

## **Emotional Intelligence, Achievement Goals, and Academic Performance: A Study with Undergraduate Students of Accounting Sciences**

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### **Resumo**

This study analyzed the relationship between emotional intelligence, adherence to the Achievement Goals Theory, and academic performance of undergraduates students of Accounting Sciences from a Federal Higher Education Institution in Rio Grande do Sul, southern Brazil. It was carried out through a survey by an electronic questionnaire, sent to the emails and social media of Accounting Science students enrolled in the first semester of 2020, resulting in a sample with 99 completed surveys. The results demonstrate a significant relationship between emotional intelligence and adherence to the Achievement Goals Theory. However, this study did not find associations with the magnitude and statistical significance of the coefficients between EI and adherence to the AGT. The findings contribute to the previous literature on emotional intelligence, as well theoretical and practical contributions to teaching and the accounting profession as a whole. Based on the systematic analysis of the literature, we believe this is the first work that aims to assess the relationship between academic performance, level of emotional intelligence, and adherence to Achievement Goals Theory in undergraduate Accounting Sciences students in Brazil, which gives the study an unprecedented character.

**Palavras-chave:** Emotional Intelligence; Academic Performance; Achievement Goals Theory.

### **1 Introduction**

Emotional intelligence (EI) is understood as the ability to perceive and accurately assess emotions (Mayer & Salovey, 1997). This applies not only to one's own emotions but also to the emotions of others. Such perception makes it possible to use this information as a reference for one's own thoughts and actions (Salovey & Mayer, 1990).

For Goleman (1995), emotional intelligence is related to the skills of motivating oneself and others, knowing how to control impulses, channeling emotions into relevant situations, "practicing extended gratification," and motivating others in search of their best



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talents. The most significant component of emotional intelligence is self-awareness, which allows the individual self-control and the ability to deal with rejection and discouragement (Couto & Braga, 2015). For the authors, impulse control, empathy, and the ability to prolong gratification are other factors linked to emotional intelligence.

According to Valentini and Laros (2014, p. 285), "intelligence is an important aspect for understanding students' academic performance." Academic performance is understood as one of the results of learning and the interaction between the teacher's and the student's educational practice. It can also be understood as the student's ability to learn and respond (Touron, 1984). For Jiménez (2000), academic performance is constituted not only by the student's attitudes and motivations but also by several factors, such as aspects related to the home environment, his or her relationship with the teachers, among others.

Petrides, Frederickson, and Furham (2004) highlight the relationship between academic performance and emotional intelligence. In their study, the authors found evidence that poor school performance was due to individuals with low emotional intelligence scores being more susceptible to academic pressures. Another study supporting this relationship was the one proposed by Couto and Braga (2015). The research found evidence that emotional intelligence influences social, family, and academic aspects. The investigations by Mayer, Roberts, and Barsade (2008) also found similar results, proposing evidence that emotional intelligence is positively related to better social, family, professional, and educational relationships. This evidence reveals the need for further research on the emotional intelligence aspect in order to identify possible influences on academic performance.

Thus, it is necessary to recognize the factors that affect learning and investigate the university environment in order to identify the variables that influence academic performance (Santos, Mognon, Lima & Cunha, 2011). According to Alves, Corrar, and Slomski (2004), it is crucial to recognize the elements that influence student performance for improvement actions to be increased, as only then will it be possible to develop appropriate educational policies. Recognizing these factors proves to be a difficult task, however, as numerous variables can influence this process, such as motivation, age, gender, and professor qualification (Oliveira, Costa, Botinha & Tavares, 2016).

The Achievement Goals Theory (AGT) describes the process by which the individual defines the performance, behavior, and results' target, focusing on internal, consistent, accessible, and controllable goals (Beauchamp, 2009). AGT highlights mainly the capacity for self-perception (Zenorini, Santos, & Bueno, 2003). For the authors, the achievement goals are understood as a set of thoughts, beliefs, purposes, and emotions. These represent the expectations regarding the accomplishment of a given task. Therefore, it is the ability to adapt to different ways of performing academic tasks, in which the individual interprets and reacts to events, creating different patterns of affection, cognition, and behavior.

Previous studies indicate gaps to be explored, such as those suggested by Gonzaga and Monteiro (2011). The authors propose further research on emotional intelligence, encompassing quantitative and qualitative approaches, especially in the educational, organizational, and social contexts of Brazil. Likewise, Sousa (2010) suggests a comparison between academic performance and emotional intelligence for higher education students. For the author, studies such as this one aim to deepen the emotional intelligence construct in academic environments, providing a better understanding of how emotions influence student performance.

