

## Conceptions of learning among Portuguese students of Elementary Education

Ana Isa Figueira<sup>a\*</sup>   
António M. Duarte<sup>b</sup> 

<sup>a</sup> National Agency for Qualification and Vocational Education and Training. Lisbon, Portugal

<sup>b</sup> University of Lisbon, Faculty of Psychology. Lisbon, Portugal

**Abstract:** The aim of this study is to understand the conceptions of learning of elementary Portuguese students, by investigating possible replications and innovations in relation to the conceptions identified by phenomenographic research. Semi-structured interviews were conducted, centered on three dimensions of conceptions of learning: *referential* (what is learning), *procedural* (how to learn), *contextual* (where one learns). Intermediate thematic analysis of the answers to the interviews showed a correspondence between observed learning conceptions and the basic conceptions revealed by Phenomenography (e.g., learning as accumulation of information, as comprehension or as a way to obtain school grades) and also allowed to unveil the existence of new conceptions of learning, which represent learning as the performance of specific activities, a return of information by explanation, or as an outcome achievable through personal and autonomous effort.

**Keywords:** basic education, conceptions of learning, learning.

### Introduction

The phenomenon of learning within an educational context is today an important object of research, which aims not only to describe and understand it, but also to develop policies to improve the quality and success of learning. One of the theories that focus on learning in educational context, seeking to deepen our understanding about it, is phenomenography, which soon began to address specifically the students' conception of learning (Marton, Dall'Alba, & Beaty, 1993; Säljö, 1984). This theory had its genesis in the study of Marton and Säljö (1976), who sought to understand how students related to a specific learning task (e.g. reading comprehension). In this study, the authors observed differences in the manner in which the students approached the task. The concept of approach to learning derived from this study concerns how students are confronted with learning tasks, allowing the understanding of the variability and complexity of learning processes. According to SAL (student approach to learning) research, approaches to learning can be classified either as a "surface approach" or as a "deep-level approach" to learning (Biggs, 1987).

The surface approach is characterized by an instrumental orientation, which envisages learning only to achieve the required minimum goals (Gibbs, 1992), in combination with the use of a surface strategy, which involves the memorization and literal reproduction of information (Marton, 1981). The deep-level approach, in turn, is directed by an intrinsic motivational orientation, which approaches the act of learning with the intention

of obtaining pleasure and personal satisfaction (Entwistle & Ramsden, 1983), allied to a deep-level strategy, which implies the attempt to understand the learning contents.

Based on this differentiation, phenomenography focused on the individual experience of learning, studying how individuals represent this experience, with the objective of analyzing their variation through qualitative methodologies (Marton & Booth, 1997). This approach thus focuses on the learning experience as a source of meaning production, although it does not consider it a crystallized internal construction, but rather an interactive configuration, based on the experiences of the individual in various learning situations and inserted within an extended social context that influences it (Hewitt & Rose-Adams, 2012; Khan, 2014; Marton & Booth, 1997; Wong & Lo, 2012).

Phenomenographic research on students' conceptions of learning, which has focused mainly on higher education students, has made it possible to distinguish two basic types of representations: the "quantitative" conception and the "qualitative" conception of learning (Biggs, 1990). The quantitative conception views learning as a mechanical and stereotyped process of information accumulation (Saban, Koçbeker-Eid & Saban, 2014; Wang & Tsai, 2012). The qualitative conception, on the other hand, sees learning as an active process of understanding and constructing meanings, associating it with the process of personal development (Antoniadou & Skoumios, 2013; Lloyd, 2013). In the framework of the *quantitative conception*, the basic cognitive process inherent in learning is the mechanical memorization of information, while in the *qualitative conception*, personal understanding and interpretation take precedence. In this sense, it is possible to consider that the two basic

\* Corresponding address: [figueira.isa@gmail.com](mailto:figueira.isa@gmail.com)



conceptions of learning are related hierarchically (Marton & Booth, 1997; Vedenpää & Lonka, 2014). At the same time, Biggs and Moore (1993) suggest the existence of a third basic conception of learning - the *institutional conception* - which, by emphasizing the institutional framework of learning (e.g. the school), understands it as the process of acquiring accreditation (for example, schools grades). Thus, according to this conception, learning is considered equivalent to the process of obtaining school grades.

