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Factors that Influence the Satisfaction of Students with Educational Institutions in Distance Learning Modality in Brazilian Higher Education

Fatores que Influenciam a Satisfação de Discentes com Instituições Educacionais na Modalidade a Distância no Ensino Superior Brasileiro

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Abstract

The objective of this research is to identify the antecedent factors that affect the perceived quality of the course and the subsequent students' satisfaction with high education institutions in the distance learning modality. For this, descriptive research was carried out, with cross-section and quantitative data through the application of an electronic questionnaire. The data were analyzed by structural equation modeling. The results indicate that the constructs support for learning, financial risk and technological ability influence the perceived quality of the course, which, in turn, positively impacts the satisfaction with the teaching institution by the students. There is a theoretical contribution to the teaching-learning area. In practical terms, the results confirm paths for expanding the modality in distance education, thus contributing to the improvement and creation of new technologies aimed at distance education, as well as teaching methodologies, to increase its use exponentially and adherence more students and a process of continuous improvement of results.

Keywords: Teaching-learning. Distance learning. Perceived quality. Satisfaction with teaching institutions.

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Resumo

O objetivo desta pesquisa é identificar os fatores antecedentes que afetam a qualidade percebida do curso e a posterior satisfação dos alunos com instituições de ensino superior na modalidade a distância. Para isso, foi realizada uma pesquisa descritiva, com corte transversal e dados quantitativos obtidos por meio de aplicação de questionário eletrônico. Os dados foram analisados por modelagem de equações estruturais. Os resultados indicam que os construtos de suporte à aprendizagem, risco financeiro e habilidade tecnológica influenciam a qualidade percebida do curso que, por sua vez, impacta positivamente a satisfação com a instituição de ensino pelos discentes. Logo, há contribuição teórica para a área de ensino-aprendizagem. De forma prática, os resultados confirmam caminhos para a ampliação da modalidade EaD, contribuindo para o aprimoramento e a criação de novas tecnologias voltadas ao ensino EaD, assim como de metodologias de ensino, de forma a aumentar sua utilização exponencialmente, a adesão de mais alunos e o processo de melhoria contínua dos resultados.

***Palavras-chave**: Ensino-aprendizagem. Educação a distância. Qualidade percebida. Satisfação com instituições de ensino.*

1. Introduction

With the growing evolution of information and communication technologies (ICT), there are changes in the direction of education around the world. Given this reality, distances can be reduced through distance education (DE), which is growing in Higher Education Institutions (HEIs) throughout Brazil (KENSKI, 2018; MALANCHEN, 2015; BARRETO, 2010). The growth of distance education in Brazil requires reflective deepening on the nature and impact of such expansion, the quality of teaching and learning, permanence in courses, the reduction of school dropout levels and satisfaction with the Educational Institution (SAVIANI, 2013; MACIEL; LIMA; GIMENEZ, 2016).

DE, worldwide, has become an alternative for the expansion of teaching offers at different educational levels (SILVA; SANTOS; CORTEZ; CORDEIRO, 2015). It works as an articulating tool within an educational space, enabling professional qualification and didactically contributing to their learning (LIBANEO, 2017). It socializes and democratizes education, expands the possibilities of knowledge, creates and enhances the skills of a society guided by information (XAVIER, 2016). In Brazil, based on 2017, there are 296 public HEIs, 2,152 private HEIs, 8.29 million enrolled students, of which 1.76 million are distance learning, that is, 21.2% (INEP, 2019).

Although ICTs allow greater contact between people over long distances, the dropout of students is still pointed out by most HEIs as a characteristic that makes learning difficult and has impacted losses ranging

from the quality of personal and material resources to the closure of courses in the distance education modality (BITTENCOURT; MARKET, 2014). In 2018, dropout in distance education courses reached 25%, and in some HEIs it reached 75% (ABED, 2019). It is necessary to consider variables that justify the permanence or evasion of students in distance education, considering factors related to the dissemination of innovation in the environment, where teaching and learning is taking place (UMEKAWA; ZERBINI, 2015), and satisfaction with the educational institution (VALE ; OLIVEIRA; SOUSA, 2016).

