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Research Article

The experiential learning intervention as a bridge between academia and future career

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Experiential pedagogical interventions offer the possibility to develop deep learning approaches. The objective of the study was to identify the factors that help to understand the reason why some students, after a pedagogical intervention develop an approach to deep learning and others superficial, as well as to identify the strategies that best suit each student profile. To this end, a quasi-experimental pedagogical intervention was used with a mixed methodology. As main results, it is pointed out that the response of students in terms of approaches to learning can be described as: students who reinforce the initial deep approach, students who maintain the initial deep approach level and others who change from one emphasis on the deep approach to one closer to the superficial. The result of the investigation suggests the inclusion of pedagogical activities and an integrative didactic of different motivations and initial strategies, leading to a possible adoption of deep approaches.

Keywords: Experiential learning, Reflective thinking, Mixed methods, Higher education

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1. Introduction

Learning through real experience helps learners develop the skills needed for their future work, such as creative and analytical thinking, problem-solving skills, interpersonal skills, and teamwork (Sangpikul, 2020). In addition, reflective thinking can also motivate an individual to solve a problem by exploring divergent paths (Can, 2015). In this sense, problem-solving skills and reflective thinking are closely associated.

Although several studies have (at least implicit) the assumption that learners' approaches to learning develop into deeper approaches in higher education (Asikainen & Gijbels, 2017), there appears to be no clear theoretical basis for this assumption nor empirical evidence. The reason behind this assumption seems to be largely based on the idea that higher education requires (and works in the sense of) graduates prepared for a life as lifelong learners and that, given the academic nature of higher education, part of this it should be the development of deep learning approaches (Lake & Boyd, 2015).

On the other hand, learning implies the integration of two processes: a process of external interaction between the learner and his social, cultural, or material environment, and an internal psychological process of elaboration and acquisition. However, school activities are concentrated and often aimed only at assimilation (Illeris, 2018). Today, this understanding is insufficient, and generic competences can only be built through a combination of assimilation, accommodation and, eventually, transformative learning processes.

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Experience alone does not produce learning, requiring the reconstruction or reorganization of the experience that contributes to its meaning, increasing the ability to direct the course of subsequent experience (Austin & Rust, 2015). Therefore, the reflective aspect of experiential learning to create knowledge is emphasized. If this did not happen, these two groups of activities would be so separated that the benefits of reflection and conceptual analysis carried out in a classroom would not be integrated with the actions that promote the change and improvement that students will find in their future professional activity.

Reflection is essential in the process and can act as a mediator in the construction of meaning (Morris, 2020). It is not surprising, therefore, that experiential learning encourages reflective thinking (Scogin et al., 2017). The suggestion that a student who achieves good results may perceive the learning environment in a certain way does not necessarily mean that manipulating the environment will change the way another student will interpret it. In fact, the example often given to introduce the idea of deep and superficial approaches (Biggs, 2003; Marton & Säljö, 1984) emphasizes that two learners with the two different approaches will do so within the same context of teaching and learning. In these cases, it is the individual's personal views and understanding of the context that are considered to create their final approach and learning outcome, not the context itself.

Since the early work of Marton and Säljö (1976), the two approaches to learning have been described as different in the degree of motivation and strategy involved in the learning process. These two elements are interrelated: motivation refers to the reasons why learners approach their learning tasks; strategy refers to the way they approach carrying out the learning task (Biggs, 2003). Several longitudinal studies have been carried out, but point to contradictory results (Asikainen & Gijbels, 2017). Some studies have found a decrease in the superficial approach to learning during higher education studies (Asikainen & Gijbels, 2017), but an increase in the superficial approach has also been reported (Asikainen & Gijbels, 2017). For example, Fryer (2017) found different developments depending on learners' initial approaches. The initial level of deep processing was positively related to the change in surface processing and the initial level of surface processing positively influenced the change in deep processing. A significant negative correlation was also observed between initial levels of deep processing and change in deep processing and between initial levels of superficial processing and change in surface processing, indicating that change was more likely with learners who initially had lower scores.