According to Coury (2019), emotional intelligence is not a characteristic or quality individuals are born with; it needs to be trained throughout life. The author demonstrates that EI influences academic and professional performance and can be a determining factor for family, professional, and social success. As of 2021, no studies have been identified in Brazil



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that assess the relationship between emotional intelligence, achievement goals, and academic performance in Accounting Science undergraduate students. Understanding how these three variables relate to one another can contribute to determining the ideal moment to train these skills during the course.

Developing EI in the Accounting Science course will produce more emotionally aware individuals. This awareness extends to themselves, others, and the circumstances that surround them. These future accountants will likely display better interpersonal relationships, favoring socializing with colleagues, customers, leaders, and subordinates, thus positively impacting teamwork. For Rauf, Tarmidi, Omar, Yaazis, and Zubir (2013), employees with high levels of emotional intelligence are likely to become good leaders. These professional profile is most sought after by organizations.

Considering this context, we formulated the following research question: what is the relationship between emotional intelligence, achievement goals, and academic performance of undergraduate students in the Accounting Science course? It is understood that regulating emotions to achieve goals is contemplated in the literature on emotional intelligence and the Achievement Goal Theory, which can influence the student's academic performance. For Crestani (2015), understanding the emotions pupils use regarding their student activities may facilitate their learning process and social interaction. Considering the proposed research problem, we formulated the following objective: to analyze the relationship between emotional intelligence, adherence to the Achievement Goal Theory, and academic performance of undergraduate students of Accounting Science at a Federal Higher Education Institution in Rio Grande do Sul, southern Brazil.

The study is justified by the need to understand the different theoretical approaches to the problem and to evaluate the scientific possibilities on emotional intelligence (Gonzaga & Monteiro, 2011). For Morales and López-Zafra (2009) and Sousa (2010), the first milestone of academic interest in EI occurred at the end of the past decade. This was due to the lack of studies that demonstrate the interference of emotions on academic performance. Salovey and Mayer (1990, p. 201) also highlight the importance of this issue: "individuals who do not learn to regulate their own emotions can become their own slaves."

The current study is relevant in its proposition to contribute theoretically on this issue since it is scarcely researched in Brazil, especially under an educational outlook (Gonzaga & Monteiro, 2011; Almeida, 2019). For professors, the research will be able to contribute to the understanding of which interaction method can be used in the teaching-learning process according to the level of emotional intelligence of his or her students. It also collaborates with future researchers with empirical field data.

The aim of this study is to contribute empirically to Accounting Science education and professional accountants. By providing contributions to the educational process, one consequently contributes to the profession by means of improved professional qualification. As such, understanding possible influences on academic performance can reveal meaningful information for educational institutions. These findings can encourage higher education institutions better training of students and future accountants for their social and professional future. For students, such findings can assist in identifying their own and other's emotions, thus facilitating better adaptability to academia, society, and the job market.

## 2 Theoretical Framework

### 2.1 Emotional Intelligence

The first scientific construct of the "emotional intelligence" concept was developed by psychologists John Mayer and Peter Salovey (Goleman, 1995). Up to the publication of the paper entitled *Emotional Intelligence*, it was rare to question the Intelligence Quotient (IQ) as



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an excellence criterion and the only acceptable measure of human aptitudes. The discussion revolved around its origin: whether it came from the biological and genetic background or if it could be improved and shaped throughout life by means of experiences.

According to Sousa (2010), Mayer and Salovey initially defined emotional intelligence as an aspect of social intelligence, a concept created in 1920 by Thorndike. Social intelligence can be understood as the ability to decipher information from the social context, providing the creation of behavioral strategies (Woyciekoski & Hutz, 2009). The emotional intelligence construct was also influenced by Gardner's Theory of Multiple Intelligences, devised in 1983. This theory considers social intelligence as one of seven possible multiple intelligences (Rego & Fernandes, 2005a; Pérez, Petrides, & Furnham, 2005; Woyciekoski & Hutz, 2009).

After the publication of the *Emotional Intelligence* bestseller by Daniel Goleman, there was a popularization of the topic (Sousa, 2010). For Woyciekoski and Hutz (2009), Goleman expanded the concept of emotional intelligence to include personality aspects. In order to clarify some perceived disagreements and possible misinterpretations of their research, Mayer and Salovey (1997) carried out a review of the concept and redefined emotional intelligence. The authors identified the four central skills of IE: emotional perception, management of one's own emotion, managing the emotion of others, and emotional management as encouraging personal growth. After this redefinition, Mayer and Salovey (1997) realized that the skills of mastering emotions aids in developing methods of thinking more effectively about tasks and emotions.

