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Active methodologies for teaching entrepreneurship: a proposal for higher education

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***Abstract*—** *Innovation is essential to avoid the obsolescence of the educational system. In a highly competitive scenario, an interdisciplinary training and professionals prepared to deal with the most diverse types of problems and situations are necessary. In this context, this work aims to present a proposal for the application of active methodologies in the teaching of entrepreneurship in higher education, using a virtual teaching and learning environment. For this, a case study was carried out in a blended class of entrepreneurship of the undergraduate course at a University of Santa Catarina. Thus, in the research, active methodologies, educational strategies and specific questionnaires were used to measure the entrepreneurial potential and students' perception of the applied proposal. The activity of creating podcasts, problem-based learning and writing the teaching plan were well evaluated by most students. Moodle proved to be an indispensable tool for better organization and clarity of the proposal, facilitating understanding by the students. In general, the application of the proposal showed benefits such as: global improvement of content understanding, development of critical and entrepreneurial thinking, theoretical content learning through real/palpable situations.*

I. INTRODUCTION

Innovation, in the educational field, is an indispensable component in relation to good teaching and learning practices. Debeauvais [1] considers educational innovation as “a way of increasing the operational efficiency of the educational system”. In turn, Hofman et al. [2] states that educational innovation is represented by “substantial changes with the introduction of new types of learning”. Anyway, it is clear that the different concepts of innovation in the educational field have the same common goal: a global improvement of the system.

Innovation must be part of the educational space in order to avoid the obsolescence of the teaching and learning system. The “new” student has greater access to information and communication technologies, making information flow more easily [3]. The teaching and

learning process has been studied, questioned and modified since the educational beginnings [4][5]. For a long time, passivity was present in teaching as a conceived and accepted form of learning. The student's role consisted of receiving and absorbing the information transmitted by the teacher, an authoritative figure in the classroom [4][6].

In teaching entrepreneurship, the learning process follows the same line. Teaching in this area of study was embedded in traditional learning for most of the time [7][8][9].

Therefore, it is known that educational problems such as: disinterest on the part of students, lack of practices and simulations and lack of connection between theoretical content and reality, can have several negative consequences [10][11][12]. Antunes [13] highlights that student who do not allow real openings during the teaching and learning process, will possibly be students with low potential in key elements for society such as: self-realization, preparation for work or preparation for the conscious exercise of life. citizenship.

Bell and Bell [14] argue that entrepreneurship education has been seen as a factor of competitiveness and prosperity by world nations. The same authors supported by Harkema and Schout [15] and by Åsvoll and Jacobsen [16] state that teaching entrepreneurship is the key to the growth and development of a country's economy. Insulander, Ehrlin and Sandberg [17] ensure that teaching entrepreneurship is extremely important for the formation of creative, determined and assertive citizens. Desai [18] supports the claim that the best way to equip students with the skills to lead and thrive in a world economy would be through teaching entrepreneurship. Rahman and Day [19] reiterate that entrepreneurship education is seen as an engine for job creation and economic success in both developed and developing countries.

Currently, it is known that educational challenges and practices that encourage student protagonist must be an integral part of learning, from the beginning of the content to be taught, with the teacher being a mediator of learning and no longer the active subject [20][21]. However, there is still a lot of divergence of opinion in the literature regarding the best method or best practice of teaching for entrepreneurship, precisely because the impact of teaching methods is still uncertain, among other factors [22][23][24].

Active methodologies present themselves as an opportunity to improve the teaching and learning process, inducing a greater focus on the student, developing autonomy, engagement and motivation during the process [25][26].

In this context, the general objective of the research was to present a proposal for the application of active methodologies in the teaching of entrepreneurship in higher education, using a virtual teaching and learning environment.

Thus, the article is divided into 6 sections. The first represents the introduction and contextualization of the research. The second focuses on teaching entrepreneurship, especially in the Brazilian reality. The third section aims to bring the definition of active methodology and its applications. In the fourth section, that of methodology, the investigation instruments are presented, as well as the stages of development. The fifth section presents the results and discussion of the data. Finally, in the sixth section, the final considerations are presented.

II. ENTREPRENEURSHIP: CONCEPT AND EDUCATIONAL PERSPECTIVES

Entrepreneurship has been highlighted on the world stage, as it is closely linked to job creation and economic progress in developed and developing countries [27].

However, there is still much to be investigated regarding the teaching of entrepreneurship, especially in Brazil. The level of education does not actively influence the intention to open and establish new ventures in Brazil, according to research carried out by the Global Entrepreneurship Monitor [28]. However, according to data available in Data SEBRAE [29], approximately 40.5% of the experts interviewed in the Profile of Entrepreneurs survey stated that education and training for entrepreneurship it is a limiting factor regarding “the chances of achieving entrepreneurship with more economic and social impact, given the general and technical training that entrepreneurs receive, thus making it difficult to deal with business”.

