



## An educational tool for agricultural sciences: the Empreenda Agro Sustentável Program as motivation of entrepreneurial behavior

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### Abstract

Studies have already been conducted on which tools might be of influence in individual capacities demands. The latter are sought by the rural job market, one of which is entreprising education. tools, such as workshops, can be used to diffusing entrepreneurship behavior in educational institutions. Such instruments help fostering the inclusion of entrepreneurial behavior in the pedagogical planning in the field of agriculture and livestock related to sustainability. The objective of this work was to evaluate the dynamics of entrepreneurial behavior in groups of students in the Empreenda Agro Sustentável extension program. This study is characterized as an exploratory descriptive survey, conducted during the development stage of the Empreenda Agro Sustentável Program. The development took place from August to November 2019, using a two-dimension analysis to nurture entrepreneurial behavior: the dimension of self-efficacy, the drive to endeavor. It became noticeable the massive influence over the drive to endeavor and over the self-efficacy in the enrolled participants. The results demonstrated the positive attitude of students with entrepreneurial knowledge, which boosted the birth of new-planned businesses in the pre-acceleration stage. The students felt assurance towards the next step, which is the acceleration of their business plans, gaining autonomy, seeking new opportunities, as proactive professionals in job market.

**Keywords:** Entrepreneurship. Sustainability. Academic extension.

### Introduction

It is believed that the job market for new professionals working in the field of agricultural sciences has changed, as the search for valuing occupational skills and competences has grown substantially, such as: the affirmation and promotion of



citizenship rights, political association, social and environmental responsibility, consideration, respect for ethnic and cultural diversity.

In this way, future professionals in the rural environment must follow the market trend of sustainable rural development (LAZZARESCI, 2016). To this end, the academic environment has an important role in this context, which is to foster and create opportunities for such skills. Universities and institutes of technological higher education are, being recognized in context as promoters of education and innovation in Brazil.

This new educational paradigm places educational institutions in the field of promoting the skills needed to deal with changes in consumption and professional needs. The university becomes an environment of academic freedom and scientific experimentation, leading teaching as a tool capable of generating new behaviors (ANDRADE; FERNANDES, 2016). Much has been studied about which tools can influence the demands of individual skills that are currently sought by the rural labor market, one of them being entrepreneurship education (SCHAEFER; MINELLO, 2017).

Entrepreneurship education proves to be effective with regard to the emergence of new targeted professional skills, promoting innovation and solving problems in rural business (COSTA et al., 2018). Studies have shown that entrepreneurship education is capable of training professionals adapted to new demands and adding value to companies' human capital. According to Dornelas (2003), entrepreneurship means doing something new, different, changing the current situation and constantly seeking new possibilities for negotiations, focusing on innovation and the creation of value. Leite e Dias (2015), state that entrepreneurship is a process, which focuses on starting and managing ventures, that is, the set of concepts, methods, instruments and practices related to the creation, implantation and management of new companies or organizations. The sustainable development of a identified as a socially responsible and ecologically correct business, but invariably feasible in financial terms, needs a professional capable of dealing with all the invariabilities of the field (FAUSTINO; AMADOR, 2016; LOPES, 2010). Currently, these types of businesses contribute to the growth of numerous geographic regions, since they expand not only in size, but also new locations, in addition to encourage occupations in co-related industries. Furthermore, many of these micro-enterprises are responsible for developing new technologies and processes, they also generate increased absorption of more resourceful human capital in business management.(FERREIRA et al., 2017b).

In the educational methodological context capable of influencing learning, there are active methodologies, which bring the possibility of changing the professor centrality for the student, a point of view advocated by Freire (1987) when approaching education as a process that is not performed by someone else, or by the individual, but that happens in the interaction between people through their experience, through words, actions and reflections. Briefly, the active methodologies propose to transform the learning process in the search for entrepreneurial behavior as a way to face the traditional model practiced and accepted over the years. Such concept defines entrepreneurship as a constant practice of the students' routine activities. In this context, there should be a greater production of studies and content on entrepreneurship, and the educational models that best apply to its learning, such as points out Ferreira et al., (2017). The individual entrepreneur is the qualified actor



to innovate in the evolutionary process of the contemporary world, enabled to solve problems and absorb opportunities, assigning this subject as the cause of change, and capable of dealing with the constant inversions of the economic market.(SCHAEFER; MINELLO, 2017). There is a progressive need for education toward adequate and scalable entrepreneurship in Brazil, for it continues to be a country that perpetuates a steady growth of informal jobs.

