

# Reflective Thinking and Experiential Learning: A Quasi-Experimental Quanti-Quali Response to Greater Diversification of Activities and Greater Integration of Student Profiles

P. Bogas

**Abstract**—As a scientific contribution to this discussion, a pedagogical intervention of a quasi-experimental nature was developed, with a mixed methodology, evaluating the intervention within a single curricular unit of Marketing, using cases based on real challenges of brands, business simulation and customer projects. Primary and secondary experiences were incorporated in the intervention: the primary experiences are the experiential activities themselves; the secondary experiences resulted from the primary experience, such as reflection and discussion in work teams. A diversified learning relationship was encouraged through the various connections between the different members of the learning community. 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 did not always confirm studies reported in the literature, namely, whether the initial level of deep processing would influence the superficial and the opposite. The result of this investigation points to the inclusion of pedagogical and didactic activities that integrate different motivations and initial strategies, leading to a possible adoption of deep approaches to learning, since it revealed statistically significant differences in the difference in the scores of the deep/superficial approach and the experiential level. In the case of real challenges, the categories of “attribution of meaning and meaning of studied” and the possibility of “contact with an aspirational context” for their future professional 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 to 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 for some of the students.

**Keywords**—Experiential learning, higher education, marketing, mixed methods, reflective thinking.

## I. INTRODUCTION

LEARNING through real experience helps learners to develop the skills necessary for their future work, such as creative and analytical thinking, problem-solving skills, interpersonal skills and teamwork [1]. In addition to being a competency corresponding to higher thinking skills such as

critical thinking and problem solving, reflective thinking can also motivate an individual to solve a problem by exploring divergent paths [2].

We may find the assumption (at least implicit) that learners' approaches to learning develop into deeper approaches to higher education [3], there appears to be no clear theoretical basis for this assumption and no 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 life as lifelong learners and that, given the academic nature of higher education, some of this should be the development of deep learning approaches [4]. 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 focused only on assimilation [5]. Today, this understanding is insufficient, and generic competences can only be built by a combination of assimilative, accommodative and, eventually, transformative learning processes.

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 [6]. Reflection is essential in the process and can act as a mediator in the construction of meaning [7]. It is not surprising, therefore, that experiential learning stimulates reflective thinking [8]. Therefore, the reflective aspect of experiential learning to create knowledge is emphasized.

The suggestion that a successful learner may perceive the learning environment in a particular way does not necessarily mean that manipulating the environment will change the way another learner, different, will interpret it. In fact, the example often given to introduce the idea of deep and superficial approaches [9] 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,

P. B. is with Instituto Politécnico de Setúbal, ESCE, Campus do IPS Estefanilha 2914-503 Setúbal, Portugal (phone: +351 265 709 300; e-mail: paulo.bogas@esce.ips.pt).

not the context itself. Two learning approaches were 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.

Several longitudinal studies have been carried out but point to contradictory results [3]. Some studies have found a decrease in the superficial approach to learning during higher education studies, but also an increase in the superficial approach has been reported [3]. For example, different developments were found depending on learners' initial approaches [10]. 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. in the deep or superficial approach than students with high 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, studies cited by [1] have measured the development of approaches to learning at a very general level. In the cited literature review [1], only five studies measured change within a specific discipline. None of those 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 considered despite the theoretical assumption widely accepted in the SAL (Student Approach to Learning) tradition that learning approaches are not stable but change because of the interaction between contextual aspects. of the learning environment and the characteristics of the students [9].

The aim of this study was to describe and analyze the results of a pedagogical experience on student 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 a specific curricular unit, develop an approach to deep learning and others superficial, as well as to identify the strategies that best suit each student profile with the purpose of encouraging the adoption of a deep approach in detriment of 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. One way to advance the knowledge of this issue would be to invest in other measures, or at least invest in data triangulation [11], which has been more common in the Self-Regulated Learning (SRL) tradition in recent years [12]. In this way, and to respond to the challenge presented in the literature, the explanatory sequential quasi-experimental design (also referred to as explanatory design) was adopted, occurring in two distinct interactive phases [13], in particular, case selection [13], resulting from prioritizing the qualitative phase instead of the initial quantitative phase.