From digital innovation, there is greater pressure on the way of learning in HEIs, which need to make the main technological innovations available to their students and teachers, thus creating new forms of absorption in teaching and learning in order to obtain better results and performances. and position itself against the competition (KHIN; HO, 2019). Thus, the objective of this study is to identify the antecedents of student satisfaction with distance education courses in Higher Education Institutions (IES).

The theoretical justification of the study is related to the understanding of how students' satisfaction with HEIs is an element that interferes in the very constitution and propagation of the distance education modality. Therefore, there is a need to carry out research that deepens the relationships between students, teachers and institutions, related or not to technology, in order to increasingly enhance a space for interaction and opportunities for those involved (STRAKER; WRIGLEY; ROSEMANN, 2015).

As a practical justification, it is expected to contribute to the creation of teaching strategies that, combined with technologies, in the context of distance education, allow an efficient, effective and effective advancement of this modality. The improvement in teaching-learning experiences can expand the connection between those involved, expanding and democratizing access to distance education.

2. Theoretical referencial

2.1. Distance education

It appears that the historical trajectory of distance education, since the advent of the internet, is anchored in technological advances (ALVES, 2011). Therefore, teaching means that absorb technologies are sought, adding value to the teaching-learning experiences (COSTA, 2014). However, attention should also be paid to some elements that are essential for HEIs in distance learning: competence, attitude, teacher collaboration, student support in the virtual learning environment (VLE), ease of use, quality, flexibility in schedules, relevance, learning expectations, diversity and combination of content and activities (ALMEIDA, 2018). Such elements are essential for distance education to be successful, as they allow students and teachers to participate and connect in distance learning environments (COSTA; ARAÚJO; ROCHA, 2017).

HEIs that stand out in the emerging market offer flexibility in the learning process (ANDRADE; SARTORI, 2018). Therefore, one of the main functions of ICT, when used as resources for education, is to assist, reorganize and enhance the teaching possibilities for teachers and students, in the same way that they contribute to the transformation of user relationships and interconnections (NUNES ; PEREIRA, 2016).

Ferreira and Castro (2017) point out that the distance education modality builds new ways for HEIs to continuously surprise their students and teachers with the quality of their solutions, products and discipline standards. When it comes to technological development in the field of distance education, it is explained that the growth of planning aimed at higher education in the modality helps in discovering new opportunities in HEIs according to (PASQUALI; RODRIGUES; LAZZAROTTI FILHO, 2019).

Decree number 9.057/2017, which regulates the Law of Directives and Bases of National Education - LDBEN in relation to Distance Education in Brazil and revokes Decree n.º 5.622/2005 defines distance

education, highlighting didactic mediation -pedagogical with the use of information and communication means and technologies, staff qualification, access policies and continuous assessment. It concludes by pointing out that "educational activities by students and education professionals who are in different places and times" (BRASIL, 2017).

HEIs are encouraged by the possibility of reducing their expenses due to the greater number of students enrolled, while companies that deal with equipment and development of new applications celebrate a growing market demand (MANCEBO; VALE; MARTINS, 2015). For Oliveira and Lima (2018), distance education helps to democratize admission to higher education, breaking geographical barriers and shortening distances, especially for students who work and study in places far from large cities.

According to Sguissardi (2015), even distance education brings many benefits and contributions to education in Brazil by democratizing access to higher education. Some of the questions he leaves for future research show several possibilities, such as, for example: mercantile massification overlapping with the democratization of its expansion, public policies of a focal nature that compensate for the social inequalities produced by the development model in force and to implement the expansion of an elite and quality education for the few and a mass education and of insufficient quality for the many. There is a minimization of funds for investments in the structures of the poles, in the acquisition of technology and in the payment of scholarships to teachers (LIMA, 2015).

2.2. Perceived quality of the course

The competition inherent to any product or service also applies to distance education, which is growing more and more, demanding quality (TANVEER; LODHI, 2016). Therefore, to develop their products and services even more efficiently, HEIs with distance education courses are always looking for feedback from their "clients", that is, students and even those responsible for students with different interests in serving this higher education format. (VALE *et al.*, 2016).

According to Sharma, Singh and Patel (2015), the perceived quality factor of the products becomes a differential. Faced with an educational system, if we have a panorama that shows equivalent HEIs, the perceived quality of distance education courses is related to the view that students have regarding the difficulties of the course offered, the activities posted in the VLE, access to the environment, the materials available for downloads, the time established for the beginning, the end of the online course and the amount of proposed activities requiring time for submission and subsequent correction (VLACHOPOULOS, 2016).