Brazil has presented a contingent of people who only found work in the period 2012 to 2019 within informality. This work category of work reached a record in the historical series started in 2012, reaching 41.4% of informally employed human resources in 2019 (IBGE, 2019). An increasing rate of dismissal of workers at the early ages of employability - 18 to 24 years - has also been recorded since 2012 according to Continuous PNAD (IBGE, 2019). Even if graduate students still have training gaps in their entrepreneurial potential, it is up to universities to create teaching and learning processes to fill those voids. In order to meet the current demands of rural businesses, it is necessary to better understand the developed entrepreneurship that maintains sustainability in rural areas, as well as the application of sustainable practices in rural areas (PIETROVSKI et al., 2019). It is essential to point out that sustainable development in rural areas cannot be based on the understanding solely on the local or regional economic progress. Thus it is necessary to have a systemic look that permeates the whole process that took place in the countryside, and that involves other dimensions, such as sociocultural, the political-institutional and the environmental ones (VIEIRA et al., 2015). In a way, sustainable rural development is the result of social development, because it is born from the understanding that the countryside is an environment that depends on the circularity of products to maintain itself alive (PIRAUX; CANIELLO, 2019). In Brazil, rural development began with the “Green intensification” policies, actions known as the green revolution, a political plan that had a force of action in the 1960s (KAGEYAMA, 1990).

Such development had as a positive point the narrowing of the boundaries between rural and urban areas, turning them increasingly thin and tenuous and diffuse (FREITAS; FREITAS; DIAS, 2012), once civil society emerges as the protagonist in the process of building the pillars for a more responsible and comprehensive development (Souza et al., 2016). This understanding is settled when agricultural production establishes itself by introducing anti-predatory innovations. Such practices are based on the circular economy and making cooperation networks denser, seeking conscious self-sufficiency, and meeting current needs, without compromising the capacity of future generations to meet their own needs (BASTOS et al., 2018).

Innovation, the spread of innovation and the emergence of new ventures are considered, in many countries, important signs of growth and recovery from economic crises (SILVA, 2017), which are directly linked to the intellectual development of human capital. The investment in human capital since academic training also allows improvements boosting in the work environment and routine, as well as increases the levels of productivity and income of future professionals (BASTOS et al., 2018).

Thus, it seems rather interesting investigate the figure of the student as a potentially entrepreneurial subject, a person capable of identifying opportunities, creating business, and gathering the necessary resources in the face of risks and

uncertainties. (PIETROVSKI et al., 2019) Someone who is not just a limited problem-solving automaton. In the early 1980s, entrepreneurship was directly linked to economic development and job creation (RODRIGUES et al., 2019), starting to be seen as an important factor to be explored in academic communities.

Currently, when thinking about innovative technologies for the countryside, it is necessary to understand the needs of the consuming public, the urban environment, as well as the possible capacities to meet the demands of the rural environment, so that commercial exchanges do not affect the self-sustainability of the countryside, and all environmental, social and cultural characteristics.

Hence, this work analyzes the changes regarding the dimensions that comprise entrepreneurial behavior in groups of students participating in the Empreenda Agro Sustentável extension program. Education in entrepreneurship is an investment in human capital, further to strengthening the creation of products and boosting economic activities, becoming a possibility to combat unemployment and the possibility of reducing working hours and costs with materials.

The objective of this work was to evaluate the dynamics of entrepreneurial behavior in groups of students in the Empreenda Agro Sustentável extension program.

## **Materials and methods**

This research is focused on the dissonance between theory and practice of educational methods and changes in the labor market in rural areas. This sector was chosen because it contributes significantly to Brazil's trade balance, with frequent surplus, as well as contributing to food safety and the production of clear and renewable products.

To understand the entrepreneurial behavior in students of the courses of the Center for Applied Agricultural Sciences (CCAA) of the Federal University of Sergipe (UFS), the target population chosen for this research of 1227 students of the undergraduate courses in Agronomy Engineer, Agricultural Engineering, Animal Science, Engineering Forestry, Veterinary Medicine and Fishery Engineering. These data are present in the institution's 2017 enrollment statistical report (FEDERAL UNIVERSITY OF SERGIPE, 2018).

The sample in this research comprises 118 students who participated in the Empreenda Agro Sustentável program. The activities were developed through four workshops guided by active methodologies, lectures designed for the promotion of meaningful and collaborative learning.