In the Global Entrepreneurship Monitor report [28], there has been a change in the factors that limit the opening and maintenance of new ventures from 2018 to 2019. In 2018, the three factors listed by the experts were: government policies; education and training and financial support. In 2019, the limiting factors were: government policies; economic climate/institutional and social political context/corruption and financial support. The reason for the change is due to the political situation and the current strong crisis in the country. Thus, in the GEM reports, experts still present their recommendations for improving the entrepreneurial environment in Brazil, and in both reports, “education and training” is raised as a condition for improving the environment. This situation shows that regardless of the factors listed, education will always be

the basis for a favorable entrepreneurial environment and for the development of the entrepreneurs themselves.

Regarding initial entrepreneurs, there is a significant change in the scenario exposed in 2018 to 2019: even entrepreneurs with higher education or higher are smaller in number, they are the most active in relation to involvement with initial entrepreneurship. This data leads us to believe that, in the coming years, we will possibly see a high rate of entrepreneurs with higher education or higher in relation to established businesses.

In this context, it is noted that Brazilians, despite having high rates of opening new businesses and presenting themselves as a people with high entrepreneurial capacity and a history of persistence, have, above all, problems regarding the minimum population education, which is a serious social problem.

In basic education, the social problem in relation to low minimum education in the population is reflected in actions for teaching entrepreneurship. The lack of training of Brazilians in relation to the subject can be seen as a challenge to be faced by citizens since basic education, in which only a few years ago timid incentives were created for the insertion of concepts of entrepreneurship in this school phase.

Even though it is necessary to teach entrepreneurship in basic education, it was in higher education that it developed in Brazil. The teaching of entrepreneurship has been implemented and gaining ground since the 1980s. Initially, only business and administration schools had in their curriculum actions aimed at teaching entrepreneurship. However, this picture has been changing in recent years, due to the new ways of creating value that have been developed by entrepreneurship.

An example would be the fact that entrepreneurship is not just about creating new businesses, creating value only in this way, it is also about developing essential skills for any citizen such as: identification and problem solving, notions of financial mathematics, interpersonal relationships, proactivity, among others, being another way to create value through entrepreneurship. Evans, Parks and Nichols [30] states that it has become common to apply the discipline of entrepreneurship in the most varied higher education courses, aiming at the development of entrepreneurial skills.

Data from the report “Entrepreneurship in Brazilian Universities” carried out in 2016 by SEBRAE and Endeavor Brasil, show that 65% of university professors were satisfied with the work carried out within the HEIs regarding entrepreneurship. However, only 36% of students show the same satisfaction. It can be seen that there is a lack of alignment in the education system, where students are not receiving the education, they believed they would receive, creating a disappointment, and teachers, at times, are accommodated with the situation.

Another important point is the current era of instantaneity. Students enter HEIs with a more dynamic profile, with access to all and any information in real time, with cell phones and mobile data available, making it difficult, at times, for the education system to keep up with the speed of changes in the students' profile and their interactions with information and communication technologies.

Regarding the student's intention to undertake, the data still remains timid, one in four students who enter higher education intends to open their own business [29]. Therefore, it is clear that 75% of higher education students have no intention of starting a business. A fact that deserves to be highlighted is that students are usually not interested in starting a business because they have no experience or close contact with entrepreneurs. Students inserted in an entrepreneurial ecosystem, for the most part, demonstrate full intention to undertake [29].

This factor shows the importance of inserting the student, from the beginning of their training, in entrepreneurial experiences and practical activities, which is a well-formulated path to economic development.

However, it is clear that even entrepreneurial students from HEIs do not have the ambition to innovate, especially when it comes to disruptive innovations [29]. In this context, the relevance of the HEIs in stimulating the culture of innovation, research and discovery within the university education system itself enters again.

III. ACTIVE LEARNING METHODOLOGIES

The active learning method was created by Reginald William Revans [25], a physicist turned economist and educator, who encountered several challenges along the way of synthesizing the method [31]. The reported difficulty concerns resistance to new ways of promoting learning, since traditional learning was widely accepted and used, and any others were impracticable. However, Revans persisted and proved how much more effective his method was than the traditional one and, consequently, contributed strongly to a more complete learning and training of the student.

The work carried out by Freeman et al. [32], evaluated 225 studies referring to data from the world education system such as: test scores, test scores, passing and failing, failures, among others, in order to compare the efficiency of active learning versus traditional learning. The authors found some interesting results, in particular: performance

with active learning on tests, exams and exams of the same nature was superior when compared to traditional learning; the chance of failure of a student of traditional learning is 1.5 times greater than a student who was instructed by the active learning method. In this context, the superiority of active learning compared to traditional learning is shown.

Over the years, active learning has evolved and adapted to the reality of the times. In the beginning, when created, planned and applied by Revans, the method had seven basic precepts that guaranteed its efficiency and its good practices. Currently, the meaning of active learning, in the most simplistic way possible, would be for the student to manage their own learning, being basically guided and supported by the teacher.