2.2.1. Learning support

According to Balarin, Zerbini and Martins (2014), the support for learning, in general, concerns the materials that will be used and the psychosocial methods that will be offered by the HEI in favoring learning for everyone who is inserted in the process, reaching, thus, the phases of transfer, retention, acquisition and generalization.

Acquisition is a process of apprehending all skills in a short term. Permanence or retention concerns the temporary learning process, depending on its meaning in relation to the contents learned (BACCARO; SHINYASHIKI, 2014). Generalization seeks to understand the applicability of learning according to contexts similar to those applied in face-to-face learning (VYGOTSKY, 1984; MORTIMER; SCOTT, 2016). Finally, the transfer of learning represents the applicability in the work that had been learned by the people (BLUME; FORD; BALDWIN; HUANG, 2010). Therefore, the hypothesis follows:

H1 - Learning support positively influences the perceived quality of the distance education course.

2.2.2. Financial risk

According to Kiyosaki (2011), financial management, when appropriate, avoids and minimizes financial risks. Hence the importance of improving practices aimed at financial education, generating increased satisfaction, so students in matters related to financial management tend to instigate the relevance of research on this topic (MIOTTO; PARENTE, 2015; FIGUEIRA; PEREIRA, 2014). Also according to Miotto and Parente (2015), some families in Brazil manage to manage their finances, highlighting the behavior inherent to class C, as it is a group that has an improper focus on control, inattention in short-term planning and medium term, lack of attention to short and medium term planning, widespread absence of savings and the influence on possible critical events of specific or structural default caused by lack of knowledge of financial management and, at the limit, loss of income from work. Therefore, there is the hypothesis:

H2 - Financial risk negatively influences the perceived quality of the distance education course.

2.2.3. Technological skill

With the advancement and the speed with which changes happen daily, over the years, it will be more difficult to have fully face-to-face courses, so it is recommended to use new forms of organization so that the teaching-learning process is continuous. Society is at a time when mobile technology fits in the palm of the hand, being something extremely new to be experienced, as described by Deegan (2015). However, one should start with something simpler and gradually perform even more difficult activities by continuously testing, analyzing and experimenting and, finally, reaching a solution to achieve the intended and indispensable changes in the educational context (MORAN, 2012) . Thus, we have the hypothesis:

H3 - Technological skill positively influences the perceived quality of the distance education course.

2.2.4. Satisfaction with the educational institution

Kotler and Keller (2012) conceptualize satisfaction as a characteristic of perceived action and expectations. According to Heckman and Guskey (1998), in the educational area, more precisely in higher education, the panorama of satisfaction does not differ, as there is a positive relationship between student satisfaction with the HEI and the behaviors acquired by clients with the intention of corroborating with the organization or the seller, without connection or material interest or contractual obligation (PATTI; CHEN, 2009).

According to Song, Wang and Han (2019), satisfaction is usually achieved when the needs and expectations of customers are processed, and can be defined by them as an emotional response after experiencing the consumption of the said product, in the face of comparing their results. expectations. Then there is the hypothesis:

H4 - The perceived quality of the distance education course positively influences satisfaction with the educational institution.

3. Methodology

The research is of a quantitative nature, cross-sectional and with primary data collected through a survey and treated by structural equation modeling with partial least squares (SEM-PLS) in the Smart-PLS 3 software. The population consists of students, of any region of Brazil, who started a DE undergraduate course, have already accessed a VLE and completed the first 6 months of graduation. The sample is non-probabilistic due to accessibility. The questionnaire contains adaptations to validated scales. In Chart 1, there is a list of constructs and variables with their respective authors. Respondents' perceptions were

assessed using a five-point Likert scale (from 1 - Strongly disagree to 5 - Strongly agree).

At the beginning of the questionnaire, there is a paragraph with clarifications about what distance education is, avoiding misinterpretations by the respondents. In order to exclude any respondents not characterized in the profile of the target population, there is a control question: "Are you taking or have you already taken a course in distance learning (DE)?", with the answer option "yes" and "no". Records with negatives are excluded from the sample. At the end of the questionnaire, there are questions regarding the respondent's social, demographic and economic characteristics.