During the project modules (workshops), participants tested their insights so that new requests could be made and / or that errors in planning could be found and, consequently, debated and mitigated. After the completion of all Sprints (activities of the three workshops) that is, all modules were covered, a cycle of presentations and development of the ability to present and demonstrate products in summary presentations (pitches) was initiated. The program was developed in four meetings "workshops", which addressed topics relevant to entrepreneurship and entrepreneurial behavior, namely:



1<sup>st</sup> Workshop: What are startups, entrepreneurship, entrepreneurial behavior and entrepreneurial culture and problems (market segmentation) according to the Sustainable Development Goals (SDGs); Business Modeling and Creativity;

2<sup>nd</sup> Workshop: The search for opportunities as an entrepreneurial characteristic, construction of the Lean Canvas, empathy map, validation of the value proposal, collaborative economy and Co-working;

3<sup>rd</sup> Workshop: Hackathon: Prototyping for the MCVP (Minimum Commercially Viable Product); 'What can you do for your customer and how does the customer purchase your product?';

4<sup>th</sup> Demoday Workshop: The Demoday or *Demonstration Day* of the business models of startups was held on November 22<sup>nd</sup>, 2019. In this event, startups presented themselves to investors, represented by venture capitals, accelerators, or angel investors. On the occasion, young entrepreneurs presented their projects in search of investments. The startups formed by the program held the exhibition and presentation of their business models and prototypes, as well as the presentation of the *itches* of each team to the audience that met and interacted with each bench, in addition to participating in a "Talk Show" with another exhibition of *itches* for all audiences present at the event.

### **Survey applied**

The study is characterized as a survey or survey, which stands out for understanding an expressive sample in relation to the researched universe. We opted to adopt the qualitative opportunity for data analysis regarding the perception of students' entrepreneurial behavior, and the quantitative approach in measuring the educational results of the Empreenda Agro Sustentável Program.

The Global University Entrepreneurial Spirit Students Survey model, known nationally as the GUESSS study, was used as an evaluation method. This academic testing-tool seeks to characterize the entrepreneurial spirit, activities and intentions of university students, from all levels of learning and in all university courses, as well as the conditions for teaching and supporting entrepreneurial activities.

The first set of inquiry was related to the profile setting of surveyed students, such as: gender, age group, course and the profile of interest in the study areas related to sustainable entrepreneurship. This questionnaire was based on research developed by Lima et al. (2015).

The second set was composed of 10 questions related to students' self-efficacy, with multiple choice questions starting from the alternative "Completely Insecure" to "Completely Safe".

Finally the third block had 7 questions to analyze the student's entrepreneurial intention, having as alternatives, possibilities starting from "I totally disagree" to "I totally agree".

After the application of the analysis instruments, the data were categorized so that it was possible to classify the score according to the questionnaire that used hypothesis tests on a proportion. The data were initially treated by a distribution analysis using the Kolmogorov-Sminov equation ( $p > 0.05$ ). For data processing, the IBM SPSS Software (Statistical Package for the Social Sciences) was used (IBM CORP, 2017).





With the information from the data distribution, a factor analysis and multivariate analysis of variance were performed, seeking to combine the variables of each question into factors. Such factors were established using the analysis of orthogonal factors, with Varimax rotation, using the Bartlett and KMO sphericity method with the significance level  $p < 0.05$ . This essay aims at combining the data obtained with different questionnaire scale items into unique factors (HAIR et al., 2006). This research considers two sets of agglutinated variables that influence the nature of the entrepreneurial response, remembering that several authors address different points on this theme. Since this program behaves like a pre-acceleration phase, the factors that may behave as a set of independent variables will be addressed, when submitted to the participation of students in the program, namely: dimension of students' self-efficacy, and dimension of students' intention / claim to undertake.

The Wilcoxon nonparametric hypothesis test was used to analyze the development of entrepreneurial behavior and the data correlated to the investigation, after participating in the program. The test has a confidence interval of. This model is applicable to this research because it aims to assessing changes in the dimensions that comprise entrepreneurial behavior in groups of students participating in the Empreenda Agro Sustentável Program. Thus, it is possible to assess whether the differences between the average levels of the groups captured by the survey are significant among groups and within groups (ROCHA; FREITAS, 2014). This research showed as a hypothesis that academic extension programs such as the Empreenda Agro Sustentável Program awaken the entrepreneurial behavior and enhances innovation among its participants.

Because there are minor adaptations of GUESSS to this experiment, a multivariate factor and variance analysis (analysis of orthogonal factors with Varimax rotation) was performed., The use of these methods facilitates the agglutination of factors by similarity (HAIR et al., 2006). For all statistical analyzes of interest in this research, the significance level of 5% was considered. The statistical analysis of the study was performed using the SPSS computer program (IBM CORP, 2017).