Salovey, Caruso, and Mayer (2004) describe the four core skills of EI. For the authors, the perception of emotion can be understood as the most basic skill of emotional intelligence. It reflects the ability to perceive emotions in oneself and others, as well as the ability to express oneself in a social context, allowing interaction with different individuals and situations. Managing one's own emotions is related to the ability of thought to generate emotions. Furthermore, these emotions influence the cognitive process, facilitating different strategies in information processing. The management of other's emotions is related to the ability to understand emotional relationships. The person identifies emotions and translates them into specific feelings, thus understanding their meanings and assessing their causes and consequences. Lastly, there is emotional management, which aims at personal growth. It seeks to regulate one's own emotions and those of others. This strives to generate positive emotions and reduce the burden of negative ones in each specific situation (Salovey et al. 2004).

Various instruments for the evaluation of EI have emerged with the development of the emotional intelligence construct. In the academic arena, this topic often proves to be controversial (Wood, Parker, & Keefer, 2009). According to the authors, three underlying lines of study or models emerged from the published works. These are the ability model, the trait model, and the mixed model. Papadogiannis, Logan, and Sitarenios (2009) point out that there are two chief theoretical frameworks. These are the mixed model and the ability model.

The ability model proposed by Mayer, Salovey, and Caruso is the most remarkable since it defends emotional intelligence as the combination of emotions and cognitive processes. That is, it is the traditional intelligence enriched by this combination (Papadogiannis et al. 2009). The trait model, suggested by Petrides and Furnham, is observed as a set of emotions correlated with self-perception and individual actions (Wood et al. 2009). According to Ekermans (2009), the mixed model proposed by Bar-On is the most complete, as it embraces the emotional and social aspects, personal skills and abilities, and non-cognitive capacities capable of aiding the adaptation to environmental demands through emotional regulation.



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Although some literature argues that the theoretical domains of emotional intelligence overlap, as the trait and ability models, Furnham (2009) and Schutte, Malouff, and Bhullar (2009) believe them to be complementary and not exclusive, as there is complementarity of both domains in adaptive emotional functioning.

It is possible to verify the existence of numerous emotional intelligence measurement tests analyzing the literature. However, there is no unanimity among scholars as to which is the best instrument (Dulewicz & Higgs, 2000). Salovey, Woolery, and Mayer (2001, p. 289) state that "there is significant convergence among researchers about what emotional intelligence is—a set of skills that encompasses the evaluation and expression of emotions, the use of emotions to facilitate cognitive activities, knowledge about emotions, and emotional regulation. There is, however, less consensus on what is the best method to measure it."

## 2. 2 Achievement Goal Theory (TAG)

The Achievement Goal Theory emerged in the late 1970s as an extended follow-up to the Theory of Achievement Motivation by McClelland (1953) and Atkinson (1957). It had the aim of verifying what goals or purposes are understood by individuals as motivators of their behavior (Crestani, 2015). According to Zambon (2006), psychologists researching development, motivation, and education developed AGT in order to explain performance behavior in the academic context in the 1980s.

Achievement goals can be understood as a set of components or cognitive mediators, in which each goal can be interpreted as a sort of mental programming, consisting of specific steps, intentions, objectives, understandings, assimilations, opinions, attributions, and concepts. These generate (i) cognitive results, conscious knowledge of a particular fact; (ii) affective results, related to the emotional or sentimental segment of a given attitude; and (iii) behavioral results, referring to the intention of behavior concerning other people, events, or objects (Bzuneck, 2001).

AGT's focus is to perceive the motives which lead individuals to privilege a particular task's performance. It seeks to understand the prioritization of the purposes considered by the individual as motivators of his or her behavior. These are divided as follows: Meta-Performance, Performance-Approach and Performance-Avoidance (Crestani, 2015). The author highlights the fact that AGT evaluates the association between motivation to learn and performance in academic and professional life. For them, this theory seeks to understand how students think about themselves, their tasks, and their performance in the educational field.

However, Cardoso and Bzuneck (2004) point out four probable achievement goals among students. These are commonly called mastery-approach, performance-approach, performance-avoidance, and mastery-avoidance (academic alienation), in which the first three are the most well-developed regarding assessment instruments. There are a number of terminologies when it comes to achievement goals, but usually, two types of goals have been adopted. Even though there are several nomenclatures and some differences between the studies, both in nature and functioning, "there is a remarkable semantic convergence in its identification" (Zenorini et al. 2003). In this study, we use the meta-learning and meta-performance nomenclatures. The latter is divided into approximation and avoidance.