The development of the study of the different conceptions of learning allowed the identification of other, more specific variants besides the basic ones. In this line, the Säljö (1979) system distinguishes five specific conceptions of learning, with three variants of the quantitative conception and two of the qualitative conception, that correspondingly see learning as: *an increase in knowledge; memorization and reproduction; memorization and application; understanding; and reinterpretation*. Later, Marton, Dall'Alba & Beaty (1993) unveil a sixth conception, also a qualitative variant, which conceives learning as personal change, relating it to a process of personal development. In parallel, other phenomenographic studies have observed new variants of the conception of learning regarding specific dimensions - the three dimensions usually considered are: the *referential* (what is learning), the *procedural* (how learning occurs) and the *contextual* (where learning takes place). For example, Freire and Duarte (2010) found, among Brazilian university students, new variants of the *procedural* dimension, which advocate the idea that learning happens *unintentionally, instinctively, by rehearsing* or even *by feeling*.

The conception of learning is significantly related to the process and the outcome of learning, and there is evidence that students' conceptions of learning are associated with their approaches *to learning* (e.g. the type of learning motivational orientation and strategy), thus indirectly influencing the learning outcome (Alamdarloo, Moradi & Deshiri, 2013, Otunuku, Brown & Arini, 2013, Trigwell, Ashwin & Millan, 2013). Specifically, different conceptions of learning tend to be associated with different approaches to learning, which, in turn, tend to lead to different learning outcomes (Entwistle & Peterson, 2004; Van Rossum & Schenk, 1984). Essentially, quantitative conceptions tends to relate to the *surface* approach, which combines *instrumental* motivational orientation (e.g. minimal effort, to avoid failure) with a *surface* strategy (e.g. mechanical memorization), and typically leading to low-quality learning outcomes (Entwistle, 1988; Entwistle, Tait & McCune, 2000). On the other hand, the qualitative conception tends to be related to the *deep-level* approach, which combines an *intrinsic* motivation (for example, involvement and personal taste for learning) with a *deep-level* strategy (for example, comprehension), which normally leads to high-quality learning outcomes (Asikainen, 2014, Entwistle, Tait & McCune, 2000).

## Conceptions of learning among Primary Education students

Traditionally, phenomenographic studies that focus on conceptions of learning are carried out with higher education students or, more infrequently, with secondary education students; and research on conceptions of learning of students in lower levels of education is scarce.

The pioneer studies of Pramling (1983) and, more recently, Sobel, Li & Corriveau (2007), who had children between the ages of 3 and 8 as participants, found a progression in their conception of learning from the notion of "doing" to "knowing" and later to "understanding." These studies have also observed a progression from a perspective that is incapable of distinguishing between "doing" and "learning to do" to another of "being able due to growing up," that is, "by developing oneself" and finally, at a higher level, to a vision that expresses the idea of learning through "experience." The conceptions of learning in pre-school children in the age range of 3 to 6 years are more related to the desire to learn than to other types of mental states. Consistent with their level of cognitive development, the broader perspective of active intentionality in learning is not yet present in lower ages.

The same conclusion of progressive development of conceptions of learning is found in the study of Sobel and Corriveau (2007), with children from 3 to 6 years of age. These authors sought to ascertain the children's comprehension level in the learning process, analyzing their spontaneous discourse on learning a new song. The results showed that, in the lower age brackets (between 3 and 5 years old), children already distinguish between what is to know and not to know, but there is no understanding of where knowledge comes from or that new knowledge can be acquired. In their study of conceptions of learning with children between 2 and 7 years of age, Bartsch, Horvath and Estes (2003) also found references to "what is learned" and "who learns/teaches" and less references to "when," "how" and "where" learning takes place. In this study it was also verified that the children referred more to learning behavior and in less frequency to learning facts.

Arroz, Figueiredo and Sousa (2009) and Morais and Figueiredo (2005) (cited by Arroz et al.) observed in their study of Portuguese children in pre-school education a conception of learning as a more passive process (for example, learning as *seeing and listening to what is taught* and as *knowing more things*). However, in addition to this conception, they also observed, already at this educational level, a conception of learning as a more active process (for example, learning is *doing things* and *is useful for the future*). Jaidin (2008), in his study with children in Brunei between the ages of 8 and 11, also found conceptions of a more quantitative nature (*learning as acquisition* and *learning as memorization*) and of a more qualitative character (*learning as active participation* - through group work, school projects and experiences). The greater

preponderance of quantitative conceptions may be partly explained by the teaching philosophy of the local teaching system, that is, teaching focused on the transmission of information to the detriment of the active participation of the student in the learning process.