It would probably be more appropriate to conclude that these results give an indication that there is no empirical evidence for the assumption that deep learning is reinforced during higher education. A probable factor responsible for the inconsistency of the results can be found in the different contexts of the studies. Among the different approaches, most studies have measured the development of approaches to learning at a very general level. In the cited literature review, only five studies measured change within a specific discipline. None of the studies explored the development of learners' approaches to learning at a specific task level.

Therefore, when exploring general development, there is the problem that, while the domain of study remains largely stable, the contextual variables of the discipline (the topic, the discipline design, the assessment, the educator…) are likely to vary to a great extent across different measurement times. Thus, the effect of the teaching-learning environment is not taken into account despite the theoretical assumption widely accepted in the SAL (Student Approach to Learning) tradition that learning approaches are not stable but change as a result of the interaction between contextual aspects of the learning environment and the characteristics of the learners (Biggs, 2011).

The aim of this study was to describe and analyze the results of a pedagogical intervention on students' learning, on the adoption of an approach described as deep or superficial. Specifically, to identify the factors that help to understand the reason why some students, after a pedagogical intervention, within the scope of a specific curricular unit, develop an approach to deep learning and others superficial, as well as, to identify the strategies that are best suited to each student profile to encourage everyone to adopt a deep approach rather than a superficial one. Thus, the following two research questions are answered: does an experiential pedagogical intervention affect the learning approaches of Marketing students? How do the purposes of student involvement (motivations) and the types of self-regulated action (strategies) in an experiential group learning environment allow us to understand the evolution and adoption of different approaches to learning?

A methodological issue that becomes clear from the review of the cited literature is that all 43 studies are based on self-report data. A way to advance in the knowledge of this issue would be to invest in other

measures, or at least invest in data triangulation (as, for example, in Catrysse et al., 2016), which has been more common in the Self-Regulated Learning (SRL) tradition in recent years (Zusho, 2017).

In this way, and to respond to the challenge presented in the literature, sequential explanatory quasi-experimental design (also referred to as explanatory design) was adopted, occurring in two distinct interactive phases (Creswell & Clark, 2018). There are two variants of the explanatory sequential design (Creswell & Clark, 2018), although less common, case selection was chosen, resulting in prioritization of the qualitative phase instead of the initial quantitative phase.

As a result, three profiles of students with different degrees of permeability to a pedagogical intervention were found, thus suggesting different and concomitant intervention strategies that allow the integration of the respective motivations and strategies of the three groups, possibly leading to the adoption of different approaches.

2. Method

2.1. Research Design

To estimate the effects of the intervention, an explanatory sequential quasi-experimental comparison design was used (Creswell & Clark, 2018). Thus, in a first phase, the collection of data of a quantitative nature was carried out. In this first phase, two scales were applied to Marketing students, which made it possible to identify three typologies in the evolution of the adoption of approaches to learning: evolved to superficial approach, maintained deep approach and increased deep approach.

The second phase, qualitative, was conducted with the objective of deepening the understanding of the quantitative results obtained. It was developed with samples of groups of students, through a focus group, using the technique of content analysis, according to a design of multiple categories, allowing comparisons from one group to another within a category or from a category to another category (Krueger & Casei, 2015). It is thus configured as a mix study.

Regarding content analysis, it followed the different phases recommended by Bardin (1995), organized around three chronological poles: pre-analysis; the exploration of the material; treatment of results, inference and interpretation.

2.2. Participants

The present investigation was developed with students of the 2nd year of graduation in Marketing in the academic year 2020/2021, 2nd semester, at the Escola Superior de Ciências Empresariais of the Polytechnic Institute of Setúbal, in Portugal, within the scope of the Marketing Planning course.

Forty-five students answered the questionnaire before and after the intervention (answers obtained in only one of the measurement moments were eliminated, totaling 7 answers), 29 of whom were female, all enrolled in continuous assessment. Of these 45 students, 18 were selected to participate in the second phase of the study, qualitative phase, 6 in each typology of evolution in the approach to learning.

