

INTENTION AND ATTENTION TO LEARNING IN BRAZILIAN VOCATIONAL EDUCATION STUDENTS¹

Marisa Aghetoni Fontes^{2 2 3}, Orcid: <https://orcid.org/0000-0003-4362-2566>

Antônio Manuel Duarte^{4 5}, Orcid: <http://orcid.org/0000-0002-9497-7204>

ABSTRACT. This study is part of a larger research aimed at characterizing the learning strategies of students of Vocational Education. The sample consisted of 20 students who attended the first grade of the Vocational Education of the Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro, in the year 2014 and were inquired about their learning strategies. Participants were interviewed about their 'intention' (what they seek to do to learn) and their 'attention' (their focus when they learn). The responses were subjected to a thematic analysis, which suggests a replication of the 'surface strategy' (intention to mechanize learning - attention to the form), 'deep strategy' (intention to understand - attention to the content) and intermediate strategy (intention to memorize and understand - attention to form and content). Variations in these strategies were also found. The results are analyzed in the light of the characteristics of the students interviewed and the particularities of Brazilian Vocational Education.

Keywords: High school students; school learning; vocational education.

INTENÇÃO E ATENÇÃO FACE À APRENDIZAGEM EM ESTUDANTES DO ENSINO TÉCNICO BRASILEIRO

RESUMO. O estudo do qual este artigo faz um recorte teve como objetivo caracterizar as estratégias de aprendizagem de estudantes de Ensino Técnico brasileiro brasileiro. A amostra compreendeu 20 estudantes que cursavam o primeiro ano do ensino médio técnico do Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro, no ano de 2014, que foram inquiridos sobre as suas estratégias de aprendizagem. Os participantes foram entrevistados sobre a sua 'intenção' (o que procuram fazer para aprender) e a sua 'atenção' (o seu enfoque quando aprendem). As respostas foram sujeitas a uma análise temática, que sugerem uma replicação da 'estratégia de superfície' (intenção de mecanizar a aprendizagem – atenção à forma), da 'estratégia de profundidade' (intenção de compreender – atenção ao conteúdo) e da estratégia intermédia (intenção de memorizar e compreender – atenção à forma e conteúdo). Foram igualmente encontradas variações daquelas estratégias. Os resultados são analisados à luz das características dos estudantes inquiridos e das particularidades do Ensino Técnico brasileiro.

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² Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro-RJ, Brazil.

³ Email: marisafontes@gmail.com

⁴ Faculdade de Psicologia da Universidade de Lisboa, Lisboa, Portugal.

⁵ Email: amduarte@psicologia.ulisboa.pt



Palavras-chave: Aprendizagem escolar; ensino profissionalizante; estudantes de ensino médio.

INTENCIÓN Y ATENCIÓN FRENTE AL APRENDIZAJE EN ESTUDIANTES DE LA ENSEÑANZA TÉCNICA BRASILEÑA

RESUMEN. El estudio del cual este artículo hace un recorte tuvo como objetivo caracterizar las estrategias de aprendizaje de estudiantes de Enseñanza Técnica. La muestra comprendió 20 estudiantes que cursaban el primer curso de la Enseñanza Media Técnica del Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro, en el año 2014, que fueron entrevistados sobre sus estrategias de aprendizaje. Los participantes fueron entrevistados sobre su 'intención' (lo que buscan hacer para aprender) y su 'atención' (su enfoque cuando aprenden). Las respuestas se sometieron a un análisis temático, que sugiere una replicación de la 'estrategia de superficie' (intención de mecanizar el aprendizaje – atención a la forma), de la 'estrategia de profundidad' (intención de comprender – atención al contenido) y de la estrategia intermedia (intención de memorizar y comprender – atención a la forma y contenido). También se encontraron variaciones de esas estrategias. Los resultados se analizan a la luz de las características de los estudiantes encuestados y de las particularidades de la Enseñanza Técnica brasileña.

Palabras clave: Aprendizaje escolar; enseñanza técnica; estudiantes de secundaria.

Introduction

The research from which this article is an excerpt addresses the learning strategies of students in Brazilian Vocational Education, having as a reference the Student Approaches to Learning (SAL) theory. Empirical studies framed in this theory (Beyazatas & Senemoglu, 2015; Biggs, 1987; Richardson, 2015) suggest the conceptualization of academic learning in terms of the integration between learning strategies and motivational orientations for learning used by students - basis of the composite variable called approach to learning. According to this framework, the study of the phenomenon of academic learning is considered as fundamental, focusing on the experience that students have of that learning, that is, the way they experience it, instead of considering it from an external point of view. Specifically, in the Brazilian context, research on learning is scarce within vocational education (Scacchetti, Oliveira, & Rufini, 2014), and is also scarce in this context when we consider the chosen theoretical framework. In the SAL theory, stand out studies of Gomes (2010, 2011); Gomes and Golino (2012); Gomes, Golino, Pinheiro, Miranda and Soares (2011); Galvão, Câmara and Jordão (2012); and Costa, Pfeuti and Nova (2014). We have not found studies in this area directed specifically at Brazilian Vocational Education students, who suffer from high school dropout rates (Linke & Nogueira, 2017; Lüscher & Dore, 2011; Meira, 2015).