Meta-learning is centered on skill development and is intrinsically related to academic commitment and dedication, seeking help to clarify school inquiries, challenge, and self-efficacy—the belief that with effort, one can manage events to achieve the desired goals (Crestani, 2015). For the author, the meta-learning student focuses his or her energies on their own activities, is not afraid to face academic challenges, employs meta-cognition, and



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attributes success to themselves. In addition, the author highlights that the application of meta-learning can positively increase results regarding learning.

These individuals believe that what happens in their life is the result of their actions. Thus, feeling able to interfere in the outcome (Polese, Bortoluzzi, & Antonelli, 2019). To control such effects, these individuals organize situations according to their competences, that is, under their control (Ribeiro, 2000; Callado, Gomes, & Tavares, 2006).

The approach meta-performance is related to individuals who feel the need to be better than colleagues at any cost. It is not enough for them to be good at tasks. These individuals need to demonstrate their skills and competencies and earn the recognition of others. For that, they are willing to do better than others and avoid mistakes as much as possible, so they don't get frustrated (Crestani, 2015). The student with this goal-orientation feels the need to show themselves as intelligent and the best among their colleagues. They attempt not to appear incapable of any task. This student understands their mistakes as an example of lack of capacity and faces negative feelings when a failure event happens (Bzuneck, 1999).

The avoidance meta-performance is related to the student's intent not to appear incompetent in the face of activities. He or she is also afraid of taking risks and asking for help (Zenorini, Santos, & Monteiro, 2011). According to Accorsi, Bzuneck, and Guimarães (2007), the avoidance-oriented student seeks not to want to appear to be incapable. They try to protect themselves from devaluation by their colleagues and teachers. Consequently, they avoid expressing themselves in the classroom as much as possible so as not to show failure, thus avoiding negative consequences (Bzuneck, 2001).

For Beauchamp (2009), the achievement goals help aim both attention and effort to capture important information and activities. It leads to better performances since wasting time and putting effort into other activities is avoided with a well-defined focus. Following this reasoning, Sousa (2010) highlights that higher goals cause people to yield more extensive efforts to satisfy their needs. This fact over time will make the goals improve the level of involvement.

### 3 Research Methodological Procedures

This study's population is composed of students from a Federal Higher Education Institution in the state of Rio Grande do Sul, southern Brazil. The accessibility sample is composed of undergraduate students in the Accounting Sciences course enrolled in the 1st semester of 2020. Data collection was carried out from March to May 2020.

For emotional intelligence data collection, we used the Schutte Self-Report Emotional Intelligence Test (SSEIT), by Schutte et al. (1998), translated and adapted for the Brazilian population by Toledo Jr., Duca, and Coury (2018). This model is based on the evaluation of the four sub-scales of the emotional intelligence model proposed by Mayer and Salovey (1997). The test is structured in four domains, which are emotion perception, managing self-relevant emotions, managing others' emotions, and utilizing emotions.

We based the data collection on the AGT on a combination of works to arrive at the definitive instrument. Questions 1 to 9 of the questionnaire are based on the instrument proposed by Sousa (2010). The other questions were elaborated from the following works: Ames and Archer (1988); Elliott and Dweck (1988); Pintrich and Schunk (2002); Zenorini et al. (2003); Bueno, Zenorini, Santos, Matumoto, and Buchatsky (2007), and Crestani (2015). Secondary profile data were made available by the educational institution. The collection of secondary data is supported by Sousa's performance questionnaire (2010).

Initially, a survey of the disciplines, classes, and number of students was carried out. The instrument pretest was executed to ascertain possible failures, inconsistencies, ambiguities, inappropriate or dubious expressions, or any other factors that may compromise



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the answers (Martins & Theóphilo, 2009). The pretest detected a question in the profile block which did not present all possible answers, which was corrected.

This research would be applied in-person to students enrolled in the first semester of 2020 in the Accounting Sciences course in the following disciplines: Introduction to Accounting, Cost Accounting and Accounting Auditing (new curriculum), Cost Accounting II, Accounting Expertise, Controllership (old curriculum). However, given the suspension of in-site classes as a result of COVID-19, the questionnaire could not be applied in-person. Therefore, we decided to collect data by sending the questionnaire online using the Google Docs tool.

First, the research participation invitation was made by the professors of the aforementioned disciplines through the institution's moodle system. After the second week, the invitation was made through weekly emails. However, the strategy of sending the instrument via email was unsatisfactory, with low adherence by the study population. Given the situation, we opted to use social media applications (Facebook, Instagram, and WhatsApp) to strengthen the relationship with the research target population. To this end, we used both publications and chat.

Data collection ended in the third week of May 2020. At the end of the collection period, the data was organized in an electronic spreadsheet. Subsequently, it was complemented with the data obtained in the institutional database.