2.3. Technics and Instruments

To measure students' approaches to learning, the two-factor scale revised by Biggs et al. (2001) was used. Biggs initially developed the questionnaire in 1987 and, through extensive application and review, is now presented as a 20-item scale. The 2001 scale analysis reports that the two-factor model (deep approaches and superficial approaches) provides a good fit to the data. Each subscale is composed of two dimensions, motivation (5 items) and strategy (5 items), measured on a five-point agreement/disagreement scale.

Young et al. (2008) developed a scale specifically to identify learners' perceptions of how well an experiential learning activity includes each of the four stages of the experiential learning cycle. The development of the Stages of Experiential Learning scale started with a clear definition of the scope of the latent variable, i.e., experiential learning, being conceptualized as an ongoing process by which knowledge is created through the transformation of experience through the four stages. Thus, concrete experience, reflective observation, abstract conceptualization, and active experimentation form the four dimensions of the general scale, measured on a five-point agreement/disagreement scale.

The first phase of the present study included a series of different steps to validate the Portuguese version of the scales. The scale was translated from English to Portuguese and subjected to a "back translation". It was considered that the literal correspondence between the words is important, but above all the correspondence of perception and impact on the respondent, that is, considering the impact that a certain term has on the Portuguese cultural context – cultural equivalence. It was necessary to replace some terms with others to obtain the desired equivalence. A cross-cultural adaptation was carried out to obtain an

instrument equivalent to the one developed in the country where it was carried out. A panel of expert educators that included linguists, educators from the scientific field of Education and Marketing evaluated the quality of the items in terms of clarity and comprehensiveness. The final version accommodated experts' opinions.

The translated version was then translated back into the original version of the scales for additional quality verification, verifying the accuracy of the translation. After the adjustments that the panel of experts decided to make in the Portuguese version of the scales, these were then administered to undergraduate students in Marketing, attending the 3rd year (N=58). The questions that deserved questioning as to their understanding by the sample were reviewed and incorporated into the Portuguese version.

To assess the internal consistency of the scales, Cronbach's alpha coefficient was used using the IBM program – SPSS Statistics, version 26. The alpha values for the two scales are presented in Table 1. All scores above 0.7 are considered good values regarding their internal consistency.

Table 1
Scales Cronbach alpha

Scale	*Cronbach Alpha*	*Number of items*
Experiential Learning	0.727	12
Deep Approach to Learning	0.752	10
Superficial Approach to Learning	0.745	10

2.4. Designing Experiential Projects in Marketing

In the design of the pedagogical intervention, two dimensions were considered that contribute to the experiential level of an intervention: the experiential content and the task structure (Hamilton & Klebba, 2011).

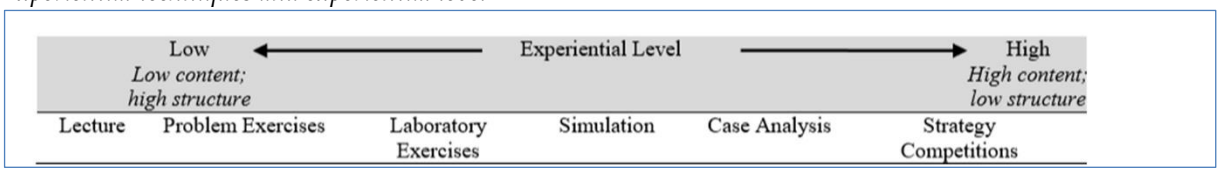
Three elements commonly shape experiential content: realism, ambiguity, and complexity. The incorporation of realism in the intervention went through the presentation of real business problems and practices, introducing and familiarizing the student with the process of business activities according to the context of the curricular unit. Reality-based cases, simulations and customer projects incorporate high levels of realism, according to the same authors.

In a learning situation, a high degree of ambiguity requires learners to think beyond stated facts and examine a set of unspecified influences as well as possible alternatives. Ambiguity can increase as realism increases, since uncertainty typifies decision-making in a business environment, mainly translated into simulated practice using CESIM's SIMBRAND simulator.