As a result, three profiles of students were found with different degrees of permeability to a pedagogical intervention, 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 described as deep rather than superficial.

## II. METHODOLOGY

### A. Research Type and Design

To estimate the effects of the intervention, an explanatory sequential quasi-experimental comparison design was used [13]. 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 in the adoption of approaches to learning: it evolved to superficial, maintained deep, raised deep.

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 focused discussion 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 [14].

Regarding content analysis, it followed different stages [15], organized around three chronological poles: pre-analysis; the exploration of the material; treatment of results, inference, and interpretation.

### B. Participants

The present research was developed with students of the 2<sup>nd</sup> year of the bachelor in Marketing in the academic year 2020/2021, 2<sup>nd</sup> semester, at Business School of Instituto Politécnico de Setúbal, in Portugal, within the scope of the Marketing Planning course.

45 students answered the questionnaire before and after the intervention (answers obtained in only one of the measurement moments were eliminated, totaling seven responses), 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, six in each typology of

evolution in the approach to learning.

### C. Techniques and Instruments

To measure students' approaches to learning (SAL), the revised two-factor scale was used [16]. The questionnaire was developed in 1987 and, through extensive application and review, now presents with a 20-item scale. The 2001 scale analysis reports that the two-factor model (deep and surface 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.

A scale was also used specifically to identify learners' perceptions of how well an experiential learning activity includes each of the four stages of the experiential learning cycle [17]. 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 submitted to a back translation [18]. It was considered that the literal correspondence between the words is important, but above all, it was considered 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, education science and marketing educators evaluated the quality of the items in terms of clarity and comprehensiveness. By accommodating the experts' opinions, a version of the scale that was understood to be more understandable resulted.

The translated version was then translated back into the original version of the scales for additional quality verification of the translated version, 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 students of the bachelor's in marketing, attending the 3rd year (N = 58), in the academic year 2020/21. 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 2 scales are presented in Table I.

TABLE I  
 CRONBACH'S ALPHA BY SCALES

Scale/subscale	Cronbach alpha	Number of items
Experiential Learning	0,727	12
Approach to Learning – Deep	0,752	10
Approach to Learning - Surface	0,745	10

All scores above 0.7 are considered good values regarding their internal consistency.

### D. The Design of Experiential Learning Projects in Marketing

In the design of the pedagogical intervention, two dimensions were considered that contributed to the experiential level of an intervention: the experiential content and the task structure [19].

Three elements commonly shape experiential content: realism, ambiguity, and complexity.

The incorporation of realism in the intervention went through the presentation of real marketing problems and practices, introducing and familiarizing the student with the process of business activities according to the context of the curricular unit. Cases based on current real challenges from brands, simulations and customer projects incorporate high levels of realism, according to the same authors [19].

In a learning situation, a high degree of ambiguity requires learners to think beyond stated facts and examine a range of unspecified influences as well as potential alternatives. Ambiguity can increase as realism increases, since uncertainty typifies decision-making in a business environment, mainly through 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 examples in the continuum of experiential learning [19], including theoretical-practical classes, introduction of simulated practice and client projects (Fig. 1).

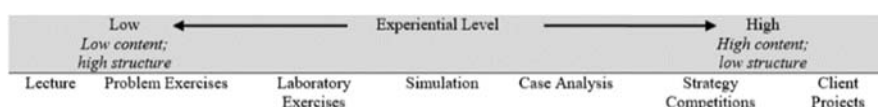


Fig. 1 Experiential techniques in relation to the experiential level

The entire pedagogical strategy involved identifying problems to be solved rather than information to be memorized:

“A problem or issue must be interconnected with field-based activities, projects, and experiences. This will help ensure that a combination of thought and action takes place in the learning process” [20, 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, we inspired the underlying principles of this intervention: the use of an important project to guide learning. Having an important assignment to work on for the entire semester motivates students, gives them a clear objective, 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, classroom activities and outside experiences to keep the course interesting and engaging, adding value to the overall process; combine it all: class readings and lectures directly related to experiential activities. Classroom readings and activities were thought of as resources that will help students complete their project [20].

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 [21]. To this end, students were organized into working groups that remained stable throughout the semester.