The adaptation of any methods is necessary due to the constant updating of their methodologies and educational apparatus. As an example, firstly, we can mention the insertion of technologies at a given moment in history, then their rapid evolution and, consequently, the constant adaptation of methods. According to Kenski [33] "the attributes of the new digital technologies make it possible to use human capabilities in different learning processes", thereby enhancing learning, if used well.

In this context, it is extremely important to use active methodologies that make up the active learning framework, and even more importantly, to verify which methodologies fit the reality of the content to be taught and of the students who must absorb this teaching.

Currently, it can be seen that there are a multitude of active learning methodologies that constitute and focus on active learning. Over the years, many other methods have emerged and methodologies have been integrated and include new technologies and educational instruments.

However, despite the creation of many active methodologies, they must respect and provide: the true empowerment of students; minimally interfere in the process by specialized external facilitators; using real problems with genuine difficulty and urgency; pulling people out of their comfort zones by having them operate in unfamiliar environments and deal with unfamiliar problems; and reflecting on these experiences and the assumptions behind their actions, including implementing solutions to the real problem being addressed [31].

IV. METHODOLOGICAL PROCEDURES

The present study is of an applied nature and a qualitative approach. As for the classification of the research in reference to the objectives, it is observed as exploratory research, since the aim would be, in addition to creating a greater proximity to the object of study, also to carry out a data collection, using pre-defined questionnaires, or that is, standardized data collection techniques [34]. Regarding the technical procedures for research design, at first, bibliographic research was used, in order to review the main ideas that guide the theme of this work [35]. The due importance given to bibliographic research comes from the comprehensiveness of information that it makes available to the researcher, being basically impossible, without this technical procedure, to have access to most of the data due to the great dispersion of the same [34].

In a second moment, the survey and the case study were used. According to Marconi and Lakatos [36], the survey carried out by questionnaire is classified as a type of extensive direct observation, having as some advantages: coverage of a greater number of people simultaneously, greater freedom in the moment of the answer due to anonymity and greater uniformity. in the assessment due to impartiality. It also has some disadvantages: high rate of non-answers, impossibility of assistance when filling out the questionnaire (there may be misinterpretation of the questions) and the possibility of influence between the questions.

Following the guidance of Gil [37], the case study follows the following basic steps for its formulation: "formulation of the problem; definition of the case unit; determination of the number of cases; elaboration of the protocol; data collect; data evaluation and analysis; and preparation of the report", these being the steps also followed by this research. Thus, the major stages of the research were 3, as shown in Figure 1.

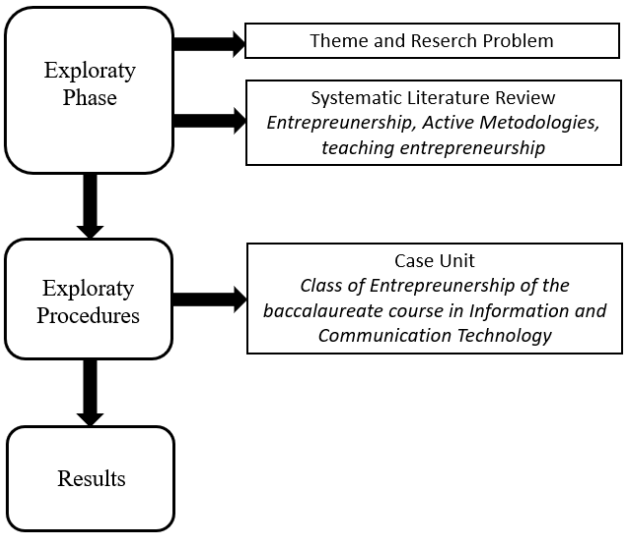

Fig.1. Research steps

Stage 1 – Exploratory Phase: Initially, in the exploratory phase, we sought to create a basis for the

research. With this, the theme and the research problem were delimited. From this, to achieve the objectives of this work, the following themes were verified in the literature: entrepreneurship, active methodologies, teaching entrepreneurship in basic and higher education, educational innovation, realistic entrepreneurial training. A systematic literature review was also carried out on the topic "active methodologies in teaching entrepreneurship" in order to identify the most used methodologies in this field of work.

Stage 2 – Exploratory Procedures: Afterwards, after choosing the method and methodology in the previous stage, it was time to put the methodological procedures into practice. In this case, the research was classified mostly according to the guidelines of Gil [37]. In sequence, the case unit was defined, the number of cases was also defined and the proposal was structured. It was followed by the application of active methodologies in the blended class of entrepreneurship of the baccalaureate course in Information and Communication Technology, and at the same time data collection took place, point by point of the application.

Stage 3 – Results and discussion: Finally, in the results and discussions stage, the data were collected and interpreted, and therefore presented and discussed. The final considerations and suggestions for future research closed this work, becoming an essential part for the sequence of studies on the subject.