Due to ethical criteria, prior to the beginning of the questionnaire, a Free and Informed Consent Term (ICF) was inserted, composed by enlightenment on the research, plus the request for authorization to using the data, and the image necessary for the development of the experiment. The questionnaire applied in this research complies with the terms of Resolutions no. 466 of December 12, 2012 from the Brazilian National Health Council (CNS, 2012), which, because it is a survey of human beings, was submitted to the Research Ethics Committee Involving Human Beings (CEP) and the National Research Ethics Commission (CONEP) on the Brasil Saúde platform, being APPROVED under the certificate number of Presentation for SEA Ethical Assessment: 23853219.4.0000.5546.

## **Results and discussion**

### **Program Development**

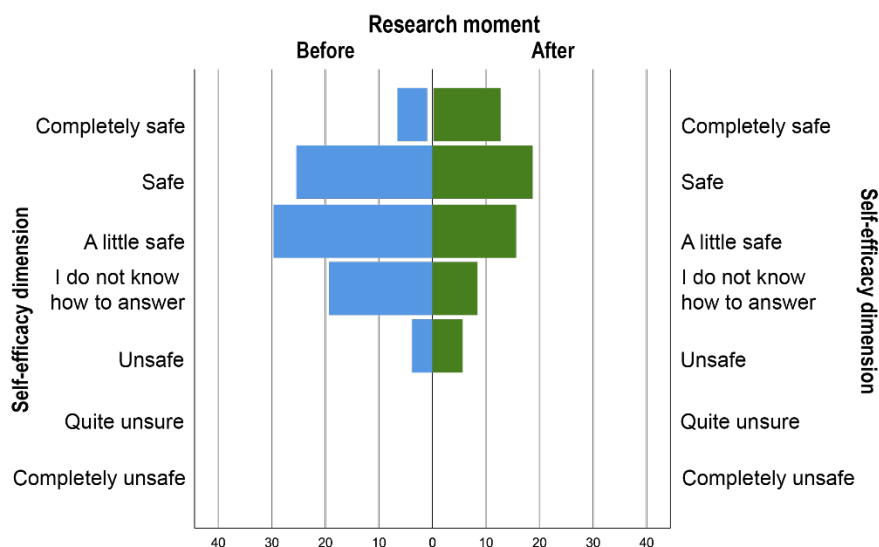
Since this program behaves like a pre-acceleration phase, this work considered two possible sets of variables that influence the response of education in entrepreneurship: the dimension of students' self-efficacy, and the dimension of students' intention / claim in entrepreneurship.

## Self-Efficiency Dimension Assessment

Entrepreneurial self-efficacy is an important dimension in generating innovation and creativity for new businesses and scalable products. In order to understand the self-efficacy of the students participating in the program, a group of questions and statements measured by scores that varied, from the lowest value, was taken into account, 1 the highest value of 7, on the scale. Seeking the classification of this score, the median obtained for each variable (question) was collected.

The histogram (Figure 1) was extracted based on the median of responses combined in factors, in which the closer to 7, the better the prospect of positive change for the researched sample. It was observed, using the Wilcoxon Signed paired with the 95% confidence interval, that the self-efficacy for the participants, without considering the differences of the courses, did not vary significantly (p-value 0.118). However, observing the averages in the histograms of the answers before and after the participation of the program, the values of **5.31** and **5.65**, respectively, showing that the responses increased the frequency for the statements “Safe” (6.00) and “Completely safe” (7.00) (Figure 1). This difference in the score shows that the Program positively influenced the participating students. Gubik & Farkas (2016) state that the study of entrepreneurship and interdisciplinary knowledge of innovation significantly affect business intentions and self-efficacy, and that more self-confident students (greater locus of control) have greater self-efficacy and, as a result, better business performance.

Figure 1 - Histogram of the dimension of entrepreneurial self-efficacy at the time of the research



Source: The Authors (2020).

Through the analysis of the Box Plot graph (Figure 2) it is possible to observe that the courses in Agricultural Engineering, Agronomy Engineer, Forestry Engineering and Animal Science have academics who felt safer after participating in the program. The Veterinary Medicine course, despite being part of the population chosen for this research, does not appear in the results because there is no enrollment in the



program. On the other hand, some students from courses out of the rural Sciences area participated in the program, such as the Visual Arts course.

