regulation, and the development of a communities of inquiry in online and blended learning environments. *Computers & Education*, 55(4), 1721-1731. http://dx.doi.org/10.1016/j.compedu.2010.07.017.

Simonova, I. (2015). E-learning in Mind Maps of Czech and Kazakhstan University Students. *Procedia: Social and Behavioral Sciences*, 171, 1229-1234. http://dx.doi.org/10.1016/j.sbspro.2015.01.236.

Sindicado das Mantenedoras de Ensino Superior – SEMESP (Org.). (2015). *Mapa do Ensino Superior no Brasil 2015*. Retrieved in 2016, August 27, from http://convergenciacom.net/pdf/mapa-ensino-superior-brasil-2015.pdf

Siri, A., & Rui, M. (2015). Distance education for health professions' students. *Procedia: Social and Behavioral Sciences*, 174, 730-738. http://dx.doi.org/10.1016/j.sbspro.2015.01.608.

Slechtova, P. (2015). Attitudes of undergraduate students to the use of ICT in education. *Procedia: Social and Behavioral Sciences*, 171, 1128-1134. http://dx.doi.org/10.1016/j.sbspro.2015.01.218.

Songkram, N., Khlaisang, J., Puthaseranee, B., & Likhitdamrongkiat, M. (2015). E-learning system to enhance cognitive skills for learners in higher education. *Procedia: Social and Behavioral Sciences*, 174, 667-673. http://dx.doi.org/10.1016/j.sbspro.2015.01.599.

Tamrakar, A., & Mehta, K. K. (2011). Analysis of effectiveness of web based elearning through information technology. *International Journal of Soft Computing and Engineering (IJSCE)*, 1(3), 55-59.

Tîrziu, A. M., & Vrabie, C. (2015). Education 2.0: E-Learning Methods. *Procedia: Social and Behavioral Sciences*, 186, 376-380. http://dx.doi.org/10.1016/j.sbspro.2015.04.213.

Truong, H. M. (2016). Integrating learning styles and adaptive e-learning system: current developments, problems and opportunities. *Computers in Human Behavior*, 55, 1185-1193. http://dx.doi.org/10.1016/j.chb.2015.02.014.

Truskolaska, J., Łuka, M., Toruj, N., Wrona, K., & Smagowska, P. (2015). E-learning at the polish university in the opinion of students. *Procedia: Social and Behavioral Sciences*, 174, 3494-3499. http://dx.doi.org/10.1016/j.sbspro.2015.01.1063.

Vinogradova, I., & Kliukas, R. (2015). Methodology for Evaluating the Quality of Distance Learning Courses in Consecutive Stages. *Procedia: Social and Behavioral Sciences*, 191, 1583-1589. http://dx.doi.org/10.1016/j.sbspro.2015.04.364.