For Fávero and Belfiore (2017), the procedure of arbitrary weighting in Likert scale variables for subsequent application of factor analysis is a "serious error." Following this recommendation, it was decided to create an EI indicator that would be able to capture the shared behavior of the four EI domains through a scale from 0 to 100, thus making it possible to check the level of emotional intelligence. The same technique was used to verify adherence to the AGT.

Three tests were performed to analyze the relationship between emotional intelligence, achievement goals, and academic performance. The first test verified the correlation between the generated indexes (EI and AGT) and the performance coefficient. In the second step, we calculated the multiple linear regression, observing the influence of the AGT and EI indexes on the performance coefficient. According to Field (2009), linear regression predicts the dependent variable's values from one or more independent variables. Therefore, this method provides the possibility to investigate the relationship between several explanatory variables, in linear form, and a quantitative dependent variable (Fávero & Belfiore, 2017). The variables in this study are emotional intelligence and adherence to AGT (independent variables), and academic performance (dependent variable).

The last test carried out was through the creation of a dummy that observed the level of emotional intelligence greater than 75%, evaluating the relationship between emotional intelligence ( $\geq 75\%$ ), academic performance, AGT index, and other covariates that control the students' characteristics.

#### **4 Results and Discussion**

At the end of the data collection, 169 completed surveys were obtained. Of these, 16 questionnaires were discarded as the participants answered repeatedly or incorrectly. Thus, the sample consists of 153 valid surveys. Due to the social distancing caused by Covid-19, students enrolled in the Introduction to Accounting discipline (1st semester) had to be excluded from the sample, as it would not be possible to obtain academic performance information due to the suspension of the academic calendar by the university where the study was being applied. In view of this, the new composition of the final sample is 99 completed surveys.



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The composition of the final sample shows that the highest concentration of respondents is those enrolled in the 3rd and 6th semester. The results show that, regarding gender, women are the highest concentration, equivalent to 69 respondents (69.7%). Thirty respondents are men (30.3%). It is also noteworthy that the sample consists predominantly of students without children (77.8%), single (67.7%), white (78.57%), originating from public schools (86%), and with no previous higher education (85.9%). These characteristics were also observed in the studies by Almeida (2019) and Coury (2019), in which the sample was formed mainly by female students, without children, single, and with no previous record of higher education. Sousa's (2010) research also reflected this finding, in which the sample consisted majorly of women (70.3%). Therefore, it is clear that women have chiefly occupied academic circles. This fact ruptures with the scenario of past decades when university student's population consisted mostly of men.

Another investigated aspect is the respondent's age. It is observed in the sample that the minimum and maximum age of the participants varies considerably. We noticed that the age difference between the youngest and oldest student is 53 years (range). The average age of respondents is 28 years old. The predominant age of the sample is 23 years old, as in the investigations by Almeida (2019) and Coury (2019). On the other hand, Sousa (2010) found an average age of 33.8 years.

As for the emotional intelligence index, it appears that the undergraduates have an EI of 66% (49 surveys), on average. It is also noted that the range between the maximum and minimum score is approximately 52%. Regarding the academic performance coefficient, students have a success rate of approximately 70%. The data indicate that, on average, students presented adherence to the AGT greater than 63%, with an amplitude of 53% and standard deviation of 11.21, thus indicating a high dispersion of data around average. In a previous study, Coury (2019) found emotional intelligence levels of above 70%.

Regarding paid activity, more than 80% of the sample carries out activities that result in payment. 75.8% have the financial capacity to pay for their studies partially or in full. A similar result was found by Sousa (2010), which showed that 82% of the sample consisted of working students.

The instrument's internal consistency and reliability were assessed using the Cronbach's alpha test. The value for the emotional intelligence block ( $\alpha$  0.893) was calculated after the adherence to the AGT block ( $\alpha$  0.764). Finally, the assessment was made jointly ( $\alpha$  0., 911). Cronbach's alpha values range from 0 to 1, with a lower limit of 0.70, which is generally accepted. However, this value may decrease to 0.60 for exploratory research (Hair, Black, Babin, Anderson & Tatham, 2009). The results demonstrate suitable internal consistency and instrument reliability.

#### 4.1 Creation of the EI and AGT indexes

In order to capture the mutual behavior of the domains of emotional intelligence, we created a standardized indicator in percentage based on the emotional intelligence survey section. This indicator is constructed using the Equation 1:

(Equation 1)

$$eIE = ePe + eGPE + eGEO + eUE$$

Where:

*eIE*: EI general index

*ePe*: Emotional perception score



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*eGPE*: Managing self-relevant emotions score*eGEO*: Managing others' emotions score*eUE*: Utilizing emotions

(Equation 2)

$$indice = 100 \times \left[ \frac{(eIE - 33)}{(165 - 33)} \right]$$

Where:

*eIE*: EI general index

33 is the minimum value if a student states "nothing strictly applies to me." 165 is the maximum score if a student assigns maximum value to all questions.