### III. RESULTS AND DISCUSSION

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

#### A. *The Effect of an Experiential Intervention on the Adoption of Approaches to Learning*

To assess the effectiveness of an experiential pedagogical intervention, in the way it affects approaches to learning, it was used the analysis of the variable resulting from the difference between the scores obtained from the deep/surface approach. The variable Deep/Surface Approach Difference after the intervention was defined as follows: if difference in scores  $\leq -1$  described as “accentuated surface” with coding 1; if between 0 and 1 described as “stable” approach with coding 2; if  $\geq 2$  described as “accentuated 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/surface approach ( $Z = -5.400$ ,  $p = 0.00$ ) 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 ( $\chi^2(2) = 15.093$ ,  $p = 0.001$ ). 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 deepen the understanding of this result, the verbatims of the subjects of the focused discussion group were analyzed. We were interested in knowing views about the challenges and simulated practice, activities introduced in the intervention.

With regard to challenges, it contributed, on one hand, to the attribution of meaning to what was studied (“It helped me to understand the type of work I want to do”) and, on the other hand, to allow contact with an aspirational and a bridge to the moment when these students will be in a work context (“When I see that brands of our daily lives have problems, I realize that there is opportunity to work. I have options to reach these companies and improve their situation”). When asked about the difference between 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 as if I were in the company. Prepared us for the context q that we will truly find”).

Regarding simulated practice, two categories of response stand out. On 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 (“it's not a real brand, but it's how I would react in the job market”), or a safe learning and decision-making context (“Like a laboratory where I could test theoretical concepts and see their results, or not”). The main challenge is related to the effort required to understand its operation and required analysis, not always attractive to some students (“The simulated practice would be useful if I could understand the context, the logic, the way it worked”).

#### B. *The Evolution of the Adoption of Approaches to Learning Explained by Different Motivations and Strategies*

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 could be identified: those who evolved to a deep approach; those who maintained the score; and those who evolved to a more surface approach. The variable Deep Difference after/pre intervention was defined as follows: if difference equal to -1 it evolved to superficial; if equal to 0 kept deep; and if equal to +1 reinforced profound.

Although 22% of the students evolved towards the reinforcement of a deep approach, 13% reacted in the opposite direction, tending towards a superficial approach, which is not

surprising given what is explained in the literature.

To better understand these 3 groups, it is important to start by identifying the initial positions and after intervening in the scores in the deep and superficial approaches, as shown in Table II.

TABLE II  
 MEAN PRE AND POST SCORES IN THE DEEP AND SURFACE APPROACH BY THE 3 PROFILES

Profile	Deep score pre/post	Surface score pre/post
Evolved to Surface	3,7/3,0	2,6/2,5
Kept Deep	3,6/3,7	2,2/2,0
Evolved to Deep	3,1/3,9	2,3/2,0

### 1. Group Evolved to Superficial: 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. They effectively recorded the lowest score in the Deep Approach after the intervention, remaining, even so, above the Superficial Approach score, and not registering great variation in the Surface Approach score. In addition to the highest score on the Deep Approach before the intervention, they were also those with the highest score on the Surface 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 negatively to the intervention by translating into a score in the Deep Approach after the intervention below the initial score, although with scores above those obtained in the Surface Approach.

The items on the Approaches to Learning scale with the greatest negative difference compared to the average refer to the Deep Approach Motivation subscale, which confirms the literature. In turn, the items with the greatest positive difference compared to the average refer to the Surface Approach, Motivation and Strategy subscales, which also confirms the literature [3].

It is therefore important to analyze 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, as translated in verbatim "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, this group adopted different motivations/learning strategies from other groups. For example, 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, as for example in "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 delivery 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, as reflected in the verbatim "In a group, it turns out to be more beneficial to distribute tasks". On the other hand, they prefer individual work, for example, "I prefer to work alone because I don't like being dependent on me, nor I 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 to lead them to greater involvement and self-awareness.

### 2. Group Kept Deep: 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 surface approach scores.

The items on the Approaches to Learning scale with the greatest negative difference from the average refer to the Surface Approach, Strategies and Motivations subscale, in line with the literature; in turn, the items with the greatest positive difference from the mean refer to the Deep Strategy Approach subscale, which confirms the literature.