Figure 1: Constructs and variables

Construct	Adapted variables	References
Learning Support	LS1 - The SEI asks students for feedback on how the distance education course is going and ideas to improve performance.	COELHO JR; ABBAD; VASCONCELLOS (2008)
	LS2 - The SEI supports students and professors to improve the performance of the distance education course.	
	LS3 – The SEI is ready to solve problems and academic barriers to improving performance in the distance education course.	
	LS4 - The SEI supports teachers and students in a non-bureaucratic way, improving their performance in the distance education course.	
	LS5 - The SEI offers the necessary tools to carry out the distance education course, being firm and clear, aiming to improve its performance.	
Perceived Quality of the Course	PQ1 - For you, the quality of the course is affected by being online.	GREWAL; MONROE; KRISHNAN (1998) and GREWAL; KRISHNAN; BAKER; BORIN (1998)
	PQ2 - Are you satisfied with the quality of the online course?	
	PQ3 - Do you feel that the quality of the course meets your needs satisfactorily?	
	PQ4- The quality of the distance education course is as valuable as a face-to-face course.	
	PQ5 - Good instructional material contributes to the quality of the distance education course.	
Financial Risk	FR1 - Considering the investment involved, taking a distance education course is risky.	DELVECCHIO; SMITH (2005)
	FR2 - Given the associated financial expenses, enrolling in a distance education course entails substantial financial risk.	
	FR3 - Given the efficient financial commitment, I may be concerned about the quality of the distance education course.	
	FR4 - Given the financial commitment, I might regret taking any distance education course.	
	FR5 - You would invest a significant amount of money to take a distance education course that you don't need.	
	FR6 - Due to your financial commitment, you are unlikely to take a distance education course.	

Technology Skills	TS1- My ability with the technological means of the course (i.e., internet, e-mail, forums, audio, and video, among others) strengthens me during the execution of the distance education course.	TZOKAS; KIM; AKBAR; AL-DAJANI (2015)
	TS2 – A SEI with more remarkable technological ability than other competing institutions acquire relevant technologies.	
	TS3 – A SEI with the most remarkable technological ability to identify new opportunities than the competing institutions tend to have better performance.	
	TS4 – A SEI with the most remarkable technological ability to respond to technological changes than the prominent competing institutions tend to perform better.	
	TS5 – A SEI with the most remarkable technological ability to master key technologies in its sector than the prominent competing institutions tend to perform better.	
Satisfaction with the Educational Institution	ES1 - I am satisfied with my education received in the DE undergraduate course.	ARNETT; GERMAN; HUNT (2003) and WESTBROOK; OLIVER (1981)
	ES2 - I am satisfied with the infrastructure of the DE undergraduate course.	
	ES3 - I am satisfied with how I was treated as a student in the DE undergraduate course.	
	ES4 - I am satisfied with how the distance education degree course prepared me for a career.	

Source: The authors.

A semantic pre-test of the first version of the questionnaire was carried out with 10 people. After the necessary adjustments, the questionnaires in Google Forms were sent through a link via email and social media. In the initial sample, 379 people responded, and 21 of them were excluded because they reported being or had already taken a course in distance education, leaving a valid sample of 358 respondents.

In the sample, there is a predominance of females (57%), aged between 31 and 50 years (56%). The dominant educational level is graduation (75%), single marital status (52%), income of up to R$ 4,999.00 (75%) and originating in the Northeast region of Brazil (80%). There is a balance between the type of course (semi-classroom or fully distance learning) and the nature of the educational institution (public or private). This profile is consistent with people who tend to look for a study option at a time in life when distance education allows time-space flexibility at a lower cost.

4. Analysis of results

4.1. Validity of the measurement model

SmartPLS 3 software was used for treatment and analysis of results using the bootstraping method. First, the factor loadings of each construct were verified. Thus, 2 variables of Perceived Quality (QP1 and QP5) and one of Financial Risk (RF5) were removed. According to Hair, Sarstedt, Hopkins and Kupperrlwi-

ser (2014) and Bido and Silva (2019), the cut-off value is 0.7. The composite reliability (CR) and the average variance extracted (AVE) of the constructs were higher than 0.7 and 0.5, respectively. Thus, Cronbach's Alpha values of 4 constructs meet the requirement to be greater than 0.7, with the exception of Technological Ability, which was placed in the range between 0.6 and 0.7. As the other requirements were met, the construct was accepted. Table 1 shows these indicators of convergent validity mentioned, in addition to the criterion of Fornell and Larcker (1981) indicating discriminant validity, also met.