The technique used for standardization of values and subsequent creation of the index produces a scale ranging from 0 to 1, with 0 and 1 being the lowest and highest possible values, respectively (Field, 2009). According to the author, the standardization process aims to convert the original data's values into adequate and compatible levels in a continuous domain.

For a better understanding of the index, we defined it on a percentage scale from 0 to 100, in which individuals who present an index closer to 100 have higher emotional intelligence. Index normality was verified using the Kolmogorov-Smirnov (K-S) test. The result indicated normality, with a p-value above 0.10.

The same criterion applied to create the emotional intelligence index was also used for the creation of the adherence to AGT index. This indicator is constructed using the Equation 4:

(Equation 3)

$$indice = 100 \times \left[ \frac{(eTRM - 14)}{(70 - 14)} \right]$$

Where:

*eTRM*: Adherence to AGT score

14 is the minimum value if a student states "nothing strictly applies to me." 70 is the maximum score if a student assigns maximum value to all questions. The Kolmogorov-Smirnov test (K-S) indicated index normality ( $p > 0.10$ ).

#### 4.2 Academic Performance x EI x AGT

In order to analyze the relationship between academic performance, emotional intelligence, and adherence to the AGT, we chose to execute three tests. Initially, the correlation between the variables of interest was tested. Multiple linear regression was carried out, observing academic performance, the EI index, and the AGT index. Finally, an EI indicator was created to inspect whether an emotional intelligence index equal to or greater than 75% influences the AGT index, the performance coefficient, and the other students' characteristics. observe

Firstly, we tested the correlation between the EI index, the adherence to the AGT index, and academic performance. According to Field (2009), the correlation serves to verify the linear relationship between the variables. Table 1 shows this information.



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Table 1  
Correlations

	IE Index	AGT Index	Performance Coefficient
IE Index	1.0000		
AGT Index	0.5995*	1.0000	
Performance Coefficient			1.0000

Note: Source: Research data.

By analyzing Table 1, it can be seen that the EI index is positively related to the adherence to the AGT index. Thus, there are indications that the more emotionally intelligent the student is, the greater their commitment to the goals they set for themselves. With this test, it was not possible to observe the correlation between academic performance and the EI and AGT indexes.

In order to find an association between these three variables (EI index, AGT index, and academic performance), a second test was performed, a linear regression. The EI index and AGT index variables were treated as independent variables (explanatory), and the coefficient variable, performance rate, was treated as a dependent variable (interest). The results found in Table 2 indicate that overall, in this sample, it was not possible to observe a statistically significant influence ( $p \geq 0.05$ ) indicating that the level of emotional intelligence and adherence to the AGT effect the average of the performance coefficient.

Table 2  
Multiple Regression

					Sample Size	96
					F (2. 93)	0.4
					Prob > F	0.6708
					Adjusted R-squared	0.0154
					RMSD	14.493
Performance Coefficient	Coef.	Robust Std. Err.	t	P>  t	95% confidence interval	
IE Index	-0.1942528	0.2393893	0.81	0.419	-0.6696325	0.2811269
AGT Index	0.0763613	0.2070521	0.37	0.713	-0.3348031	0.4875257
_cons	77.15133	10.09458	7.64	0.000	57.10549	97.19717

Note: Source: Research data.

The adjusted R-squared confirms that merely 1.54 of the performance variation is explained by the EI and AGT indexes. Therefore, it was not possible to verify a correlation between academic performance, level of emotional intelligence, and adherence to the AGT.

A dummy was generated to estimate the relationships regarding the probability of the relationship between the level of emotional intelligence, adherence to the AGT, and academic performance. It observed the level of emotional intelligence equal to or greater than 75%. Armed with this index, which we named "EI  $\geq 75\%$ ", a regression was performed against academic performance, AGT index, and the other covariates that control the student's characteristics. Table 3 shows the results found.