The course, offered in the 2019/2 semester, had 25 enrollment registrations, with only 20 students participating at some point and only 16 completing the course. The other students were considered dropouts. Of these 20 active students, two belonged to the Computer Engineering course, two to the Physiotherapy course, one to the Energy Engineering course and fifteen to the Information and Communication Technology course.

Classes started on August 5, 2019 and ended on December 2, 2019. The face-to-face meetings took place on Mondays, at night, with a class duration of 1 hour and 40 minutes, at the institution itself. The non-face-to-face activities took place in "free" time and corresponded to two credits per week (100 minutes), so that the students could carry out the activities proposed by the discipline. This discipline belongs to the first phase of the course. Data collection took place throughout the course, through point-to-point observation of the application and results. However, in two moments there was greater grouping of data: in the application of the entrepreneurial potential scale and in the application of the student perception questionnaire.

In the first week of class, the students were asked to sign the Free and Informed Consent Term (ICF) which aimed to expose to the student all the information inherent to the consent to the application of the entrepreneurship teaching proposal through active methodologies, to that the student made his decision about participating in the research in a fair and informed manner. In sequence, the questionnaire referring to the "Scala do Potencial Empreendedor" developed by Santos [38] was applied, which aims to measure and identify the entrepreneurial potential in each student, by measuring each trait or characteristic common to all successful entrepreneurs, thus creating a basis for comparison with them. According to Santos [38] the application of the scale is important in "students, or people undergoing training to improve their business performance, will be able to identify areas where further training is needed". After applying the entrepreneurial potential scale, work began on the contents organized into ten topics in Moodle. Work was done point by point and active methodologies were applied together with educational strategies throughout the semester.

At the end of the course, the students' perception questionnaire was applied, which evaluated several factors in relation to the applied proposal, the active methodologies and educational strategies used, thus showing the return on the learning experience in entrepreneurship.

V. RESULTS AND DISCUSSION

The present investigation aimed to present a proposal for the application of active methodologies in the teaching of entrepreneurship in higher education, using a virtual teaching and learning environment. The proposal in question focused on providing a differentiated way of teaching entrepreneurship, using as a basis the application of active methodologies and, as a complement to the proposal, some educational strategies, combined with the entrepreneurial potential scale and a questionnaire of students' perception. All contents were structured in topics in a Virtual Teaching and Learning Environment (AVEA) used by the University.

The proposal elaboration process followed the logical sequence from the systematic review, verifying the most cited methodologies in the literature for teaching entrepreneurship, selecting the methodologies according to the possibility of application and, finally, developing the proposal in a structured way in Moodle (tables from 1 to 6). It is necessary to emphasize that this work did not focus on the evaluation of the pedagogical part of the proposal.

Table 01. Structuring the proposal – Case-Base Learning

Active Methodologies	Modules and Activities carried out based on the active methodology outlined
Case-based learning	**Module - Introduction to Entrepreneurship**
	Group case study;
	Open questions – Analysis of strengths and weaknesses on the concept's "entrepreneur" and "intrapreneur";
	Module - Presentation of Innovative Technologies
	Preparation of Podcasts – choice of relevant topics and podcast about the most innovative ICTs in these areas;
	Self-assessment of the activity of creating podcasts;
	Open-ended questions about the student's perception of the activity of creating podcasts;
	Individual case study;
	Module - Success/Failure
	Group case study;
	Open questions – Referring to the case study to verify the students' positioning regarding some questions;

Table 02. Structuring the proposal – Problem-based learning

Active Methodologies	Modules and Activities carried out based on the active methodology outlined
Problem-based learning	**Module - Problem-based Entrepreneurship: Animals at [name of institution]**
	Presentation of a real and current problem of the Araranguá campus and development of solutions and action plans regarding this initial problem;
	Evaluation between teams on the solutions presented and their presentation;

Table 03. Structuring the proposal – Flipped classroom

Active Methodologies	Modules and Activities carried out based on the active methodology outlined
Flipped classroom	**Module - Entrepreneurial Potential Scale**
	Assessment of the entrepreneurial profile of the students in the class to verify points for improvement;
	Module - Introduction to Entrepreneurship
	Availability of content;
	Module - Presentation of Innovative Technologies
	Availability of material for the preparation of podcasts;
	Module - Prototype Business Plan - Business Idea
	Inverted classroom – content availability;
	Module - Model canvas
	Availability of content;
	Module - Problem-based Entrepreneurship: Animals at [name of institution]
	Availability of content;
	Module - Innovation Environments
	Availability of content;
	Module - Business Creation Mechanism
	Availability of content;