Complexity refers to the variety and type of variables that can affect the outcome of a decision. It seems reasonable to infer that, as the number and variety of variables in a learning scenario increase, so does the complexity of the learning process.

Together, the content and task structure dimensions of a particular technique combine to create an experiential level that can promote progressive levels of cognitive development. The pedagogical intervention included translated examples in the continuum of experiential learning (Hamilton & Klebba, 2011), including theoretical-practical classes, introduction of simulated practice and client project, translated in Figure 1.

Figure 1
Experiential techniques and experiential level



Note. Adopted from Hamilton and Klebba (2011).

The entire pedagogical strategy of the intervention involved identifying problems to be solved rather than information to be memorized: "A problem or issue must be interconnected with activities, projects, and field-based experiences. This will help ensure that a combination of thought and action takes place in the learning process" (Wurdinger, 2005, p. 13).

Primary and secondary experiences were incorporated into the intervention. The primary experiences are the experiential activities themselves, already identified; the secondary experiences resulted from the primary experience, such as reflection and discussion in work teams.

Once again, Wurdinger inspired the principles underlying the present intervention: the use of an important project to guide learning. Having an important assignment to work on throughout the semester motivates students, gives them a clear goal, and becomes the driving force behind everything the student does in class. When learners know what they are trying to achieve, they understand that each lesson has a purpose, as it provides a springboard to that overall goal. Using a combination of projects, on the other hand, classroom activities and outside experiences to keep the course interesting and engaging, adds value to the overall process. Finally, the class readings and lectures were directly related to the experiential activities, being thought of as resources that will help the students to complete their project (Wurdinger, 2005, p. 63).

Finally, to develop mastery through their own learning on the part of the students, the construction of diversified learning relationships was encouraged through the various connections between the different members of the learning community which allow growth and development along the learning spiral (Passarelli & Kolb, 2011). To this end, students were organized into working groups that remained stable throughout the semester.

3. Results

3.1. The Effect of an Experiential Intervention on the Adoption of Approaches to Learning

The presentation of the results will be organized by the two research questions.

To assess the effectiveness of an experiential pedagogical intervention, in the way it affects approaches to learning, we used the analysis of the variable resulting from the difference between the scores obtained from the deep/superficial approach. The variable deep/surface approach difference after the intervention was defined as follows: if difference in scores ≤ -1 described as "evolved to superficial" with coding 1; if between 0 and 1 described as "stable approach" with coding 2; if ≥ 2 described as "evolved to deep" with coding 3. Statistical analysis was performed using IBM SPSS Statistics software, version 26.

The Wilcoxon test points to the existence of a statistically significant difference in the difference in scores of the deep/superficial approach ($Z = -5.400$, $p = .00$) and, therefore, affects the adoption of approaches to learning among these subjects (N = 45).

It is now important to introduce the cohort approach to deep and surface learning and its perception of the experiential level of the intervention. The Kruskal-Wallis test points to statistical differences between the perceived experiential level and the difference in the deep/superficial approach score after intervention, $\chi^2(2) = 15.093$, $p = .001$.

In turn, when analyzing the relationship between the variables Experiential Learning and Deep/Surface Difference after intervention, there is a strong relationship between the variables (R^2=0.910).

To answer the second research question, we proceeded to the analysis of additional results that will also help to better understand those now reported.

When we consider the variation in the score in the deep approach after/pre-intervention, 3 student profiles can be identified. The variable Deep Difference after/pre was defined as follows: if difference equal to −1 it evolved to superficial approach; if equal to 0 kept deep approach; and if equal to +1 reinforced deep approach.

Although 22% of the students evolved towards the reinforcement of a deep approach, 13% reacted in the opposite direction, tending towards a superficial approach. To better understand these 3 groups, it is important to start by identifying the initial positions in the scores in the deep and superficial approaches and after the intervention, as shown in Table 2.