In general terms, learning strategies consist of the means used by students to face learning tasks, especially with regard to the processing and use of information (Duarte, 2002). According to Biggs (1987), there are three levels of learning strategies: 'micro-strategies' (basic procedures, particular to specific learning tasks); 'meso-strategies' (style

of using micro-strategies); and 'macro-strategies' (processes of self-regulation or control of micro- and meso-strategies). With a focus on the second level, research in the SAL context has mainly differentiated three types of learning meso-strategies: the surface strategy, the deep strategy and the organization strategy, which are presented in detail below with respect to the two dimensions explored in this article - the intention for learning and the focus of attention - and its results.

The surface strategy involves the intention of capturing and accumulating the information conveyed and subsequently reproducing almost *ipsis litteris*, with little or no elaboration according to personal opinion and previous knowledge (Monteiro, Almeida, & Vasconcelos, 2012). When a surface strategy is used, the intention is to apprehend the contents sequentially, separated from each other, rather than in an interrelated way (focus on the parts instead of the whole), without seeking to understand them (Biggs, 1987; Monteiro et al., 2012; Richardson, 2015). The cognitive process of attention in the 'surface strategy' reveals a focus on details (e.g., facts, procedures), which are assumed to be probable targets for assessment, tending to fall on symbols or words, to the detriment of meaning or message (Biggs, 1987). For all these reasons, the use of the surface strategy is associated with greater difficulty in developing a unified perception of the content and abstracting from it (Biggs, 1987).

Unlike the surface strategy, the deep strategy implies the intention of actively confronting academic tasks through the elaboration of information, according to the opinion and previous experience and in the sense of relating it to other knowledge (Biggs, 1987; Duarte, 2002; Lourenço & Paiva, 2015; Monteiro et al., 2012). The intention in this type of strategy is to seek to understand and critically analyze the meaning of what is being learned, considering both its parts and the global (Monteiro et al., 2012; Parpala, Lindblom-Ylänne, Komulainen, & Entwistle, 2013). When a 'deep strategy' is used, attention is mainly focused on the meaning of the content in question, that is, on what is underlying the content, in addition to the literal aspects. More specifically, attention is focused, in a versatile way, on the parts and the whole of the content (Duarte, 2002). In the case of using a deep strategy, the objective is to assign meaning to the content learned through understanding, critical reflection and establishing relationships between knowledge, thus enabling the discovery of new elements (Biggs, 1987). In this sense, the 'deep strategy' involves not only the intention of retaining information, by understanding, but also the formation of a critical and subjective point of view about it (Monteiro et al., 2012), as well as the creation of opinion and new information (for example, as hypotheses) (Duarte, 2002). The intention in this case is also to integrate previous knowledge with new information, implying the use of cognitive and metacognitive learning strategies (Lourenço & Paiva, 2015).

The 'organization or achieving strategy', involves the intention of organizing learning in a disciplined way, in order to plan personal work, based on the structured administration of the temporal context, the place and the study materials (Biggs, 1987; Lourenço & Paiva, 2015). The intention is to investigate a priori what is necessary to achieve success, thus maximizing grades according to the criteria established by teachers (Monteiro et al., 2012). When the 'organization strategy' is used, the attention, therefore, falls on the criteria and contents of the evaluation, and this strategy is therefore called, by some authors, opportunistic, which converges with the fact that it can be associated with both 'surface and deep strategy' (Duarte, 2002). That is, in conjunction with this type of strategy, both the 'surface and the deep strategy' can be used, depending on which is more convenient to obtain a higher rating in an evaluation.

In addition to the three strategies mentioned, more recent studies of the framework of the theory of approaches to learning have observed other learning strategies. One of these strategies, called 'intermediate', less frequent in Western students and more present in Asian students, combines characteristics of the 'deep strategy' with characteristics of the 'surface strategy'. In other words, this strategy works with the intention of combining memorization with understanding, simultaneously or in sequence: memorization followed by understanding, or understanding followed by memorization (Duarte, 2002). In particular, the intermediate strategy was initially observed in Chinese students, known to have the intention to learn through memorization (more associated with a 'surface strategy' and which is associated with worse grades), but who tended to be highly successful at school (Duarte, 2002). The studies carried out to try to explain this situation concluded that, in the case of the 'intermediate strategy', the memorization of the contents is related to an intention to deepen and understand the studied material, appearing before the understanding of the material or even, as a way to strengthen its understanding (Sachs & Chan, 2003).