Table 04. Structuring the proposal – Gamification

Active Methodologies	Modules and Activities carried out based on the active methodology outlined
Gamification	**Module - Prototype Business Plan - Business Idea**
	Continuous feedback immediately after the activity, providing an evaluation of the experience and continuous improvement;
	Module - Canvas Template
	Self-assessment regarding the preparation of the CANVAS and

	presentations
	Module - Problem-based Entrepreneurship: Animals at [name of institution]
	Continuous feedback immediately after the activity, providing an evaluation of the experience and continuous improvement. It was also proposed to the students that the best ideas would be part of a document that would be taken to the campus management, proposing solutions and actions for the situation;
	Module - Business Creation Mechanism
	Used in the student's own competition format with their own results. Questionnaire available with a grade, and students could retake them as many times as necessary, even surpassing their own scores

Table 05. Structuring the proposal – Project based learning

Active Methodologies	**Modules and Activities carried out based on the active methodology outlined**
Project based learning	**Module - Prototype Business Plan - Business Idea**
	Synthesis of the initial idea of an innovative enterprise;
	Evaluation of ideas between teams;
	Open-ended questions about the experience of recording video presentation of ideas;
	Module - Model canvas
	Continuation of the development of the innovative business idea formulated in the activity of the previous topic. Development of the idea business model framework;
	Evaluation of staff between teams;
	Module - Final Podcast - Innovation Environments
	Preparation of Podcasts – choice of Brazilian innovation environments and presentation of them via podcast;
	Module - Business Plan - Final Version
	Completion of the project that started with the idea of an innovative business, through the elaboration of the CANVAS and, finally, creation of the business plan and presentation to other colleagues in the business as a whole;
	Elevator speech (Pitch) – Students had to defend their business ideas with a maximum time of 5 minutes, simulating a sale of the business formulated to investors;

Table 06. Structuring the proposal – Game-based learning

Active Methodologies	**Modules and Activities carried out based on the active methodology outlined**
Game-based learning	**Module - Business Creation Mechanism**
	Questionnaire developed on the moodle platform itself with different forms of answers: true or false, filling in the blanks, choosing an option, among others, raising the level of difficulty of the activity on business creation;
	Module - Innovation Environments
	Development of a JMatch, where students had to correlate columns of information about the topic;

Regarding the active methodologies used to structure the proposal, the ones that could be applied in the context of the class and the university were selected, among the most used for teaching entrepreneurship, found in the literature. Therefore, the active methodologies selected were: project-based learning, problem-based learning, elevator speech (and elevator pitch), gamification (gamification), flipped classroom (f lipped classroom) and game-based learning (game-based learning).

It was decided to add to the proposal the active case-based learning methodology (Case based learning). According to Boldureanu et al. [39], it is necessary to expose real and successful cases of entrepreneurship, as well as the trajectory of these cases in teaching entrepreneurship for higher education. It is also known that there is a greater correlation between theory and practice during the study of real cases [40]. In view of the above,

we opted for the insertion of this active methodology, indispensable in the context of teaching entrepreneurship.

In order to complement the applications of active methodologies, some educational strategies were selected to work together with the application, such as: assessment between teams and self-assessment, creation of a podcast and the use of open questions. The objective of using other evaluation strategies, different from the standard strategies, was to try to evaluate the activities based on active methodologies proposed in a qualitative way.

The evaluation between teams used the already known and studied precepts of "peer review". Students formed teams of three to four students, as guided by Timp-Pilon [41], due to the format being more effective for students. After carrying out some specific work, the teams were asked to evaluate each other, following a simple questionnaire, so that the student was guided as to what he should observe, making the evaluation work more dynamic.

The use of this evaluation methodology makes the process more productive and helps the teacher to have a broader view regarding the execution and product of the activity. In this way, the students themselves are able to perceive the different ideas that may arise in the same situation, and work them together, highlighting the strengths and weaknesses of each work. The fact that they use writing to express these feedbacks makes them develop the group lexicon and improve their own inter-team relationship and communication. According to a study by Burke Moneypenny, Evans and Kraha [42], students who participated in a peer assessment/team assessment report that the method is effective, helpful to the teaching-learning system, improves communication and writing skills. Self-assessment was used in some moments of this proposal with the aim of instilling in the student a critical thinking about their own products and qualitatively evaluating their work.

From another perspective, with regard to the creation of podcasts, it focused on the creation of content by the students themselves. As stated by Solano and Sánchez [43]: the creation of podcasts by students "generates an enriching experience regarding the use of new technologies". The experience involved both planning, data collection by bibliographic research, content generation and editing, making the experience attractive to students. These, finally, looked for ways to expose the content in a way that would become interesting and stimulating to their classmates. In short, the students learned the content by developing it in a different format, which they eventually taught to their colleagues.

Finally, the use of open questions in some activities aimed to capture the student's view of what was requested or seen during the activity. It was a way of understanding how the student perceived the active experience, in a simple and targeted format.

Student Perception Questionnaire

The questionnaire applied was an adaptation of the questionnaire used by Santos [44] in his work, which aimed at the integration of technology in basic education through the use of online laboratories.

The purpose of applying this adapted questionnaire was to analyze the students' perception of the proposal offered for teaching entrepreneurship in higher education, using activities based on active methodologies and, for the purpose of complementation, educational strategies relevant to the proposal.