Table 3



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## Regression of the relationship between the EI level and other variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	EI									
	≥75%	≥75%	≥75%	≥75%	≥75%	≥75%	≥75%	≥75%	≥75%	≥75%
coef	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
AGTindex	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
dtempo	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
d3 <sup>o</sup> sem.		-0.08	-0.09	-0.07	-0.07	-0.07	-0.09	-0.11	-0.10	-0.10
		(0.25)	(0.25)	(0.25)	(0.26)	(0.26)	(0.26)	(0.28)	(0.26)	(0.26)
d5 <sup>o</sup> sem.		-0.24	-0.28	-0.25	-0.26	-0.25	-0.28	-0.31	-0.27	-0.27
		(0.25)	(0.25)	(0.25)	(0.25)	(0.25)	(0.26)	(0.27)	(0.25)	(0.25)
d6 <sup>o</sup> sem.		-0.12	-0.12	-0.09	-0.09	-0.09	-0.10	-0.09	-0.08	-0.08
		(0.23)	(0.24)	(0.24)	(0.25)	(0.25)	(0.25)	(0.26)	(0.25)	(0.25)
d7 <sup>o</sup> sem.		0.01	-0.00	0.01	0.00	0.00	-0.02	-0.04	-0.03	-0.03
		(0.23)	(0.24)	(0.24)	(0.25)	(0.25)	(0.26)	(0.27)	(0.25)	(0.25)
dsexo			-0.08	-0.06	-0.06	-0.06	-0.06	-0.06	-0.03	-0.03
			(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.10)
destadocivil				-0.14	-0.13	-0.13	-0.14	-0.14	-0.13	-0.13
				(0.10)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
dfilhos					-0.01	-0.01	-0.01	-0.02	-0.01	-0.01
					(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
dgraduacao						0.02	0.03	0.03	0.03	0.03
						(0.12)	(0.13)	(0.12)	(0.12)	(0.12)
dativ							-0.08	-0.05	-0.06	-0.06
							(0.11)	(0.10)	(0.10)	(0.10)
dcor								-0.16	-0.16	-0.16
								(0.10)	(0.10)	(0.10)
descola									0.14	0.14
									(0.15)	(0.15)
_cons	-0.46	-0.32	-0.24	-0.18	-0.17	-0.20	-0.09	0.03	-0.00	-0.00
	(0.38)	(0.63)	(0.62)	(0.59)	(0.60)	(0.62)	(0.63)	(0.64)	(0.64)	(0.64)
N	95	95	95	95	95	95	95	95	95	95
R <sup>2</sup>	0.1853	0.2123	0.2182	0.2392	0.2392	0.2396	0.2443	0.2676	0.2775	0.2775
adj. R <sup>2</sup>	0.158	0.149	0.145	0.159	0.149	0.139	0.134	0.150	0.151	0.151

Note: Source: Research data.

Robust standard errors (\* significant at 10% \*\* significant at 5%, and \*\*\* significant at 1%).

By analyzing Table 3, it is observed that the AGT index dummy was statistically significant in all models. Thus, the student having emotional intelligence equal to or greater than 75% increases this student's adherence to the AGT by two percentage points. The higher the emotional intelligence index, the more oriented to the achievement goals the student is. No statistical magnitude and significance of the coefficients were found in the other variables. This finding corroborates Beauchamp (2009) and Sousa (2010), who found evidence that more emotionally intelligent students are intrinsically further motivated to achieve their goals.

Regarding the relationship with income, it was not possible to find statistically significant associations. By observing Table 1, Table 2, and Table 3, it is possible to verify that the performance coefficient does not depend on adherence to AGT and the level of EI.

In a previous study by Almeida (2019) similar to the current one, through the application of SSEIT, by Schutte et al. (1998), the author found no significant relationship between emotional intelligence scores and academic performance. That research analyzed each domain separately and the overall score, controlling the course period and gender, and found that performance is independent of these two variables. According to the author, one of



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the study's limitations is the sample size of 76 subjects, thus indicating that the  $n$  (sample size) may have influenced the results.

Similar results to this research were also found in a study by Sousa (2010) that evaluated 111 Portuguese university undergraduate course students enrolled in the 1st semester of 2010 using the measurement instrument of Rego, Sousa, Cunha, Correia, and Saur-Amaral (2007). The author did not find a positive result between emotional intelligence and academic performance. In this sample, the author found statistical and significant relationships of emotional intelligence regarding age, marital status, work, hours dedicated to studying, and cost dedicated to education. This study also highlights that the sample size may have influenced the results found in some shape or form.

These findings are in line with the results found by Coury (2019), who, in a survey conducted from 2017 October to 2018 April with 209 medical students, found no relationship between academic performance and emotional intelligence scores, as well as between course period and EI. The author found a low positive relationship regarding age ( $r = 0.172$ ) and a high correlation between previous mental disorders and reduced EI.

Therefore, the findings of this research are consistent with other studies that did not obtain conclusive results in the relationship between emotional intelligence level and academic performance, such as the works of Sousa (2010), Coury (2019), and Almeida (2019).