When analyzing the verbatims of the focus group discussion regarding their motivations and strategies during the pedagogical proposal, a focus on the group work strategy stands out, as, for example, in the following verbatim's: "It contributes to having a vision/different perspective", focusing on the subject to be studied, or "Discovering something in me" focusing on the subject itself.

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

The Kept Deep group recorded a single item with a score below average in the items of the Experiential Learning scale (AE1, question 4: Activities throughout the semester allowed me to try to solve exercises and problems on my own).

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. It is therefore interesting to analyze the verbatims of the focus group on the advantages/disadvantages of working in a group.

Regarding the advantages of working in a group, these point to questions of insecurity ("Because I'm insecure so I can go down a wrong path to study") 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 "End 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".

In summary, as this group is more needy/group-centered, it is also more vulnerable, and can be dominated by dominant personalities, such as those translated in their verbatims when they refer to weaknesses when working in a group: "Extreme concern for the work that can sometimes be excessive and "disturb" my colleagues' free time" or "Not expressing my concrete opinion". It is therefore suggested the proposal of group work techniques, in particular a clear definition of roles which can be rotated throughout a semester.

### 3. Increased Deep Score Group: Organization Based on Objectives

This 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 after the intervention, along with the lowest score in the Surface Approach. 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 Approaches to Learning scale with the greatest negative difference compared to the average refer to the Surface Approach Motivation and Strategy subscale, which confirms the literature [3]; in turn, the items with the greatest positive difference from the mean refer to the Deep Motivation Approach subscale, which confirms the literature [3].

It is therefore important to deepen the understanding of these results using their verbatims in the focused discussion 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, they mention the organization of study according to the objectives of the curricular unit, as, for example, in "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 and search for other ideas".

In turn, this group scores below average on item three of the Reflective Observation subscale of the Experiential Learning scale.

Since this was the group that stood out the most in the motivations related to 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, a centrality in applying is perceived, without any reference to reflection, as in the following two verbatims: "I try to understand how it is applied" or "Try to fit theory into something practical."

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

## IV. CONCLUSION

A pedagogical intervention of a quasi-experimental nature was developed, with mixed methodology, as a scientific contribution to this discussion about the adoption of different approaches to learning, evaluating the intervention within the scope of a single curricular unit. The literature reports [13], 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 surface).

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 surface. This typology did not always confirm studies reported in the literature, namely, whether the initial level of deep processing would influence the superficial processing 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 of pedagogical and didactic activities that integrate different motivations and strategies, leading to a possible adoption of deep approaches, since it revealed statistically significant differences in the difference in the scores of the deep/surface approach, and the experiential level perceived and the difference in the deep/superficial approach score.

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

In the case of real challenges, the categories of "attribution of 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 simulated practice, two categories of response stand out: on 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 could be highlighted: The group that evolved to surface approach 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 of 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 to 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 student profile. It is also suggested the clear definition of quality standards in the outputs of the work 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 pointed 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 revealed greater dependence on group work, which, in turn, reflects its vulnerability in the face of the challenges that this implies seeking consensus, articulation of different work methods. It is therefore suggested the proposal of group work techniques, in particular a clear definition of roles which can be rotated throughout a semester.

Finally, the group that increased its score in the deep approach, simultaneously, with the lowest score in the surface approach, 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 Motivation subscale of the deep approach. This group sees the challenges of real cases as an opportunity for building bridges between theory and practice, with a focus on application and, mainly, 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 the study of other curricular units, in the same scientific area, or in another one, as well as in other geographical latitudes.

#### ACKNOWLEDGMENT

The author would like to thank the Polytechnic Institute of Setúbal, in Portugal, for the prize awarded as part of the INOPED contest, a contest for innovative pedagogical practices.