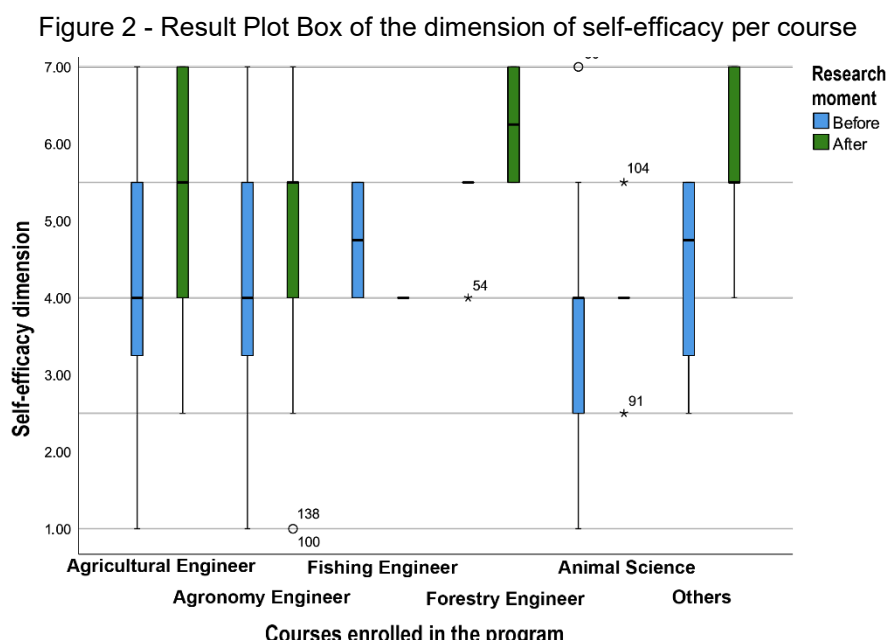
For students linked to the Agricultural Engineering course, it is possible to observe a significant positive mobility in the 2<sup>nd</sup> and 3<sup>rd</sup> quartiles, in which the statements “Somewhat safe” (5.00) and “Safe” (6.00), changed to “Safe” (6.00) and “Absolutely safe” (7.00), demonstrating that the program positively influenced the students of this course.

The Agronomy Engineer course also showed a positive change observed in the 2<sup>nd</sup> quartile in which the statement “Somewhat safe” (5.00) changed to “Safe” (6.00). However, there was no change on the 3<sup>rd</sup> quartile located between the statements “Somewhat safe” (5.00) and “Safe” (6.00). In addition, a reduction in results was observed below the statement “Somewhat safe” (5.00). Another factor observed was the significant decrease in responses in the statement “Insecure” (3.00). These data demonstrate that the students of this course felt less insecure after participating in the program.

As it is a course with few participants, the Fisheries Engineering course showed a positive change in the results, but without variation between the quartiles observed.

The Animal Science course showed a high dispersion in the post-program results. Nonetheless when observed the 2<sup>nd</sup> quartile located between the statements “I don't know how to answer” (4.00) and “Somewhat safe” (5.00), the frequency in the statement “I don't know how to answer” was canceled, leaving the data concentrated in the statement “Somewhat safe” (500).

For the other courses that participated in the research, a positive mobility of the 2<sup>nd</sup> quartile, located between the statement “Somewhat safe” (5.00) and “Safe” (6.00), for the statement “Safe” (5.00).



Source: The authors (2020)





When analyzing the issues individually, the questions “Doing financial analysis”, “Reducing risks and uncertainties”, “Taking calculated risks”, “Managing time by setting goals” and “Driving my own company to success” obtained a significant difference in **0.002**, **0.003**, **0.024**, **0.018** and **0.028** respectively. More values were lower than the confidence interval, which is of 0.05 (Table 1). Observed- there was a high change in the self-efficacy of the students participating in the questions directly related to the program's teaching plan. Thus, the program may have influenced the improvement of self-efficacy for business financial analysis (Lean Canvas), the prediction of risks and possible mitigations (Project Model Canvas), the agile management of time and activities related to innovation (agile methodologies) and promoting willingness to take calculated risks in new ventures. Such results are closer to those observed by Schafer et al. 2018, which investigated the motivational needs that influence the intention of potential entrepreneurs, and observed that entrepreneurial education in academia promotes improvements in entrepreneurial self-efficacy.

