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

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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 influem na gestão da evasão escolar em cursos
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.

![Activities organization](image)
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 |
|-------------------------------|----------------------------------|-----------------|---------------------------|----------------|
| 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              |
| Computers & Education         | Gikandi et al. (2011)            |                 |                           | 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              |
| Procedia - Social And Behavioral Sciences | Khliaisang & Likhitdamrongkiat (2015) |                 |                           | X              |
### Table 1. Continued...

| Source                          | Authors                        | Academic System | Didactic Materials and AVA | Didactic Model |
|---------------------------------|--------------------------------|-----------------|----------------------------|----------------|
| 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              |
| Procedia - Social And Behavioral Sciences | Oproiu (2015)                   |                 |                            | X              |
| Computers & Education           | Petrakou (2010)                |                 | X                          | X              |
| Procedia Computer Science       | Rohayani et al. (2015)         |                 |                            |                |
| 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              |
| Procedia - Social And Behavioral Sciences | Slechta (2015)                  |                 |                            | X              |
| Procedia - Social And Behavioral Sciences | Songkram et al. (2015)         |                 | X                          | X              |
| Procedia - Social And Behavioral Sciences | Tirziu & Vrabie (2015)          |                 |                            | X              |
| Computers In Human Behavior     | Truong (2016)                  |                 |                            | X              |
| Procedia - Social And Behavioral Sciences | Truskolaska et al. (2015)       |                 | 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.

![Evasion Critical Factors](image)

**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.
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         | Access                      |
| Academic         |                 |                |                             |
|                  | Deadlines       | Grades         | Access                      |
|                  | Regarding Study Planning and Support |             |                             |
|                  | Adaptation to Study and Distance |       |                             |
|                  | Personal Commitment |             |                             |
|                  | Computer        |                |                             |
|                  | Use ICTs        |                |                             |
| Didactic Model   |                 |                |                             |
|                  | Adaptation to Distance Study |       |                             |
|                  | Personal Commitment |             |                             |
|                  | Computer        |                |                             |
|                  | Use ICTs        |                |                             |

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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.

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.

| Variables | GENERAL INFORMATION | ACADEMIC SYSTEM | DIDACTIC MODEL | AVA DIDACTIC MATERIAL |
|-----------|---------------------|-----------------|----------------|-----------------------|
|           | General 1 | General 2 | General 3 | General 4 | General 5 | General 6 | 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 | -0.054 |          |          |          |          |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Gender    | -0.114  | -0.022  |          |          |          |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Age Range | -0.112  | 0.018   | -0.235  |          |          |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Income    | -0.085  | 0.183   | -0.224  | 0.422    |          |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Participation another EAD | -0.006 | -0.123  | -0.174  | 0.159    | 0.026    |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Updated Information |        |        |        |        | System Availability | Info A - Deadlines | 0.005 | -0.173  | -0.063  | 0.116   | -0.073  | -0.164  |        |        |        |        |        |        |        |        |        |        |        |
| Graded | Info B - Grades | 0.018   | -0.064  | 0.055   | 0.063   | 0.011   | -0.101  | 0.298  |        |        |        |        |        |        |        |        |        |        |        |        |
| Planning | Info C - Planning | -0.025  | -0.070  | 0.178   | 0.090   | -0.075  | 0.141   | 0.177  | 0.417  |        |        |        |        |        |        |        |        |        |        |        |
| Variables | AVA DIDACTIC MATERIAL | DIDACTIC MODEL | GENERAL INFORMATION | ACADEMIC SYSTEM | DIDACTIC MODEL | AVA DIDACTIC MATERIAL |
|-----------|-----------------------|---------------|-------------------|----------------|---------------|-----------------------|
| Region    | General 1             | -0.104        | -0.046            | -0.242         | -0.064         | 0.508                 |
| Year of Ingress | General 2          | -0.019        | -0.047            | -0.032         | -0.068         | 0.508                 |
| Gender    | General 3             | 0.003         | 0.075             | 0.049          | 0.029          | 0.508                 |
| Age Range | General 4             | -0.013        | 0.123             | -0.044         | 0.162          | 0.508                 |
| Income    | General 5             | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Participation another EAD | General 6  | -0.010        | 0.106             | 0.024          | 0.151          | 0.508                 |
| Deadlines | Info A                | 0.003         | 0.075             | 0.049          | 0.029          | 0.508                 |
| Grades    | Info B                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Plannin   | Info C                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Access    | Info D                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Adaptation to EAD | Info E       | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Personal Commitment | Info F  | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Computer  | Info G                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Use ICT'S | Info H                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Relationship | Info I            | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Support   | Info J                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Contact   | Info K                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Virtual Library | Info L        | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Activities | Info M              | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Interactivity | Info N          | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |
| Design    | Info O                | 0.010         | 0.071             | 0.079          | 0.079          | 0.508                 |

Source: Author, 2016.