Table 2
Average pre/post scores on deep/superficial approach by 3 profiles

	Deep pre	*Deep post*	*Superficial pre*	*Superficial post*
Evolved to superficial approach	3.7	3	2.6	2.5
kept deep approach	3.6	3.7	2.2	2
Reinforced deep approach	3.1	3.9	2.3	2

3.2. Group Evolved to Superficial Approach: Individual Tasks Combined with Group Tasks, with Quality Standards and Moments of Reflection

The six students who tended to adopt a surface learning approach are the ones who recorded the highest score in the deep approach before the intervention. After the intervention they registered the lowest score in the deep approach, remaining, even so, above the superficial approach score, and not registering major

variation in the superficial approach score. In addition to the highest score in the deep approach before the intervention, they were also those with the highest score in the superficial approach before the intervention. It seems, therefore, that this group of students tends to vary more in the choice of their approach to learning, translated into their motivations and strategies, than other groups. They were also the group that reacted in the opposite direction to the intervention objective achieving a score in the deep approach after the intervention below the initial score. Even so, with scores above those obtained in the superficial approach.

The items on the approaches to learning scale with the greatest negative difference compared to the average refer to the deep approach to motivation subscale, which confirms the literature. In turn, the items with the greatest positive difference from the average refer to the superficial approach, Motivation and Strategy subscales, which also confirms the literature.

3.3. Group Kept Deep Approach: The Pain of Growing up in Group Work

The group that maintained the deep approach score (n=29) had high scores in the deep approach (3.6 out of 5) before the intervention and maintained the trend towards this approach, while reducing the superficial approach scores.

The items on the approaches to learning scale with the greatest negative difference compared to the average refer to the superficial approach, strategies, and motivations subscale, in line with the literature; in turn, the items with the greatest positive difference from the average refer to the deep Strategy approach subscale, which confirms the literature.

This group records a single item with a below average score on the items on the experiential learning scale2.

Regarding the advantages of working in a group, these point to questions of insecurity ("Because I am insecure so I can go down a wrong path, to study too") of understanding the topics to be studied ("It helps to understand concepts, discuss, communicate with different people") or to achieve better results ("The result can be better"), which translates into greater dependence on the group.

On the other hand, group work poses challenges for them, whether translated into the search for consensus ("It can be difficult to reach a consensus"), or dealing with different ways of working ("Dealing with different ways of working, someone will have to adjust, so that flexibility can be difficult") but, above all, demonstrating some vulnerability, as in the verbatim "Ending up making me feel a little 'small' because my idea was not accepted" or " Several people express different things, moving away from my main idea".

3.4. Group Reinforced Deep Approach: Organization Based on Objectives

In turn, the reinforced deep approach group (n=10) was the most "permeable" group to the intervention, having opted for strategies associated with the deep approach with the corresponding motivations. This group recorded the highest score in the deep approach subscale after the intervention, along with the lowest score in the superficial approach subscale. Thus, it seems to be the group whose characteristics lead to the greatest positive sensitivity towards a pedagogical intervention of an experiential nature.

The items on the approach to learning scale with the greatest negative difference compared to the average refer to the superficial approach motivation and strategy subscale, which confirms the literature; in turn, the items with the greatest positive difference from the average refer to the deep motivation approach subscale, which confirms the literature.

In turn, this group scores below average on item RO3[3] on the experiential learning scale.

4. Discussion

The discussion of the results will be organized by the same parts of results section.

4.1. The Effect of an Experiential Intervention on the Adoption of Approaches to Learning

The verbatims of the subjects of the focus group were analyzed to deepen the discussion of their results. We were interested in knowing their opinions on the real challenges and simulated practice activities introduced in the intervention.

With regard to real challenges, it contributed, on the one hand, to assigning meaning to what was studied ("It helped me to understand the type of work I want to do") and, on the other hand, to allowing contact with an aspirational and a bridge to the moment when these students are in a work context ("When I see brands of our daily lives that have problems, I see that there is opportunity to work. I have options to reach

[2] AE1, question 4: The activities throughout the semester allowed me to try to solve exercises and problems on my own

[3] Question 10: the activities throughout the semester helped me to relate the contents of the disciplines with what I learned in the past

these companies and improve their situation"). When asked about the difference between real challenges in an academic context and the real world, they highlight the autonomy that will be required ("It will be like driving lessons: now I am driving alone") or the impact they could have on the world ("Possibility of being able to make a difference"). Some students even mention the way it prepares them for the job market ("Working with real cases translated the reality because almost every day, I had to be with my colleagues, which seemed just like I was in the company. It prepares us for the context that we are truly going to encounter").