Table 1 - Test of independent samples for questions related to self-efficacy at the time of the program

Question	Program moment	Median	Middle Post	<i>P-Value</i> (0.05)
Establish and achieve goals and objectives	Before	6.00	64.67	0.690
	After	6.00	76.78	
Generate new ideas	Before	6.00	64.61	0.690
	After	6.00	76.87	
Do financial analysis	Before	5.00	61.01	<b>0.002</b>
	After	6.00	82.31	
Reduce risks and uncertainties	Before	4.00	59.19	<b>0.003</b>
	After	5.00	85.05	
Making decisions in situations of risk	Before	5.00	69.74	0.928
	After	5.00	69.14	
Manage time by setting goals	Before	5.00	63.16	<b>0.018</b>
	After	6.00	79.07	
Taking responsibility for ideas and decisions	Before	5.00	63.79	<b>0.033</b>
	After	6.00	78.12	
Start my own company	Before	5.00	64.96	0.098
	After	6.00	76.35	
Lead my own company to success	Before	6.00	65.65	<b>0.028</b>
	After	6.00	74.15	

Source: The Authors (2020)

Looking at the other questions and statements, it is possible to see that, even if there is no significant difference, the statements “Establish and achieve goals and objectives”, “Generate new ideas” and “Start my own company” show a positive change in the value of the middle position when compared to before and after: **64.67** to **76.78**; from **64.61** to **76.87**; from **64.96** to **76.35**, respectively. Such changes may



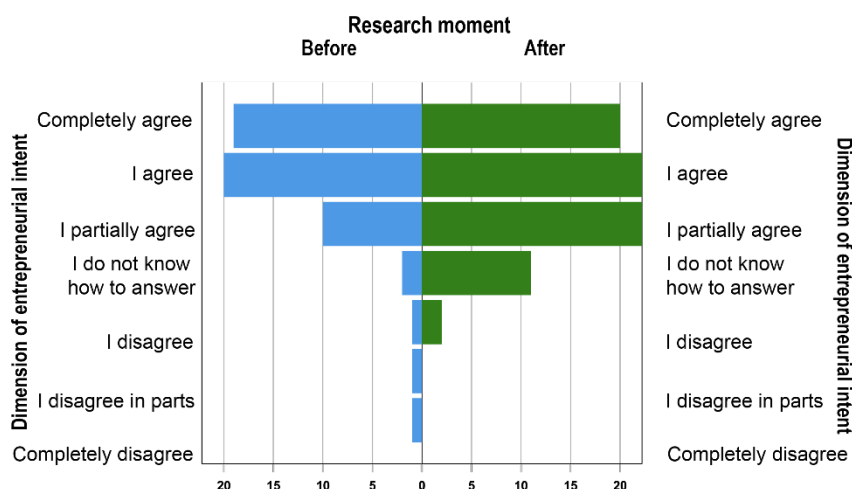
be related to the participation of students in this type of program, which can lead to the expectation of success in the development of new businesses, as well as the reliability of taking risks in planned businesses (NUNES; NORONHA, 2011). Thus, observing the data obtained in this research, the Empreenda Agro Sustentável Program provided a positive mobilization on the self-efficacy of the participants.

## Dimension and Intention in Entrepreneurship of Students

The dimension of entrepreneurial intention is based on the Planned Action Theory (TAP), which is widely used to predict different types of behavioral intentions in different areas of study (OLIVEIRA; MELO; MUYLDER, 2016; ROS; GOUVEIA, 2001). Through the analysis of this dimension, it is possible to understand and predict not only from psychological factors, such as will and security, but also social factors, such as the interaction between individual and society (Krueger et al., 2000). Thus, through this dimension it is possible to observe how a teaching model can positively or negatively influence the participants.

It is possible to observe in the Histogram (Figure 3) that, when participating in an educational program that promotes cadenced activities for entrepreneurship, students positively modified their intention to undertake, changing from “I don't know how to answer” and “I partially agree” to “I partially agree” and “I completely agree”. Demonstrating that the application of motivational actions and educational processes with active methodologies and encouraging entrepreneurship can be an effective tool for improving the intention to undertake (FAYOLLE et al., 2014). It is also possible to observe that the answers “I completely disagree” and “I partially disagree” canceled each other out as the program developed, corroborating the statement previously said, that the program positively influenced the participating students.