The questionnaire was divided into five evaluative groups, namely: regarding usability, regarding the perception of learning, regarding satisfaction, regarding usefulness, and finally, two open questions were used in order to analyze the students' opinion. Of the 16 students who completed the course, only 11 students answered the perception questionnaire, expressing their opinions, understandings and preferences regarding the proposal.

In the usability category, five questions were made available for students to answer in this assessment category. The focus of this category was to evaluate the students' perception of the usability of Moodle, and the deliveries made during the execution of the proposal. The answers were varied, filling the entire range of the Likert scale used for this category. It is identified, in the five questions of the category, that the concentration of the answers was mostly in the options "partially agree" and, in one question, in the option "totally agree". Of the eleven responding students, 45% said they did not find any problems using the Moodle platform and 55% said that it was easy to use Moodle during the course. Again, 45% of the students stated that the time available to do the Moodle activities was sufficient. With this, it is clear that the students, in general, reacted well to the use of the Moodle platform, even with some reservations.

This result is quite interesting since this is a first semester discipline of the ICT course, with this, many students had their first contact with the platform in the same semester in which this teaching proposal for entrepreneurship occurred. Some of the students from other courses already had contact with Moodle, however, 36% of the students stated that the period of adaptation to the tool made it difficult to carry out the activities. A solution to this issue would be mandatory training for students, already in the first days of class of the course,

valuing the standardization of knowledge about the platform and how to use it in the best way. De Lima, Guerra and Fiorin [45] show in their work that an improvement in the Moodle interface would already be possibly efficient to improve students' adaptation to the platform, making it more attractive and adapted to the student's reality.

Regarding the perception of learning, the questionnaire had 22 questions in this evaluative category, and it was decided to divide it into four pages of answers, so that the process did not become so extensive as to encourage students to withdraw from the questionnaire. The purpose of this category was to evaluate how much the proposal, combined with the Moodle platform, really contributes to student learning in the discipline of entrepreneurship. The questions in the category related to the students' perception mentioned: the contents used, the methodologies used, the way in which these contents and activities are made available and the perception of what was learned as a whole by the student. Regarding the first six questions made available to the students, it was observed that most of the answers focused again between “totally agree” and “partially agree”. Thus, approximately 81% of students agreed that the use of active methodologies for teaching entrepreneurship was an effective experience and 45% strongly agreed with this statement. Based on the students' responses, 64% stated that the content available in Moodle improved their understanding of the theoretical part of entrepreneurship and 91% of the students agreed that the proposal helped to correlate the theoretical part with the students' daily lives.

Therefore, there is a possible improvement of the proposal regarding the use of more activities that propose this correlation between theory and practice/daily life of the students, making the understanding of the content even easier and possible better performance on the part of the students. Some authors claim that teaching in a way that brings reality into the classroom makes the student have a truly effective experiential learning [46][47][48][49].

The following eleven questions mostly dealt with activities based on active methodologies and the educational strategies used in the proposal. Regarding the specific question: “the active methodologies used contributed to my learning”, the eleven students who responded stated that they agreed (45% totally agreed and 55% partially agreed) and no student disagreed in any way, evidencing the acceptance of the proposal regarding use of active methodologies for teaching entrepreneurship. All activities based on active methodologies showed good returns, in general, as well as some unfavorable opinions. It can be understood that the activities were not a matter of unanimous acceptance. It is noticed that each student identified himself less or more with a certain activity, making the proposal more interesting.

The feedback on the podcast activities drew attention, as, at the time of carrying out the activity-specific questionnaire, it was judged to be a great, innovative, fun activity, and that most enjoyed it. However, in the perception questionnaire, 45% of the students disagreed with the statement that the podcast activity was a fun and innovative way to learn the contents of the discipline. In the meantime, an idea emerges that possibly the students' perceptions would be better portrayed if all the questionnaires were applied soon after the activity was carried out, and not at the end of the course.

The question still arises that a perception questionnaire performed sometime after the activities have been carried out can lead to differences of opinion, perhaps due to lack of clarity regarding the feeling and perception that occurred at the time of the activity. However, the elevator speech activity showed a good return from the responding students, 72% agreed that carrying out this activity made students review the entire process to think of a better way to present the final business idea. The same 72% also agreed that they learned, in a way, how to prepare for a dynamic business presentation, in case there is a need for the future. The SEBRAE videos on business creations, arranged in Moodle, in increasing order of knowledge, also had a good response, together with Moodle's own mixed questionnaire activity, and the students stated that it was an important part of the proposal for training in entrepreneurship.

In the last five questions about perception of learning, students were asked about their general understanding of the activities. Again, in all five questions, there was a higher response count in the “strongly agree” and “partially agree” options. In general, 91% of the students agreed that they felt better prepared to exercise the concepts of entrepreneurship, and 72% agreed that activities based on active methodologies contributed to a better assimilation of the contents. A total of 45% of the students agreed that the proposal can be considered innovative, when compared to the methodologies of the other subjects of the course.