Table 1: Convergent and discriminant validity

	TS	PQ	FR	ES	LS
Technology Skills (TS)	**0.794**				
Perceived Quality of the Course (PQ)	0.445	**0.873**			
Financial Risk (FR)	0.213	0.337	**0.763**		
Satisfaction with the Educational Institution (ES)	0.386	0.759	0.245	**0.882**	
Learning Support (LS)	0.451	0.593	0.163	0.615	**0.814**
Composite Reliability (CR)	0.894	0.906	0.874	0.933	0.907
Average Variance Extracted (AVE)	0.630	0.763	0.583	0.778	0.662
Cronbach's Alpha	0.849	0.843	0.821	0.905	0.871

Source: Research data.

Discriminant validity is also supported by the HTMT criterion (heterotrait-monotrait ratio). This matrix is represented in Table 2. Bido and Silva (2019) highlight that attenuated correlations greater than 0.85 indicate a potential problem of discriminant validity, but those greater than 0.90 indicate a lack of discriminant validity.

Table 2: Hetero Trait-Mono Trait (HTMT) criterion

	TS	PQ	FR	ES
Technology Skills (TS)				
Perceived Quality of the Course (PQ)	0.526			
Financial Risk (FR)	0.252	0.396		
Satisfaction with the Educational Institution (ES)	0.437	0.861	0.267	
Learning Support (LS)	0.522		0.181	0.694

Source: Research data.

In Table 3, the cross loads are presented, which also corroborates the discriminant validity, since the value of each factor loading of the variables in their constructs is greater than the rest of the loads in the other constructs (HAIR *et al.*, 2014).

Table 3: Factor cross-loadings

Variable	TS	PQ	FR	ES	LS
TS1	**0.628**	0.350	-0.130	0.331	0.335
TS2	**0.809**	0.370	-0.167	0.335	0.379
TS3	**0.823**	0.333	-0.179	0.294	0.327
TS4	**0.849**	0.364	-0.167	0.265	0.367
TS5	**0.839**	0.338	-0.198	0.299	0.371
PQ2	0.370	**0.897**	-0.326	0.678	0.570
PQ3	0.421	**0.915**	-0.284	0.695	0.582
PQ4	0.376	**0.803**	-0.271	0.612	0.384
FR1	-0.215	-0.312	**0.802**	-0.246	-0.188
FR2	-0.225	-0.276	**0.837**	-0.236	-0.150
FR3	-0.071	-0.212	**0.725**	-0.166	-0.078
FR4	-0.082	-0.266	**0.770**	-0.165	-0.098
FR6	-0.209	-0.192	**0.672**	-0.085	-0.076
ES1	0.359	0.732	-0.274	**0.894**	0.497
ES2	0.334	0.664	-0.191	**0.895**	0.544
ES3	0.288	0.555	-0.145	**0.837**	0.538
ES4	0.374	0.705	-0.237	**0.901**	0.598
LS1	0.280	0.371	-0.084	0.426	**0.680**
LS2	0.411	0.463	-0.149	0.505	**0.850**
LS3	0.381	0.520	-0.182	0.508	**0.858**
LS4	0.359	0.524	-0.116	0.521	**0.842**
LS5	0.396	0.513	-0.121	0.536	**0.825**

Source: Research data.

Note: Technology Skills (TS), Perceived Quality of the Course (PQ), Financial Risk (RF), Satisfaction with the Educational Institution (ES), and Learning Support (LS).

4.2. Structural model validity

The structural model was designed to test the hypotheses proposed by this study. As can be seen in Table 4, all hypotheses were confirmed. Additionally, the adjusted R^2 was equal to 0.433 for perceived quality of the course and 0.575 for satisfaction with the educational institution. These values correspond to a high fit of the model, as indicated by Cohen (1988). In short, according to the values found in Table 9, there is an indication of a well-adjusted structural model.