In addition, we can infer about the relative frequency of learning meso-strategies considering the results of studies investigating the representativeness of the different approaches to learning that, as already mentioned, involve them. In most of these studies, the surface approach to learning (which involves a 'surface strategy') appears as the most common among students, in comparison with the other approaches, 'deep and organization strategies' (which, correspondingly, involve a strategy of depth and organization) (Bowden, Abhayawansa, & Manzin, 2015; Choy & Delahaye, 2001, 2012; McDowall, Jackling, & Natoli, 2015; Veloo, Krishnasamy, & Harun 2015). The surface approach tends to be the most normal and typically expected approach, which was also recorded by Choy and Delahaye (2012), who, among other variables, investigated the approaches to learning by Vocational Education students.

The general objective of the study from which this article is an excerpt, with an exploratory and qualitative character, was to investigate the learning strategies of students of Brazilian Vocational Education, in the perspective of SAL theory. As specific objectives, it was first intended to characterize the variations of different dimensions of the learning strategies in these students, as identified by a literature review on the approaches to learning (Duarte, 2002): 'Intention' (what one seeks to do to learn in Vocational Education), 'Attention' (the usual focus of attention when learning in Vocational Education), 'Mode' (the usual way of learning in Vocational Education) and 'Criticism' (the degree of critical analysis normally used in learning in Vocational Education). Second, it was intended to study the incidence of variations in these dimensions of learning strategies. Due to space limitations, this article reports only the results of the dimensions 'Intention and Attention'.

Method

Participants

The study included the participation of 20 students, ten females and ten males, aged between 16 and 18 years old ($M = 16.5$; $SD = 0.77$). These students attended the first grade (2nd period) of Vocational Education at the Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro, in 2014, attending programs in food (20%), biotechnology (20%), pharmacy (20%), environment (20%) and chemistry (20%). In order to increase the variation in the responses of the interviewed participants, an attempt was made to diversify

them with regard to school success, considering that this tends to vary with the adopted learning strategy (Valadas, 2014): 13 were the students of the program with the highest school performance in the previous period ($M = 8.2$ on a scale from 0 to 10) and seven were students in the program with the lowest school performance in the same period ($M = 4.5$).

Based on a documentary analysis of curricular matrices and regulations of the Institute, as well as an interview with its principal, an attempt was made to characterize the participants' learning context. The skills targeted are the ones required in the job market: critical attitude towards the work to be performed and society; general knowledge of society; discipline; responsibility; and ethical posture. At the cognitive level, the skills to be developed are: theoretical and practical foundation of knowledge; critical and reflective approach to knowledge and the work to be performed; knowledge of the society functioning; management; and leadership. At the behavioral level, the competence to be developed is to reconcile the freedom given in the context with the responsibility of personal organization for learning and achievement. The educational objectives are to form critical people to evaluate possibilities/alternatives in their work, with well-founded knowledge, questioning/reflective, with responsibility and ethics and able to apply knowledge to their work, in parallel with understanding what is being made. In the first grade (the one attended by participants), the curriculum consists of general education subjects, common to high school (mathematics, chemistry, Portuguese language, geography, biology). From the first grade onwards, the curriculum emphasizes technical training, with specialized subjects (analytical chemistry, physical chemistry, biosafety, statistics). The teaching method involves mainly lectures and practical laboratory classes, but the teacher is free to decide on the method to be used, according to his/her preference or the needs of the class. The same freedom applies to the evaluation method, but most teachers choose to use tests. The evaluation is quantitative (scale from 0 to 10), taking into account the results in the test, but also the learning process. The conception of learning in force in the context represents that of understanding and memorizing information through the reflected application of knowledge. The school's expectation about the learning process of its students involves the aspiration that he/she operates through practical experience, in the sense of understanding.

The sample was collected by convenience and the sampling criterion for determining its breadth was saturation of the categories emerging from the thematic content analysis performed to the interview responses.

Method for data collection

For characterization of the participants' strategies for learning in Vocational Education, data were collected through semi-structured interviews, according to an interview script. This script was adapted from a pre-existing one (Duarte, 2012) which, among others, focused on the dimensions of the learning strategy considered in this study: 'Intention' (what they seek to do to learn in Vocational Education) and 'Attention' (the focus of attention when learning in Vocational Education). The adaptation of the pre-existing script consisted of specifying both its evaluation objectives (in each of the dimensions), as well as its questions for learning in Vocational Education and in adapting its language (Portugal Portuguese) to Brazilian Portuguese. The script was tested with two students from the same educational context and modified according to the problems detected. Prior to data collection, the study was approved by the ethics committee of a faculty of psychology.