On the other hand, we have the studies by Petrides et al. (2004), Mayer, Roberts and Barsade (2008), and Couto and Braga (2015). These studies found positive relationships between academic performance and EI, presenting evidence that EI influences academic, social, family, and professional aspects.

Regarding adherence to the AGT, the findings suggest an association between EI and orientation to AGT. Regarding performance, it was not possible to find statistically significant associations. These findings converge with the research carried out in Portugal by Sousa (2010), which found an association between emotional intelligence and students' motivation to achieve their goals. That is the case as well with Fineburg (2009), who found evidence between intrinsic and extrinsic motivation and academic performance.

For Beauchamp (2009), goal-oriented students tend to dedicate greater efforts to reach their goals, employing more hours of study and, consequently, achieving better academic performances. In the current study, the results pointed to an average dedication to extra-class studies of three to five hours per week, considered a low level of commitment to studies. Thus, these reduced study hours may have impacted the performance coefficient and these students' adherence to AGT.

We must highlight the fact that the questionnaire was applied in a period when social distancing practices began in Brazil due to the recommendations of the World Health Organization to reduce the COVID-19 contagion curve (2020 March to 2020 May). Therefore, students in this period were exposed to many uncertainties about the future, which may have distorted their answers.

## 5 Final Considerations

The aim of this study was to analyze the relationship between emotional intelligence, adherence to the Achievement Goal Theory, and academic performance of undergraduate students of Accounting Science at a Federal Higher Education Institution in Rio Grande do Sul, southern Brazil. The results found show a positive relationship between the level of emotional intelligence and adherence to the AGT. In this sample, it was possible to identify that the higher the level of emotional intelligence, the more oriented to the achievement goals the student seems to be. Regarding the performance coefficient being influenced by the level



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of EI and adherence to AGT, this study did not find associations with magnitude and statistical significance of the coefficients between these variables.

The results found in this research are in line with the controversy surrounding the predictive capacity of emotional intelligence concerning academic performance. It is not possible to confirm the existence of a relationship between emotional intelligence, achievement goals, and academic performance of Accounting Science undergraduate students.

The research supports a better understanding of the factors that can influence emotional intelligence, achievement goals, and academic performance. This study contributes to expanding the literature on emotional intelligence, especially during social isolation times, in which the infrequent social interaction caused the results to partially differ from the previous literature. It also contributes with the observation that in a context in which future goals were uncertain, adherence to the AGT proved to be lower.

Contributions for teachers stand out regarding practical applications, particularly in understanding which interaction method can be used in the teaching-learning process according to the students' emotional intelligence level. It is relevant to account for the environment outside the classroom, since it influences the levels of emotional intelligence, the goals that students set for themselves, and academic performance.

Overall, this research aids teachers, education coordinators, and higher education institutions to observe differences in the sample, which may explain their students' behavior in teaching environments, possibly reflecting on their academic performance. Finally, it contributes for future researchers and studies with empirical data on the issue.

As a limitation of this study, the authors recognize that evaluating academic performance by the performance coefficient and final grades may not be the ideal measurement variable, since these only points to the result and not the learning process, and may not reflect the real performance of the student in a given discipline. However, this performance measurement criterion has been used in previous studies (Figueiredo, 2003; Zambon, 2006; Oliveira, 2011; Almeida, 2019). In this perspective, a new strategy for measuring academic performance is suggested for future studies.

Another limitation is regarding the low rate of respondents in relation to the population, as well as the particular occasion experienced by the sample at the time of data collection. The uncertainties brought along with social distancing practices caused by COVID-19 most certainly influenced the students' responses. The certainties the students had up to that moment were questioned as their life plans were interrupted. In this perspective, it may have been difficult for the sample to state that they had well-defined goals since an event out of their control did not make short-term achievements possible. This whole scenario may also have influenced the level of emotional intelligence since these students had to learn to deal with an extremely risky situation that was new to them. We believe a comparative study after the pandemic could contribute significantly.

Another limitation found is related to the emotional intelligence measurement instrument. Even though the instrument is validated by the literature with empirical evidence, which highlights that it is valid and reliable as the one conceived by Salovey and Mayer (1990), it was not possible to observe the predictive ability of the instrument with the creation of the EI indicators in our research.

For future works, we suggested that further research be carried out to contribute to the advancement of the discussion on emotional intelligence, which is still insufficiently explored in Brazil, mainly in academic environments. Longitudinal studies may help to identify how emotional intelligence can be stimulated/taught throughout the course. We also suggest a larger and more homogeneous sample, as we believe that larger sample sizes may provide different results from those found in the present work.



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