Table 3. Continued...
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           |        |        |        |

Source: Author, 2016.

In Table 5, it is observed that the authors Azeiteiro et al. (2015) and Songkram 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 |
|-------------------------------------|--------------------------------|-----------------|
| 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           |          |          |        |        |        |

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 |
|---------------------------------------------|--------------------------------------|-----------------------------|----------------|
| Procedia Computer Science                   | Benta et al. (2015)                  | X                           | X X X          |
| Computers & Education                       | Gikandi et al. (2011)                | X                           | X X            |
| Procedia - Social And Behavioral Sciences   | Hubackova & Ruzickova (2015)         |                             |                |
| Computers & Education                       | Kim et al. (2011)                    |                             | X              |
| Computers In Human Behavior                 | Navimipour & Zareie (2015)           | X                           |                |
| Computers & Education                       | Petrakou (2010)                      |                             | X              |
| Procedia - Social And Behavioral Sciences   | Siri & Rui (2015)                    | X                           | X 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 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    | 0.531     | 0.329   | 0.457     |
| Info J    | 0.332     | 0.287   | 0.391     |
| Info K    | 0.345     | 0.168   | 0.175     |
| Info L    | -0.174    | -0.091  | -0.068    |
| Info M    | -0.037    | -0.082  | 0.678     |
| Info N    |           |         |           |
| Info O    |           |         |           |

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 |
| 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 | Didactic Model |
|-----------|-----------------|----------------|
| System Availability | Updated Information |         |
| Info A | Info B | Info C | Info D - Access | Info E - Adaptation to EAD | Info F - Personal Commitment | Info G - Computer | Info H - Use ICT'S |
| Deadlines | Grades | Planning | 0.096 | 0.355 | 0.091 | 0.279 | 0.361 | 0.549 | 0.312 | **0.458** | 0.444 | 0.162 | 0.338 | 0.205 | 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 |
|--------|---------|-----------------|----------------|
| Computers & Education | Gikandi et al. (2011) | Planning | Personal Commitment | 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
Critical factors of pedagogical... 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                     | 0.4      | 0.176      | 0.054 | 0.329 | 0.068 |
| Info E                     | 0.289    | 0.054      | 0.124 | 0.245 | 0.047 |
| Info F                     | 0.144    | 0.455      | 0.154 | 0.303 | 0.017 |
| Info G                     | 0.427    | 0.164      | 0.296 | 0.408 | 0.33  |
| Info H                     | -0.149   | -0.062     | -0.038| -0.337| -0.067|
| Info I - Relationship      | 0.491    | 0.374      | 0.32  | 0.445 | 0.273 |
| Info J - Support           | 0.337    | -0.038     | 0.062 | -0.337| 0.067 |
| Info K - Contact           | 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 |
|-------------------------------|---------------------------------------|-----------------------------|----------------|
| Procedia Computer Science     | Benta et al. (2015)                   | X                           | X              |
| Procedia - Social And Behavioral Sciences | Hubackova & Ruzickova (2015) | X                            | X              |
| Computers & Education         | Gikandi et al. (2011)                 | X                           | X              |
| Computers & Education         | Kim et al. (2011)                     | X                           |                |
| Computers In Human Behavior   | Navimipour & Zareie (2015)            | X X                         | X              |
| Computers & Education         | Petarakou (2010)                      | X                           |                |
| Procedia - Social And Behavioral Sciences | Siri & Rui (2015) | X 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**                                 |
| **Academic System**                   | System Availability                           |
|                                       | Deadlines                                     |
|                                       | Grades                                        |
|                                       | Planning                                      |
| **Didactic Model**                    | Internet                                      |
|                                       | Access                                        |
|                                       | Adaptation to EAD                             |
|                                       | Technology                                    |
|                                       | Personal Commitment                           |
|                                       | Computer                                      |
| **Computer Mastery**                  | Use ICT’s                                     |
|                                       | Relationship                                  |
| **AVA and Didactic Material**         | Support                                       |
|                                       | Contact                                       |
| **Content**                           | Virtual Library                               |
|                                       | Activities                                    |
| **Interface**                         | Design                                        |
|                                       | Interactivity                                 |

**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.
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