The interviews took place at the institution attended by the participants, with informed consent from them, from their parents or guardians and from the school management. The interviews were applied individually, recorded on audio and transcribed with the permission of the participants.

Method for data analysis

After transcription, the responses to the interviews were subjected to a thematic content analysis (Miles & Huberman, 1994). In a first phase, the text transcribed for each interview was segmented deductively into thematic units (Flores, 1994), according to the dimensions considered in the interview script, but taking into account the global context of the interview. In order to validate this segmentation, 20% interviews were independently segmented by another evaluator. The degree of inter-evaluator agreement for segmentation was 81.25% for the dimension 'Intention' (17.58% analyzed segments) and 87.50% for the dimension 'Attention' (19.05% analyzed segments)⁶.

In a second phase, each of the segmented thematic units was inductively categorized, classifying it in a specific theme of a system that evolved throughout the analysis. In the end, with the emergent categories system, these were organized into meta-categories and again categorized according to that system. To validate the categorization, all interviews were categorized independently by an independent evaluator, trained for this purpose. The degree of inter-evaluator agreement for the categorization was 80.00% (15.87% units) for the dimension 'Intention', and 100% (19.05% units) for the dimension 'Attention'. To explore the categories and meta-categories, the relative frequency of each of them in the sample of participants was analyzed, after resolving the disagreements recorded between the two evaluators. This representativeness was calculated by counting the presence of each category and meta-category in the speech of each participant, considering only one incidence of the respective category and meta-category, regardless of the number of times it was present in each speech. The 'NVivo' software - version 10 was used to assist this analysis.

The relationship of the categories and metacategories to each other was also analyzed by studying their co-occurrence in the participants' speech (the presence of each category and metacategory was counted in the speech of each participant considering only one incidence of the respective category and metacategory, regardless of the number of times it was present in that speech). This analysis, aided by the 'SPSS' software - version 24, was run using contingency tables and the Chi-square test of independence or Fisher's test (for cases where a count of less than 5 was expected in any of the cells).

Results

The analysis of the responses to the interviews allowed to obtain a system of descriptive categories in relation to what the interviewed students seek to do to learn in Vocational Education and the usual focus of attention of these students.

The results related to the dimension 'Intention' revealed the existence of three meta-categories: 'surface strategy, deep strategy and intermediate strategy'.

⁶ For all calculations, the formula suggested by Bakeman and Gottman (1986) was used: $PA = Na / (Na + Nd) * 100$; where 'PA' is the percentage of agreement; 'Na' is the frequency of the agreements; 'Nd' is the frequency of disagreements.

The meta-category 'surface strategy' (n = 4; 20%) revealed the orientation towards a type of passive strategy, since the intention is to perform a kind of mechanical learning. It covers two categories: 'memorize' and 'automate'. The 'memorize' category (n = 3; 15%), refers to the intention to memorize the contents to be learned ("[...] there are subjects that I really don't get along with, that I end up memorizing and not really understanding and for the test I have to learn by heart"). The 'automate' category (n = 2; 10%), concerns the intention to make the procedures to be learned automatic ("[...] to solve exercises, which is what counts most [...] we have to solve a lot of exercises that then what you have to memorize, from many repetitions, becomes automatic"). The second metacategory of the dimension 'Intention, deep strategy' (n = 14; 70%), is characterized by an intention to use an active behavior regarding school content, seeking to understand its meaning. It covers five categories: 'understanding, understanding by relating, understanding by understanding the process, understanding by advanced organizers and understanding by synthesizing'. The category 'understanding' (n = 7; 35%), refers to the intention to understand the contents of Vocational Education ("I intend] to understand [...] I focus on understanding"). The category 'understanding by relating' (n = 4; 20%), refers to the intention to understand the contents by relating them to each other ("[...] For example [...] I take chemistry to astronomy. I end up understanding"). The category understanding by 'understanding the process' (n = 3; 15%), refers to the intention to understand the contents by understanding the processes of its construction ("I try to understand the process it takes to arrive at that concept"). The category 'understand by advanced organizers' (n = 1; 5%), refers to the intention to understand the contents by acquiring some prior information about them ("I really like before going to class, to already have a sense of the content because so, even if I read the text, something before, so that I already arrive in class already knowing what the teacher will be saying [...]"). And the category 'understand and synthesize' (n = 3; 15%), refers to the intention to understand the contents by summarizing them ("I summarize all the material, everything I understood about the material"). The last meta-category of the dimension 'Intention, intermediate strategy' (n = 8; 40%), concerns the intention of integrating understanding and memorization into different possibilities, expressed in two categories found: on the one hand, 'understanding and memorizing' and, on the other hand, understanding or memorizing. The category understanding and memorizing (n = 4; 20%), translates the intention to understand the contents and then memorize them ("I like it a lot more when the teacher first gives the theory behind the formula and then arrives at the formula, because then I can understand how he arrived at that formula. I understand the formula. Then you have to memorize the total, but it gets easier"). The category 'understanding or memorizing' (n = 5; 25%), reveals the intention to understand or memorize the contents according to the need ("What he teaches I try to understand, I don't know, the things you have to memorize you don't have much alternative [...]. I do as needed").