Regarding simulated practice, two categories of response stand out. On the one hand, the motivations inherent to this pedagogical proposal translated into the possibility of being able to make decisions and measure results ("The simulated practice is stimulating because I like to analyze, make decisions and prove if it is effective"), a self-awareness ("I don't think that is a real case, but it is how I would react in the job market"), or a safe context of learning and decision-making ("Like a laboratory where we could test theoretical concepts and see their results, or not"). The main challenge is related to the effort required to understand its operation and the required analysis, not always attractive to some students ("The simulated practice would be useful if you understood the context, the logic, the way it works").

4.2. Group Evolved to Superficial Approach: Individual Tasks Combined with Group Tasks, with Quality Standards and Moments of Reflection

For this cohort it is important to discuss some of the verbatims of the focus group, those related to motivations/strategies for learning.

A tendency towards a more immediate motivation can be verified ("My goal is to summarize as much as possible to understand more easily" or "Understand the dimension of what I have to study") or some reference to the role of the teacher ("A teacher has the ability to adapt theoretical material to real contexts and this helps me to understand the material") or the opinion of others ("The opinion of others helps us to understand our logical reasoning and the perspective of the other").

They are the only group that is not receptive to an experiential proposal translated into below-average scores in the standardized values of the Concrete Experience subscale.

As mentioned, in this group we can recognize the adoption of different motivations/learning strategies when compared with the other groups. For example, in their verbalizations about the difference between the real challenges and what they will find in their future professional context, a pattern of less commitment is recognized ("Things have to be done and done in a certain way" or "The commitment I will have to have in the work to be done. Very different from school"). It seems to point to the fact that the proposal of real challenges requires a different demand from what they are willing to make.

It also seems to be a group of individuals shielded by group work and the consequent division of tasks ("In a group, it turns out to be more beneficial to distribute tasks"). On the other hand, they prefer individual work ("I prefer to work alone because I don't like being dependent on others").

For this profile of individuals, therefore, an important individual component of work is suggested that leads them to greater involvement in the task, with the definition of quality standards and moments of reflection on their course of action in order to lead them to greater involvement and self-awareness.

4.3. Group Kept Deep Approach: The Pain of Growing up in Group work

When analyzing the focus group's verbatims regarding their motivations and strategies during the pedagogical proposal, a focus on the group work strategy stands out, as, for example, in the following verbatims: "I try to understand and discuss with other people" or "Contributes to having a different vision/perspective" or "Discovering something in myself".

The verbatims point to a deeper reflection process since, when discussing their ideas as a group, this leads to greater elaboration and sophistication.

One can therefore question, following what has already been stated, whether this result reflects the character of group work that involved the pedagogical intervention under analysis or, if also, a preference for working individually versus in a group, in contrast to the other 2 cohorts. Is it especially important for this group to test, to have immediate feedback, to translate into future actions? It is recalled that this is the group that stood out in the positive scores related to the strategies related to the deep approach. Thus, it is interesting to analyze the verbatims of the focus group on the advantages/disadvantages of working in a group.

In summary, since this group is more needy/group-centered, it is also more vulnerable, and can be dominated by dominant personalities, as translated in their verbatims when they refer to weaknesses when

working in a group: “Extreme concern for with work which can sometimes be excessive and "disturb" my colleagues' free time” or “Not expressing my concrete opinion”.

4.4. Group Reinforced Deep Approach: Organization based on Objectives

It is therefore important to deepen the discussion of the results by using their verbatims in the focus group, in particular motivations/strategies for learning. In this group, it is important to make bridges between theory and practice, such as, for example, in “Trying to fit theory into something practical in order to help me learn better” or “Understand to apply in the future”. Likewise, the organization of their study according to the objectives of the curricular unit (“I separated the content in the text according to the objectives of the discipline” or “I read everything and separate the content by themes”). There is also a reference to additional research, such as in “I go beyond the material that is provided, I research, I look for other ideas”.