Table 4: Structural model results

	Mean	Standard Deviation	t	p-value	Conclusion
Technology Skills-> Perceived Quality of the Course	0.180	0.056	3,320	0.001	Supported
Perceived Quality of the Course -> Satisfaction with the Educational Institution	0.761	0.024	31,070	0.000	Supported
Perceived Quality of the Course	-0.224	0.046	4,791	0.000	Supported
Learning Support -> Perceived Quality of the Course	0.476	0.047	10,112	0.000	Supported

Source: Research data.

5. Discussion of results

The confirmation of H1 is in line with previous research by Balarin, Zerbini and Martins (2014). Therefore, it is possible to affirm that the learning support is a method that can be used and inserted in the teaching-learning process in a generalized and transparent way. Although research by Baccaro and Shinyashiki (2014) states that learning support is a short-term process of understanding and is temporarily retained, depending on how significant it will be, the relationship between the main stakeholder (student) and learned content enhances the experience when needed to use learning support.

Miotto and Parente (2015) and Figueira and Pereira (2014) point out that the financial risk in families does not impact the perception of quality of services. However, the results of this research showed that the second hypothesis (H2) was statistically significant. Therefore, it is worth mentioning that the results did not follow the data from studies found in other sectors, where the benefits of synthesizing other actions inherent to financial risk have been observed referring to the use of technologies used by education in the distance education modality.

H3 was confirmed, indicating that over the years it will be more difficult to have courses, in their entirety, in the face-to-face modality, making the technological skill a driving agent with the positive intention of influencing students to make use of the distance learning modality. This result confirms the studies by Deegan (2015), which point out that technological skill benefits the usability of students and, consecutively, positively impacts student satisfaction with educational institutions that deal with distance education.

The confirmation of H4 is in line with the statements of Tanver and Lodhi (2016), who point out that competition in any market does not exclude distance education because it is constantly growing and developing, demanding quality products and services. Already Vale *et al*. (2016) claim that the perceived quality of HEIs' distance education products and services has been seeking a return on how this modality is accepted from an educational point of view for the market. Thus, the findings corroborate the perceived quality of the course as a positive factor, thus ensuring the satisfaction of students in the distance education modality in Brazilian HEIs (VALE *et al.*, 2016).

6. Conclusion

The present research sought to identify the antecedents of student satisfaction with distance education courses in Higher Education Institutions (IES). The results showed that the perceived quality construct suffers a direct positive influence from the learning support, financial risk and technological ability constructs. They also show that the perceived quality of the course positively influences satisfaction with the educational institution. Thus, it is possible to conclude that satisfaction with the educational institution in relation to distance learning teaching tends to be increased when students see and believe in the distance learning modality as a learning tool, which can lead to the recurrence of this type of study in their formation.

It was also evidenced that students are satisfied when using technological means as a learning instrument and taking the aforementioned distance education courses when they trust educational institutions and the information and recommendations contained in the VLE. Therefore, the usability relationship of digital technologies in educational institutions proved, in this research, to be directly linked to quality. The possibility for students to take a course on digital platforms gives the student the impression of usefulness, creating expectations so that they can learn even more, anywhere, and without limiting their precious time.

As a theoretical contribution, the study allows students and teachers to find converging points that lead to satisfaction with educational institutions that work with the EaD modality, increasing the degree of knowledge in the field of technology and providing support for the implementation of strategies that will improve the teaching methodology in this modality, in a process of continuous improvement of teaching and learning.

In practice, this research showed the relevance of antecedent factors to the perceived quality of the course and consequent satisfaction with educational institutions that work in the distance education modality, from the students' point of view, which enables an improvement in teaching methodologies and in the way in which information is managed. It is possible to use the results of this study to develop new strategies and improve existing technological means, with the aim of conquering, retaining and retaining students, and further improving the way of teaching.

There are limitations in this research due to the fact that most respondents belong to the Northeast region of Brazil and the sample was cross-sectional, non-probabilistic and for accessibility. All this makes it impossible to generalize the results. It is suggested, in future research, to increase the number of interviewees from other regions of the country, as well as to distribute the sample in relation to the main Brazilian HEIs. Other constructs should also be investigated within the scope of distance education, such as study habits and technological complexity, which can shape and give rise to new probabilities in relation to the perceived quality of the course and satisfaction with educational institutions.

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