Regarding the results related to the dimension 'Attention', these consist of four categories: 'surface strategy, deep strategy, intermediate strategy - form and content, and intermediate strategy - form or content (the last two grouped into a meta-category intermediate strategy)'. The category 'surface strategy' (n = 12; 60%), refers to attention to form, that is, to the literal words of the information source ("I usually pay more attention] to form"). The category 'deep strategy' (n = 4; 20%), refers to the attention to the content-message of the information source ("I think I focus more on the content"). The meta-category 'intermediate strategy' (n = 5; 25%) reveals the integration of attention to form and content, covering two categories: 'form and content' and, on the other hand, 'form or content'. The

category 'form and content' ($n = 2$; 10%), expresses attention to the literal terms and the message-content of the information source ("I think both [content and form]"). The category 'form or content' ($n = 3$; 20%) expresses attention to the literal terms or the message-content of the information source, depending on the subject ("In Exact and Natural subjects, by the content [by form] I already learn better. But there are subjects, on the Humanities side, that I'm not even close to, History and Geography, that if the teacher teaches otherwise, maybe I understand much better").

Finally, considering the results found for the relationship between the types of learning strategies in Vocational Education with each other, product of the crossing of the revealed meta-categories and categories, the only positive and significant relationship ($p = 0.00$) observed was between the 'surface strategy' meta-category ('Intention' dimension) and the surface strategy category (Attention dimension), which co-occur in a majority of 60% of cases.

Discussion

The results of this study, related to the dimensions of 'Intention' and 'Attention' in the face of learning in Brazilian Vocational Education students, are partially consistent with the picture of the learning strategies presented by the SAL theory. In particular, the results suggest the presence in the investigated context of three learning strategies previously identified by other studies of that theoretical framework: 'surface strategy', 'deep strategy' and 'intermediate strategy' (Biggs, 1987; Bowden et al., 2015; Choy & Delahaye, 2001; Duarte, 2002; Figueira, 2017; Monteiro et al., 2012; Veloo et al., 2015). However, for the dimensions investigated in this study, the sometimes emergent organization strategy was not found, (Biggs, 1987; Lourenço & Paiva, 2015).

Specifically for the dimension 'Intention', a possible explanation for the intention to 'memorize and automate' ('surface strategy') may be that the learning context in question involves (especially in its initial phase) a more practice-oriented teaching, with requirements related to knowledge retention and that exposes to a high content load. This hypothesis is in line with the study by Ramsden (1983), who concluded that there is a tendency to use the 'surface strategy' in overloaded curricula. On the other hand, the intentions to 'understand' (to understand the contents of Vocational Education), to 'understand by relating' (to understand the contents by relating them to each other), to 'understand by understanding the process' (to understand the contents by understanding the processes of their construction), to 'understand by advanced organizers' (to understand the contents by acquiring some previous information about them) and to 'understand by synthesizing' (to understand the contents by summarizing them), all referring to the 'deep strategy', can be explained by the fact that the same learning context defends training objectives for reflective and critical students and not merely reproducers, eventually using congruent teaching and evaluation methods. At the same time, the observed intentions of 'understanding and memorizing' (intention to understand the contents and then memorizing them) and 'understanding or memorizing' (intention to understand or memorize the contents according to the need), both referring to the 'intermediate strategy', can be explained by the fact that some subjects in the learning context (those in the sciences area), providing for the memorization of formulas and concepts, will also require the understanding of how such formulas or concepts were elaborated, that is, what theoretical path was followed to reach them.