The evaluative category “as for satisfaction” aimed to identify the perception in relation to the students' satisfaction with the proposal, communication between colleagues, motivation, among others. Seven questions were made available in this category. Again, the answers followed the previous pattern, mostly between the options “totally agree” and “partially agree”. In general, students were satisfied with the proposal, with 63% agreeing that

the use of active methodologies was relevant for their studies.

Furthermore, 63% of the students stated that they would indicate the proposal to their other teachers and that the proposal increased their motivation to learn new content. An interesting point was that the proposal, according to 72% of the respondents, partially improved communication between colleagues in the classroom. It is believed that this improvement occurred due to the activities being carried out mostly in groups, in order to force a type of integration. One possibility for future uses would be for the subject teacher to choose the groups, enriching the discussion and the final product. In this same context, 27% of respondents disagreed that the proposal improved communication between colleagues. It is noticed that two students, of the three who represent the 27% discordant, are not part of the ICT course, with this, it appears that this lag in interpersonal relationships may have been strongly impacted by this factor. Therefore, it makes sense in this context to use integration activities with students in the first weeks of the course, in order to get to know each other better and create bonds during the course. Respondents, 72% of the students, agreed that the proposal better met their learning expectations than it would if the subject were taught using the traditional method. However, this answer is presented as a speculation, because we would not be able to be really sure that this method better meets the students' expectations until the same class has both educational methods for this same subject (active and traditional) and can compare them in practice.

The purpose of the evaluative category on utility was to know how useful was the use of this proposal, even compared to traditional teaching methods, which students were already used to in other subjects. The category consisted of six questions. As for the answers, again, there was the same pattern of majority answers in the classes “I totally agree” and I partially agree”. Respondents agree that, 91% of the total, the use of Moodle and the content available in it can really improve the performance of a face-to-face/expository class. It is known that the use of both face-to-face reinforcement and anticipation of content in a virtual way is a well-known way of working, being a well-known and widely used example, the active methodology of the inverted classroom. A detail that deserves to be highlighted is that 73% of the respondents agreed that similar learning outcomes can be achieved by the traditional methodology. This statement really makes sense, since it specifically questioned the learning result, considering that both by the traditional method and by the active method, the student will learn the content. What primarily differs between the two methods is the role of the student, where the student makes the choices and the teacher intermediates them. What is expected is that the motivation for the active method will be greater, and that it will also be innovative and fun to learn, but that it will reach the greater good: synthesis of knowledge.

The use of open questions was the way found to give more strength and voice to the students' opinions, providing more reliable feedback to their opinions. Two questions were used: “which activity did you most enjoy doing? Explain why” and “what changes or improvements would you consider for this teaching proposal?”.

Ten answers were counted for this first question, and the respondents listed that, among the activities applied, the activities that the students liked best were: the creation of a podcast and the Animal activity at the university, which used the active PBL methodology. The main reasons for choosing podcasts were: a positive, fun and innovative experience, which comes very close to the reality of the current generation and where public speaking, editing and general knowledge skills were improved. Regarding the animal activity at [name of institution], the strengths were: it presented itself as a palpable, real and local problem, and that thinking and mobilizing the class to find solutions to this real problem was very interesting for the students (figure 2).

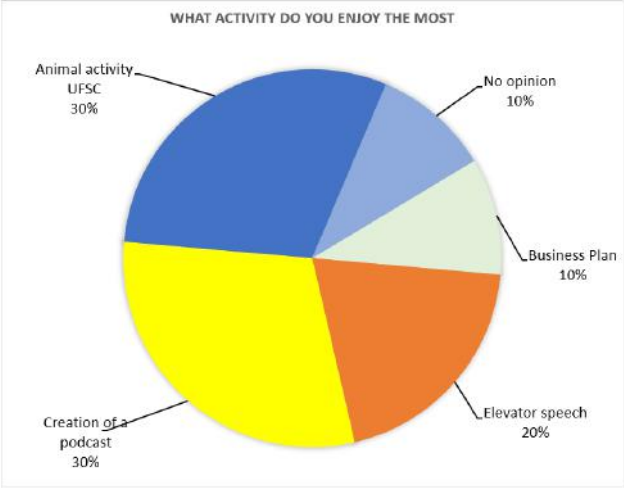

Fig. 2. Graph of activities that students liked the most.

Regarding the second open question, eight responses were counted. All the answers were diverse and very enriching for the improvement of the proposal. As a result, 25% of the students believe that more time in the execution of activities would help to develop them in a better way, since most students work during business hours and take the course at night, not having enough time during week to devote full time to these activities. One of the respondents believes that a better exposure of the

content or reinforcement of the same in the face-to-face class would help the student to be better placed on the course floor, as students disperse a little when all the content is on the online platform. One way out of this improvement for this situation would be a very detailed delimitation of how the discipline works. If in doubt, the student would consult this "itinerary", making it easier to navigate the contents.