Since this was the group that stood out the most in the motivations related to the deep approach, it is important to understand how much these motivations should comprise a strong component of reflection. Through the verbatims of this group about their motivations for learning, one can see a centrality in applying, without any reference to reflection (we have, for example: “Trying to fit theory into something practical in order to help me learn better” or “Understand to apply in the future”).

For this group, it is a suggestion for future projects to include moments of reflection, such as diaries, reflection pairs, etc.

5. Limitations and Future Research

The present investigation has some limitations which should be addressed in future studies.

A first limitation may lie in the characteristics of the subjects on whom the study was carried out and the size of the sample. All subjects involved in the investigation studied at the same school and year. The fact that it is a polytechnic school and, by nature, tends to have students with very practical expectations and not just knowledge for knowledge's sake, can lead to a questioning whether the profile of students will have implications for the results, which may be different from a university school. It is therefore important to be able to contrast the results of studies in more diverse contexts. At the same time, a larger sample may contribute to greater confidence in the quantitative data obtained.

A second limitation may result from the fact that all subjects are students in the 2nd year of their degree. It remains to be answered, for this reason, the question of whether the result of this type of intervention with novices or those in the last year of their degree would be different and associated with this particularity. Knowing the natural adjustment that is necessary for novices to higher education, one can question the pertinence of this type of intervention with this public and be able to compare the impact it can have on their strategies and motivations for learning upon entry into higher education. Likewise, one can question how prepared the final year students will be for the real work context after an intervention immediately prior to their insertion in the labor market. A moment of evaluation could be considered a few months after this professional insertion.

Another limitation may underlie the discussion in the literature of the difference in constructs between learning perceived by the learner as opposed to effective learning. While the first construct refers to self-report, the second refers, in turn, to changes in knowledge identified by rigorous measures. In this sense, it is suggested to cross the empirical data resulting from the application of scales with the actual results obtained from quotations in exams. Peer evaluation may also be included. Thus, we must characterize the results of the present study as resulting from perceived learning.

In addition to the limitations, the impact of the emotional context and the very personal goals expressed by the subjects for attending higher education can also be questioned, including changes in their personal life with a possible impact on the adoption of a deep versus superficial approach. For example, when a student also becomes a worker, or was already a worker before the intervention.

It is also important to reinforce the importance of explicitly introducing the element of reflection instruction to the students. This means that the student must clearly bear in mind the fact that he is being asked for explicit moments of self-reflection and group reflection. It is particularly important to introduce instruments such as experiential narrative diaries, an emotions board, a sense of the class, or others that allow frequent recording through which additional explanations can be added to the results obtained after the intervention.

To promote an effective deep learning approach, it is also suggested:

- Frequently reminding students of the curricular unit's pedagogical objectives and direct articulation with the instructional method and pedagogical activities.

- Frequently appeal to prior knowledge that learners already have.
- An intervention that contrasts current skills against desirable ones.
- Stimulate group discussion, whether around concepts and practices, but also about the group dynamics itself.
- Several moments of intermediate formative feedback.
- Use assessment tools that encourage a link between conceptual understanding and its application.
- Create constructive friction in the learning environment that encourages student development.

The answer to these possible limitations may be of importance in the sense that the current research has indicated as being the fundamental discriminatory aspects of the three groups of learners that can enhance the adoption of an approach to deep learning as being:

- Group evolved to superficial approach: individual tasks combined with group tasks, with quality standards and moments of reflection.
- Group kept deep approach: the pain of growing up in group work.
- Group reinforced deep approach: organization of study based on objectives.