With regard to the dimension 'Attention', a possible explanation for the orientation of attention in the sense of 'form' (attention to the literal words of the information source), in line with a 'surface strategy' is that some subjects in the learning context (those of sciences) require the memorization of literal information. Another possible explanation is the possibility that students are unaware of a more fruitful learning strategy. In another sense, the orientation of attention towards 'content' (attention to the message-content of the information source), in line with a 'deep strategy', can be explained by the fact that some subjects (Portuguese and philosophy, but also chemistry and physics) require understanding of the contents. Another possible explanation may be the eventual perception, by the students who show that kind of attention, that learning this way they obtain better results in the tests. The orientation of attention towards 'form and content' (attention to literal terms and the message-content of the information source), configuring an 'intermediate strategy', may be associated with the need to correspond to subjects that have a theoretical and a practical part. In other words, the theoretical part may require an orientation of attention to the transmitted message content, in order to understand it; and the practical part, which often takes place in the laboratory, with experiments with rigid steps and which must be followed literally according to pre-established rules, may require, in addition, greater focus on the literal terms taught. Finally, the orientation of attention towards 'form or content' (attention to literal terms or to the message-content of the information source depending on the topic), also configuring an 'intermediate strategy', can mean alternating depending on the type of subject (e.g., traditional or dynamic) or the type of teacher who teaches (e.g., distant or close).

Regarding the representativeness of the variants found for the dimension Intention, the fact that the 'deep strategy' is present in most cases (70%), followed by the intermediate strategy (40%) and the 'surface strategy' (20%), contradicts the representativeness found in most studies on approaches to learning in Vocational Education (Biggs, 1987; Choy & Delahaye, 2012), or even high school and college education (McDowall et al., 2015; Veloo et al., 2015), according to which, the most present type of learning strategy is the 'surface strategy', followed by the 'deep strategy' and the 'intermediate strategy'. However, the representativeness found is not unprecedented, in line with those reported by studies such as those by Matthew, Taylor and Ellis (2012), in which most students presented a 'deep approach' (which involves a 'deep strategy') and the study of Beyaztas and Senemoglu (2015), who found a lower incidence of the 'surface approach' (in which a 'surface strategy' is involved).

One of the possible reasons for the greater representativeness of the deep strategy in this dimension is that many of the students interviewed seem to have a relativistic notion of knowledge (knowledge in interpretative and critical positions), pointed out by Biggs (1987) as more commonly related to the use of the 'deep approach' (which involves a 'deep strategy'). Students also revealed in their interviews that they are aware that learning in Vocational Education requires understanding the meaning of what is being studied. Another explanation for the high index of 'deep strategy' in this dimension is that of a possible self-selection of students entering Vocational Education, which may result in the majority of those who actually enter have that strategy. At the same time, in the institution of the participants, most subjects emphasize reasoning, questioning and understanding, which conditions the development of a 'deep approach' (in which a deep strategy is implied) (Azer, Guerreiro, & Walsh, 2013; Beyaztas & Senemoglu, 2015; Iyer & Roberts, 2014; McDowall et al., 2015). In addition, most of the institution's teachers evaluate their students with written tests and

not multiple choice tests, in addition to emphasizing their evaluations for the content understood rather than memorized, which we know associated with the use of the 'deep strategy' (Beyaztas & Senemoglu, 2015). Finally, the institution aims to encourage students to establish relationships between the content taught and other content and phenomena, which we know is associated with the use of the 'deep strategy' (Azer et al., 2013).

The curricular parameters of the institution where the participants study (objectives, teaching method, and evaluations oriented to understanding), can also help to explain a lower frequency of the 'surface strategy' in the dimension in question. Another possible explanation is that most students who seek this type of institution, who pass the admission process and who remain studying in this institution, present a lower level of the 'surface strategy' with regard to their learning intention.

The present study thus seems to indicate that in contexts where the objectives are related to professional intentions, students do not necessarily develop a 'surface strategy' as a priority strategy, as suggested by previous studies (Iyer & Roberts, 2014; McDowall et al., 2015).

However, with regard to the representativeness of the variants observed for the dimension 'Attention', the fact that the 'surface strategy' predominates (60%), followed by the intermediate strategy (25%) and the deep strategy (20%) aligns with the greater part of the studies on approaches to learning in Vocational Education (Biggs, 1987; Choy & Delahaye, 2012) and with studies related to High School and College (McDowall et al., 2015; Veloo et al., 2015), according to which, the most common type of learning strategy is the 'surface strategy'. The fact that although the majority of students intend to learn according to the deep strategy but end up presenting a typical attention to the surface strategy may indicate that the context may encourage such learning intention, without actually support it effectively, or even require different learning.

Regarding the co-occurrences found, the positive and significant relationship between the meta-category 'surface strategy' (dimension 'Intention') and the 'form' category (dimension 'Attention' - attention to the literal words of the information source), also suggests that here, as conceived by the theory of approaches to learning in general, attention to 'surface strategy' involves an emphasis on details, which are thought to be likely targets for evaluations and, therefore, on the symbol or word, as opposed to the meaning or message (Biggs, 1987; Duarte, 2002).

Final considerations

This study suggests that what the interviewed students of Vocational Education intend in learning, as well as what they focus their attention on during learning, can vary just as learning strategies in general vary, as determined by SAL theory, that is, in terms of a 'surface strategy, deep strategy and intermediate strategy'. Nevertheless, this replication is not entirely isomorphic, considering the observation, in this study, that no matches were found corresponding to the 'organization strategy'.