#### REFERENCES

- [1] Sangpikul A., *Challenging graduate students through experiential learning projects: the case of a marketing course in Thailand*, Journal of Teaching in Travel & Tourism, 2020; 20:1, 59-73. (<https://doi.org/10.1080/15313220.2019.1623150>)
- [2] Can Ş., *Pre-Service Science Teachers' Reflective Thinking Skills toward Problem Solving*, Educational Research and Reviews, 2015, v10 n10, p1449-1457. (<https://doi.org/10.5897/ERR2015.2228>)
- [3] Asikainen H., Gijbels D., *Do Students Develop Towards More Deep Approaches to Learning During Studies? A Systematic Review on the Development of Students' Deep and Surface Approaches to Learning in Higher Education*, Educational Psychology Review, 2017, 29, 205-234. (<https://www.jstor.org/stable/44956375>)
- [4] Lake W., Boyd W., *Is the university system in Australia producing deep thinkers?* Australian Universities' Review, 2015, 57(2), 54-59. (<https://search.informit.org/doi/abs/10.3316/ielapa.43463681798450>)
- [5] Illeris K., *Contemporary Theories of Learning: Learning Theorists ... In Their Own Words* (2nd edition). 2018, London: Routledge.
- [6] Austin M., Rust D., *Developing an Experiential Learning Program: Milestones and Challenges*, International Journal of Teaching and Learning in Higher Education, 2015, Volume 27, Number 1, 143-15. (<https://eric.ed.gov/?id=EJ1069800>)
- [7] Morris T. H., *Experiential learning – a systematic review and revision of Kolb's model*, Interactive Learning Environments, 2019, 27:1. (<https://doi.org/10.1080/10494820.2019.1570279>)
- [8] Scogin S. C., Kruger C. J., Jekkals R. E., Steinfeldt C., *Learning by experience in a standardized testing culture: Investigation of a middle school experiential learning program*, Journal of Experiential Education, 2017, 40, 39-57. (<https://doi.org/10.1177/1053825916685737>)
- [9] Biggs J. B., *Teaching for quality learning at university*, (2nd ed.), 2003, Buckingham: SRHE and Open University Press.
- [10] Fryer L., *(Latent) transitions to learning at university: a latent profile transition analysis of first-year Japanese students*, Higher Education, 2017, 73:519-537. (<https://www.jstor.org/stable/26447628>)
- [11] Cattrysse L., Gijbels D., Doche V., De Maeyer S., Van den Bossche P., Gommers L., *Mapping processing strategies in learning from expository text: an exploratory eye tracking study followed by a cued recall*, Frontline Learning Research, 2016, 4(1). (DOI: 10.1007/s10648-017-9406-6)
- [12] Zusho A., *Toward an Integrated Model of Student Learning in the College Classroom*, Educational Psychology Review, 2017, 29, 301-324. (<https://link.springer.com/article/10.1007/s10648-017-9408-4>)
- [13] Creswell J. W., Clark V. L., *Designing and Conducting Mixed Methods Research* (3er ed.), 2018, London: SAGE Publications Ltd
- [14] Krueger R. A., Casey M. A., *Focus group: A Practical Guide for Applied Research*, 2015, 5th Edition. Sage Publishing
- [15] Bardin L., *Análise de conteúdo*, 1995, Lisboa: Edições 70.
- [16] Biggs J., Kember D., Leung D.Y.P., *The revised two-factor study process questionnaire: R-SPQ-2F*, British Journal of Educational Psychology, 2001, 71: 1333-1349. (<https://doi.org/10.1348/000709901158433>)
- [17] Young M. R., Caudill E. M., Murphy J. W., *Evaluating experiential activities*, Journal for Advancement of Marketing Education, 2008, Volume 13. (<https://www.semanticscholar.org/paper/Evaluating-Experiential-Learning-Activities-Young-Caudill/8289b3d3a7213f4886378bc7e66d980c71357a48>)
- [18] Reichenheim M., Moraes C., *Operationalizing the cross-cultural adaptation of epidemiological measurement instruments*, Revista de Saúde Pública, 2007, 41(4), 665- 673. (<https://www.scielosp.org/article/rsp/2007.v41n4/665-673/en/>)
- [19] Hamilton J. G., Klebba J. M., *Experiential learning: a course design process for critical thinking*, American Journal of Business Education, 2011, Volume 4, Number 12. (<https://doi.org/10.19030/ajbe.v4i12.6608>)
- [20] Wurdinger, S. D., *Using Experiential Learning in the Classroom*, 2005, Lanham: Scare crow Education
- [21] Passarelli, A. M., Kolb, D. A., *Using Experiential Learning Theory to Promote Student Learning and Development in Programs of Education Abroad*, 2011, VA: Stylus Publishing