6. Conclusion

Since there is no theoretical basis or empirical evidence that students in higher education are induced to adopt an approach to learning described as deep, a pedagogical intervention of a quasi-experimental nature, with mixed methodology, was developed as a scientific contribution to this discussion, evaluating the intervention within a single curricular unit. The literature reports, however, that different students are expected to adopt different approaches to learning in the same context of teaching and learning. In this case, it will be the way they perceive the context and personal goals that will dictate the adoption of one of the approaches to learning (deep and superficial).

The present study concludes that in the same context, the students' response can be described as: students who reinforce the initial deep approach, students who maintain the initial deep approach level and others who change from an emphasis on the deep approach to one closer to superficial. This typology does not confirm studies reported in the literature, namely, whether the initial level of deep processing would influence the superficial and, on the contrary, the initial level of superficial processing would influence a change in deep processing. It even refers to the change being more likely with students who initially had lower scores in the deep or superficial approach.

The result of this investigation points to the inclusion and pedagogical and didactic activities that integrate different motivations and initial strategies, leading to a possible adoption of deep approaches, since it revealed statistically significant differences in the difference in the scores of the deep/superficial approach and the experiential level. perceived and the difference in the deep/superficial approach score.

Regarding the effects of the intervention of an experiential nature on approaches to learning, they were translated through the perception of real challenges and simulated practice.

In the case of real challenges, the categories of "attribution of meaning and meaning to the studied" and the possibility of "contact with an aspirational for their future professional context" stand out. In this category, the dimensions of "autonomy" that will be required of them were also revealed when comparing the classroom context of real cases and the future professional context and the impact they may have on the world.

Regarding the simulated practice, two categories of response stand out: on the one hand, the motivation associated with the possibility of measuring the results of the decisions taken, an awareness of oneself and, on the other hand, the additional effort that this practice required of some of the students.

When considering the three profiles of students found in the study, the following references deserve to be highlighted.

The group that evolved to superficial was the group with the highest score in the deep approach before the intervention as opposed to the lowest score after the intervention and, even so, above the one in the superficial approach. This profile of students is pointed out as those who tend to present greater variability in the choice of their level of processing, already indicated by the smaller difference between deep and superficial processing. This group reflected a motivation for more immediate results and some dependence on the role of the educator and peers. Their verbatims indicated less commitment in the face of real challenges and greater hiding in the group by resorting to a division of tasks or even a preference for individual work. For future interventions, a balance of individual/group tasks is recommended to integrate different preferences and motivations, in particular, of this profile of students. It is also suggested the clear

definition of quality standards in the outputs of the works to raise the bar of the "minimums", leading them to a greater involvement and process of self-awareness.

Regarding the group that maintained the deep approach score, they maintained the high score they already had. This group stood out in terms of the strategy followed, as opposed to the next group that stood out in terms of motivations. This group highlights the focus of the strategy translated into group work, compared to the group already analyzed. Their verbatims point to a deeper reflection process since, when they discuss their ideas in a group, this leads to a greater elaboration and sophistication of reasoning and argumentation. This group, when translating greater dependence on group work, also reflects its vulnerability in the face of the challenges that this implies seeking consensus while articulation of different working methods. Therefore, it is suggested the proposal of group work techniques, in particular a clear definition of roles which can alternate throughout a semester among the group members.

Finally, the group that increased its score in the deep approach, simultaneously, however, with the lowest score in the superficial approach, it suggests that it is the group with the greatest positive sensitivity to experiential interventions. This group stood out from the others by the scores on the deep approach motivation subscale. This group sees the challenges of real cases as an opportunity to build bridges between theory and practice, with a focus on application and, above all, the organization of its study in line with the objectives of the curricular unit. On the other hand, it translated a lower score in some items of the reflexive observation subscale, so it is suggested the inclusion in future interventions of more moments of reflection, in groups and individually, either through diaries, reflection pairs, etc.

Finally, in future investigations, an ethnographic study with these three types of students is suggested to expand and validate these results/conclusions. The study could also include interventions in other curricular units, in the same scientific area, or in another one, as well as in other geographical latitudes. It is also suggested an in-depth study of the contributions of concrete activities, such as simulated practice, in the development of reflection skills and approaches to learning characterized as deep.

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