In any case, the results must be considered with caution, considering the limitations of the study, mainly related to the small sample of participants involved in it, from a single grade of schooling, from the same institution and evaluated by their self-observations. Thus, future studies on the learning strategies of Vocational Education students are required with broader and more diversified samples and using a variety of assessment methods. In

addition, longitudinal studies are needed to investigate the variation of learning strategies throughout Vocational Education; comparative studies, which differentiate the learning strategies of students in this context with different levels of achievement; and studies that test the effect of interventions aimed at modifying learning strategies in Vocational Education.

Finally, from the point of view of practical implications, this study suggests the need to diagnose and reverse, in Vocational Education students, an eventual direction of attention to the literal words of the information source, which is aligned with the emphasis on details, facts and procedures, specific targets that are thought to be likely to be asked in tests. It will be necessary to guide those students to the emphasis on the content-message of the information source, which is aligned with a focus on the meaning of the content, besides the literal aspects, emphasizing the overall structure. The same can be done in the case of an eventual intention to memorize the contents and to make the procedures to be learned automatic, strategies that are aligned with the intention of capturing and accumulating the transmitted information, to later reproduce it with little or no intervention or elaboration. In such cases, an intention may be developed to understand the contents to be learned or even, depending on the need, to understand and memorize them. This can be done through interventions focused on both Vocational Education students and their learning context. Such interventions may be directed towards an increase and combination of the 'deep strategy, the organization strategy' and the 'intermediate strategy', considering their positive effects, both on the success and the quality of learning, as well as on the integration in the labor market.

References

- Azer, S. A., Guerreiro, A. S., & Walsh, A. (2013). Enhancing learning approaches: practical tips for students and teachers. *Medical Teacher*, 35(6), 433-443.
- Bakeman, R., & Gottman, J. (1986). *Observing interaction: An introduction to sequential analysis*. New York, NY: Cambridge University Press.
- Beyaztas, D. D., & Senemoglu, N. N. (2015). Learning approaches of successful students and factors affecting their learning approaches. *Education & Science Egitim Ve Bilim*, 40(179), 193-216.
- Biggs, J. B. (1987). *Student approaches to learning and studying*. Hawthorn, AUS: Australian Council for Educational Research Limited.
- Bowden, M. P., Abhayawansa, S., & Manzin, G. (2015). A multiple cross-cultural comparison of approaches to learning. *Compare: A Journal of Comparative and International Education*, 45(2), 272-294.
- Choy, S., & Delahaye, B. (2001). Do youth with high scores in the learning preference assessment instrument have a deep approach to learning and an andragogical orientation to study? In *Cdrom: Self-directed learning and the information age* (p. 1-30). Florida, USA: Motorola University Press.

- Choy, S., & Delahaye, B. (2012). Learning approaches, study orientation and readiness for self-directed learning of youth in TAFE. In *Vocational Education and Training Research Conference* (p. 01-14), Coffs Harbour, AUS.
- Costa, S. A., Pfeuti, M. M., & Nova, S. P. C. (2014). As estratégias de ensino-aprendizagem utilizadas pelos docentes e sua relação com o envolvimento dos alunos. *Revista Evidenciação Contábil & Finanças*, 2(1), 59-74.
- Duarte, A. M. (2002). *Aprendizagem, ensino e aconselhamento educacional*. Porto, PT: Porto Editora.
- Duarte, A. M. (2012). *Guião de entrevista de concepções & abordagem à aprendizagem* (Documento interno). Lisboa, PT: Faculdade de Psicologia da Universidade de Lisboa.
- Figueira, A. I. S. (2017). *Intenções, maneiras e ideias sobre o aprender na escola básica: abordagens à e concepções de aprendizagem em alunos do 1.º ciclo de escolaridade – relações com o contexto* (Tese de Doutorado). Faculdade de Psicologia da Universidade de Lisboa, Lisboa.
- Flores, J. (1994). *Análisis de datos cualitativos: aplicaciones a la investigación educativa*. Barcelona, ES: PPU.
- Galvão, A., Câmara, J., & Jordão, M. (2012). Estratégias de aprendizagem: reflexões sobre universitários, *Revista Brasileira de Estudos Pedagógicos*, 93(235), 627-644.
- Gomes, C. M. A. (2010). Perfis de estudantes e a relação entre abordagens de aprendizagem e rendimento escolar. *Psico*, 41(4), 503-509.
- Gomes, C. M. A. (2011). Abordagem profunda e abordagem superficial à aprendizagem: diferentes perspectivas do rendimento escolar. *Psicologia: Reflexão e Crítica*, 24(3), 479-488.
- Gomes, C. M. A., & Golino, H. F. (2012). Validade incremental da Escala de Abordagens de Aprendizagem (EABAP). *Psicologia Reflexão e Crítica*, 25(4), 623-633.
- Gomes, C. M. A., Golino, H. F., Pinheiro, C. A. R., Miranda, G. R., & Soares, J. M. T. (2011). Validação da escala de abordagens de aprendizagem (EABAP) em uma amostra brasileira. *Psicologia: Reflexão e Crítica*, 24(1), 19-27.
- Iyer, A., & Roberts, A. (2014). A phenomenographic study in understanding architecture students' approaches to learning the coursework of architectural design. *The Higher Education Academy*, 9(1), 89-109.
- Linke, E. C., & Nogueira, B. C. (2017). A evasão escolar no ensino técnico profissionalizantes. In *Anais do 22º Seminário Interinstitucional de Ensino, Pesquisa e Extensão* (p. 01-14). Cruz Alta, RS.
- Lourenço, A. A., & Paiva, M. O. (2015). Abordagens à aprendizagem: a dinâmica para o sucesso académico. *CES Psicologia*, 8(2), 47-75.