Figure 3 - Histogram of the dimension of the intention to undertake at the moment of the research



Source: The authors (2020)

When observing the Box Plot graph on entrepreneurial intention separated by courses (Figure 4), the Agricultural Engineering course demonstrated positive mobility in the 2<sup>nd</sup> and 3<sup>rd</sup> quartiles leaving the statement “I agree in parts” (5.00) to



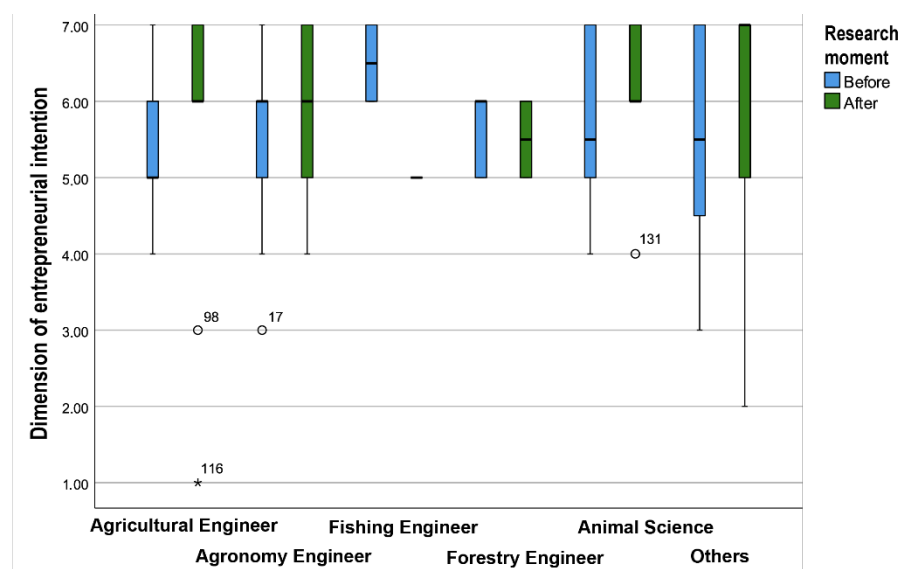
the statement “I completely agree” (7.00), as well as a reduction in the dispersion in the frequency of responses.

For the Agronomy Engineer course, there was no change in the 2<sup>nd</sup> quartile. However it can be observed that the dispersion of the results increased as the program evolved, demonstrating that even if there is no mobility on the second quartile, the fourth quartile significantly increased the values. A probable reason might be the improvement on the intention to undertake after the program. Only one outlier, participant 116, was observed.

The Fisheries Engineering course showed a slight reduction in results. A probable factor may be the low participation of students of this course in the Empreenda Agro Sustentável program, thus reducing the degree of freedom of the data obtained.

The Animal Science course showed a positive difference when observing the values located in the 2<sup>nd</sup> quartile, in the moment before the program the frequency of the statements was between the “I partially agree” (5.00) and “I agree” (6.00), being located between the statement “I agree” (6.00) and “I completely agree” (7.00). There was a reduction in the dispersion of data observed after the program, highlighting only one outlier, participant 131. In the other courses that participated in the survey, a positive mobility of the 2<sup>nd</sup> quartile (median) was observed, leaving “I partially agree” (5.00) to “I completely agree” (7.00).

Figure 4 - Box plot with Result of the dimension of entrepreneurial intention per course



Source: The authors (2020)

Observing the questions related to the personal and professional satisfaction of the students (Table 2), it is possible to verify that the statements: “Being an entrepreneur would bring me great satisfaction” and “A career as an entrepreneur is attractive to me” showed positive changes in the questionnaire analyzed. Over issues related to entrepreneurial intent also demonstrate that constant participation in educational methods that promote the development of entrepreneurial intent and self-efficacy in participants, have interfered positively in self-confidence and improvement in

professional and personal satisfaction, since both are associated (NASSAR JUNIOR et al., 2016). Other factors (personal and professional satisfaction) are of great importance to the professional who seeks to start a new business or work with innovation, as the failures in certain projects throughout their career can be a constant, and knowing how to deal with these obstacles must be a skill acquired over time (EDELMAN et al., 2016).