Another respondent believes that an interesting option would be to carry out fewer activities in the discipline's Moodle and focus more on classroom presentations, aiming at the development of the student's social part. In all, 25% of the students raised the question of participation, since there is no point in innovating in relation to the teaching methodology if students do not get involved and participate. The critical point for the success of any learning methodology is participation, since, without student participation, it is difficult to exchange and generate consolidated knowledge.

One option for this issue would be the use of initial recognition and dynamic activities among students to encourage them to get to know each other better, making the environment lighter and more reliable. Also make the teacher choose the work teams, mixing the profiles in order to necessarily improve the rapport, enriching the products of the activities.

Due to the results and discussions presented, it is understood that the proposal structured in Moodle, based on active methodologies and educational strategies, showed good acceptance by the students, as shown in the students' responses to the perception questionnaire. Some important qualities for the teaching and learning scenario of entrepreneurship, also important for the creation and maintenance of the entrepreneurial spirit and for the formation of the student as a citizen, were worked and developed during the proposed application. Some of these qualities are: problem solving, public speaking, resourcefulness in public, critical sense, use of continuous feedback, organization, creativity, cooperation, empathy, among others.

VI. FINAL CONSIDERATIONS

Through this research, it was possible to observe that there is much to be developed and work in the field of teaching entrepreneurship, given the importance and value of professionals with a good training in the area and who are prepared to deal with the job market.

It was possible to understand, through this case study, together with information retrieved in the literature, that active methodologies do not fully contribute if there is no commitment from everyone during the teaching and learning process. With this, there is no point in innovating in the methodology, if there is no student participation and teacher mobilization to make it happen.

A point to be highlighted, which is interesting, is the use of different methodologies, aiming at increasing the possibility of reaching students in the classroom. It is known that each student is unique, having their personal preferences and worldviews. Therefore, the more diversified a proposal can present itself, the greater the possibility of scope and, consequently, the possibility of satisfaction on the part of the students. We can be sure of this by analyzing the results of the perception questionnaire of the applied proposal, where each student preferred an activity for different reasons.

The research was guided by the following research question: "How can the application of a teaching proposal based on active methodologies, using a virtual teaching and learning environment, contribute to the teaching of entrepreneurship in higher education?" Thus, to validate the question listed, a proposal for the use and application of active methodologies was elaborated, together with some educational strategies, in Moodle, aimed at higher education.

Through the application of the activities that made up the proposal, it was possible to obtain some returns on this issue. The results showed that the use of the proposal in higher education can bring benefits, such as: greater participation and engagement of students with the contents taught in the discipline; development of critical and entrepreneurial thinking; global improvement in understanding the concepts of the topic; possibility of greater interaction among the students of the class; learn concepts and actions with real and palpable situations; learn or improve editing application handling skills; improve on oratory.

The use of the virtual teaching and learning environment was essential for the organization of the proposal. Moodle made the distribution of content and delimitation of topics very interesting, making the contents not merge, resolving possible doubts that could arise on the part of the students. The possibility of creating games and other activities within the platform itself is another strong point.

Some improvements were noticed during the process of application of the proposal, both by the students and by the others involved. This process of identifying improvements is vital for the updating and continuous improvement of the process to occur, a determining factor for success with new educational practices. The notes were: longer time to perform activities in Moodle; better alignment of the

content of face-to-face classes with the content available in Moodle for consultation in non-face-to-face pedagogical activities of the discipline; promotion actions aimed at greater integration of students from other courses; better dose the amount of activities available in Moodle and classroom activities, carried out in the classroom. It is important to mention that the focus of this work was not to analyze the pedagogical part of the proposal.

The set of students that form a class is a unique arrangement. Each class has its particularities, in this case, facilities or difficulties in the face of an educational proposal. With this, it becomes even more interesting, in addition to the kick-off achieved with the application of this proposal, a deeper reflection on what is really effective for each unique arrangement or class.

The main objective of this work was achieved from the elaboration of the proposal, according to the evidence presented, during all points of this work and gains presented in this conclusion, making the proposal susceptible to use at any time.

An interesting way to obtain a profile of the class would be to hold an open conversation with the students, on the first day of class, in order to briefly know their preferences and difficulties. With this, it becomes easier to think of a personalized proposal for each class, having as main objective an effective learning focused on the students.

Another question that is interesting for future work would be to work better on the correlation between the results of the entrepreneurial potential scale and the application of the proposal itself. An example of this question would be the identification of a student with a low score in the "information" category of the entrepreneurial potential scale. The "information" category mentions the thirst for knowledge on the subject, the interest in learning about entrepreneurship. In this case, would the student not have difficulties in getting involved in the proposal due to the fact that he or she does not want to search for more on the subject or go deeper into it? Or even, would the student not change this score to become interested in the proposal? These are interesting and important questions that would complement future work.

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