- Luscher, A. Z., & Dore, R. (2011). Política educacional no Brasil: educação técnica e abandono escolar. *RBPG*, 1(8), 147-176.
- Matthew, S. M., Taylor, R. M., & Ellis, R. A. (2012). Relationships between students' experiences of learning in an undergraduate internship programme and new graduates' experiences of professional practice. *Higher Education*, 64, 529–542.
- McDowall, T., Jackling, B., & Natoli, R. (2015). Relationships between vocational interests and learning approaches to advance the quality of student learning in accounting. *Accounting Education*, 24(6), 498-513.
- Meira, C. A. (2015). *A evasão escolar no ensino técnico profissionalizante* (Tese de Doutorado). Universidade Federal do Espírito Santo, Centro de Ciências Jurídicas e Econômicas, Programa de Pós-Graduação em Gestão Pública, Vitória.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook*. (2ª ed.). California: Sage Publications.
- Monteiro, S. C., Almeida, L. S., & Vasconcelos, R. C. (2012). Abordagens à aprendizagem, autorregulação e motivação: convergência no desempenho acadêmico excelente. *Revista Brasileira de Orientação Profissional*, 13(2), 153-162.
- Parpala, A. A., Lindblom-Ylänne, S., Komulainen, E., & Entwistle, N. (2013). Assessing students' experiences of teaching-learning environments and approaches to learning: Validation of a questionnaire in different countries and varying contexts. *Learning Environments Research*, 16(2), 201-215.
- Ramsden, P. (1983). Institutional variations in British students' approaches to learning and experiences of teaching. *Studies in Higher Education*, 12(6), 691-705.
- Richardson, J. T. (2015). Approaches to learning or levels of processing: what did Marton and Säljö (1976a) really say? the legacy of the work of the Göteborg Group in the 1970s. *Interchange: A Quarterly Review of Education*, 46(3), 239-269.
- Sachs, J., & Chan, C. K. (2003). Dual scaling analysis of Chinese children's conceptions of learning. *Educational Psychology*, 23 (2), 181-193.
- Scacchetti, F. A. P., Oliveira, K. L., & Rufini, S. E. (2014). Medida de motivação para aprendizagem no Ensino Técnico Profissional. *Avaliação Psicológica*, 13(2), 297-305.
- Valadas, S. S. (2014). Abordagens ao estudo e sucesso acadêmico no ensino superior. *Revista Eletrônica de Psicologia, Educação e Saúde*, 4(1), 47-67.
- Veloo, A., Krishnasamy, H. N., & Harun, H. M. (2015). What are the learning approaches applied by undergraduate students in English process writing based on gender? *International Education Studies*, 8(6), 46-55.

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António Manuel Duarte: works at the Faculty of Psychology, University of Lisbon. He is a professor and researcher in Psychology of Art and in Educational Psychology (learning in educational contexts). Author of books and articles in several national and international magazines. Member of the editorial board of several scientific journals and partner of several national and international projects and research groups. Consultant to UNESCO and the Organization of Ibero-American States. Advisor of several PhD and Master's theses

Marisa Aghetoni Fontes: PhD in Educational Psychology, University of Lisbon with CAPES scholarship, psychologist and Master in School Psychology, USP and pedagogue, Universidade Mackenzie-SP. He published 10 books in his area; creator and interpreter of the cd Em Ritmo de Tabuada. She is currently substitute Student Assistance Director at the Federal Institute of Education, Science and Technology of Rio de Janeiro where she has already worked as a psychologist, pedagogue, researcher and coordinator.