Table 2 - Test of independent samples for questions related to the intention to undertake at the moment of the program

Question	Research moment	Middle Post	Median	P-value 0.05
For me, being an entrepreneur implies in more advantages than disadvantages	Before	64.43	6	0.082
	After	76.03	6	
A career as an entrepreneur is attractive to me	Before	64.71	6	0.144
	After	74.26	7	
If I had the opportunity and the resources, I would become an entrepreneur	Before	59.94	7	<b>0.032</b>
	After	72.91	7	
Being an entrepreneur would bring me great satisfaction	Before	63.86	6	<b>0.046</b>
	After	76.90	7	
For me without a company it is not autonomous	Before	58.89	4	<b>0.016</b>
	After	74.81	5	
Please indicate if you have been thinking and how seriously you have been thinking about starting your own business	Before	64.34	6	0.076
	After	76.17	6	
I'm already my own boss at the company I founded	Before	72.08	1	0.143
	After	63.06	1	
I have consistent accuracy in what to undertake and dates for the steps of the foundation	Before	65.86	3	0.241
	After	73.83	4	

Source: The authors (2020)

The study noted that for the question “I am already a boss in the company I created”, negative performance was obtained. This is probably due to the occurrence of student evasion during the workshops held in the program, which was demonstrated by a lag in the answers., So it can be inferred that only students who are not business owners remained. The statement “If I had the opportunity and the resources, I would become an entrepreneur” presented a significant positive difference. The Entrepreneurial Intention precedes the step of creating the business, so this question makes it certain that financial restrictions, lack of information and insecurity in specific capital can interfere in the opening of new businesses even if the Entrepreneurial Intention is present. (AUGUSTE; BRICKER, 2016).



When looking at the middle post of the question “Please, indicate if you have been thinking and how seriously you have been thinking about creating your own business” there was a slight positive change from **64.34** for **76.17**. This issue is linked to the fact that the student's constant experience in an environment that provides content and knowledge related to entrepreneurship and innovation can influence the student to thinking and planning the development of new businesses, demonstrating a real need for the emergence of programs that encourage the development of new businesses, and it is up to the teaching places to provide these experiences as much as possible (DAMANPOUR; SCHNEIDER, 2006). The intention to generate a new business is considered one of the best predictors of successful entrepreneurship (AJZEN, 1987; GARCIA-RODRIGUEZ et al., 2017; KRUEGER; BRAZEAL, 2018), and is able to positively modify not only the new entrepreneur, but also his social environment as a whole, generating jobs and income directly and indirectly (FRAGOSO, 2020).

With the development of this study, it is proved that the objectives proposed by the Empreenda Agro Sustentável Program were accomplished to the extent that several undergraduate students from agrarian sciences and other areas of knowledge at UFS were mobilized, in a challenge that was proposed the creation of startups using active methodologies in a pre-acceleration phase. In this sense, 15 teams presented their Business Models with great consistency, attracting the attention of investors, or putting themselves up for discussion with accelerators who are willing to search for investors. Hence, universities and colleges can promote quality assistance in fostering students' self-efficacy and entrepreneurial intent.

The initial results show that the differences between the average levels of the groups captured by the survey for the dimensions of self-efficacy and entrepreneurial intention are significant among groups and within groups. Through these results it is possible to infer that the initiatives that promote entrepreneurial education and the favorable perception of a university business environment positively influence the two dimensions studied here. Thus, there is the evidence that the emergence of education in students of agrarian science courses, which are: Self-efficacy and Entrepreneurial Intention. Another aspect of great relevance was the attractiveness of the Program by many partners who were willing to support the realization of all stages of the journey in different ways.

The improvement of Entrepreneurial Education in higher education, especially in agricultural science courses, with an emphasis on practice and contact with new ventures, can directly contribute to the formation of professionals more capable of generating new scalable businesses, once the entrepreneurial intention combined with self-efficacy can be positively influenced by educational programs, as was presented in the results of this work.

The Empreenda Agro Sustentável Program, as a pre-acceleration phase, presented the objective of filling a gap in the training students of agrarian sciences and other areas of the Federal University of Sergipe in relation to the development of entrepreneurial thinking, through the promotion of cycles workshops, aimed at disseminating the values and techniques of agile management and promoting entrepreneurship capable of applying such methodologies in agricultural production.

It was also observed that the desirability of creating business for the social sphere can be determined by the will of students to self-realization and personal autonomy after experiencing a content focused on entrepreneurial education.



## Conclusions

Empreenda Agro Sustentável Program trailblazed forward with actions on formation of contents for the university education of agrarian sciences in the state, leveraging the development of entrepreneurial behavior and contributing to stimulate similar initiatives aimed at entrepreneurial education.

During the participation in the Empreenda Agro Sustentável Program, participants evolved positively in their entrepreneurial ambitions and the development of new planned businesses in this pre-acceleration step, acquiring greater security for the next step, which is to accelerate your business plans, as gaining autonomy, looking for new opportunities, as proactive professionals with prominence in the job market. The achieved results are encouraging and suggest the continuation of the program in new editions of pre-acceleration and perhaps acceleration.

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