With an emphasis on a more schooled student population, Rosário and collaborators (2006) investigated the conceptions of learning of a sample of fifth-grade Portuguese students and their parents. They found that parents and students “mostly conceptualize learning as an increase of knowledge and a process that occurs mainly through procedures, with parental help being seen as very important...” (p.469). This study highlights the emphasis placed by students on the instrumentality of learning, a result consistent with the stage of development of their concrete thoughts. In another study, Rosario and collaborators (2013) also studied the conceptions of learning among Romani students between 9 and 13 years of age. With an emphasis on instrumentality that the above studies point out, these students envisage learning as a means to acquire basic numeracy and literacy skills, which are important to them in the future to help the family in the trade in local fairs. These students thus seem not to value the continuation of the studies, considering basic skills sufficient for life in the Romani society in which they are inserted.

On the other hand, Wang and Tsai (2012) analyzed the conceptions of learning among Taiwanese Basic Education students from 10 to 12 years of age through their drawings. The study found that the dominant conception of learning was the passive acquisition of knowledge, in line with a traditionalist cultural view of education. The study also showed that, in this context, with the advancement of schooling, students’ conceptions of learning tend to be less diverse and more traditional. Contrary to this idea, the study of Marín, Pérez-Echeverría and Scheuer (2014) with students of wind instruments of different school levels, showed differences between the conceptions of learning in the different levels. Students’ conceptions at elementary levels emphasized the relationship between learning conditions (e.g. practice time, repetition) and learning outcomes, with little emphasis on student agency in the process. The students at the most advanced levels, in turn, displayed learning processes that favored student autonomy and reflection, also considering the musician’s expression when playing the instrument. This study seems to demonstrate that students at more advanced levels of schooling demonstrate conceptions of learning more qualitative in nature, focusing on processes of constructing personal meanings.

The objective of this study is to map and evaluate the relative incidence of the conceptions of learning of Portuguese students in the first cycle of Basic Education. In particular, the study aimed to explore the possible replication, in this context, of conceptions of learning previously identified by phenomenography (typically with Higher Education students), as well as to unveil

conceptions possibly not previously observed. In this way, it intends to contribute to a broader understanding of the phenomena of student representations about learning and to a better adjustment of potential interventions.

## Method

The data for this article were collected through interviews about the conception of learning and a treatment of these data by content analysis, following a qualitative approach, in a perspective inspired by phenomenography.

### Participants

The sample was composed of sixteen students from the fourth year of Basic Education who attended Portuguese public primary schools (63% boys and 38% girls), with a mean age of 9 years (ranging from 9 to 10 years old; SD = 0, 34). Eight (50%) of the participants attended urban schools (for example, in a town with about 15,000 inhabitants) and the remaining eight (50%) a rural schools (for example, in a village with less than a thousand inhabitants). The choice of the 4th year of schooling as the reference year for the constitution of the sample is due to the fact that this is the last year of a cycle, when it is assumed that students would have achieved basic language skills that allow them to express themselves in an interview.

The sample was convenience-drawn, its size being determined by the saturation of the categories found by the content analysis performed (for example, based on the fact that from the 16th interview there were no categories found different from those found in previous interviews, which could add more knowledge).

### Instrument

To collect data, individual interviews were conducted through a previously constructed interview guide entitled *Structured Interview on Conceptions of & Approaches to Learning - 1st cycle (V.1)*, which was registered and authorized in the specialized official instance.

The guide considers the six conception of learning dimensions that have been studied, to a greater or lesser extent, by phenomenological research: *referential* (what is learning); *procedural* (how to learn); *contextual* (where one learns); *functional* (what learning is for); *factorial* (learning factors); and *problems* (learning problems). This article considered, for reasons of space limitations, only the results of the first three dimensions mentioned. For the referential dimension, the aim was to get answers about the nature of the learning phenomenon; questions were made such as “Imagine that you have to tell a kid what learning is - what would you say?” or “What is learning for you?” For the procedural dimension, we tried to get answers about the learning process (focusing

on the type of cognitive operations used to learn - for example, memorization, application, comprehension, knowledge restructuring, personal change, etc.) using questions such as: "Imagine that you have to tell a kid how to learn - what would you say?" or "Imagine that a kid asked you what one has to do to learn - what would you say?" For the contextual dimension, we considered the spatial subdimension (questions about places where one can learn), asking the students, for example, "Imagine that you have to tell a kid where one learns - what would you say?" or "Where do you think one can learn?"; the interpersonal subdimension (questions about who teaches), using questions such as "Imagine that you have to tell a kid with whom you can learn - what would you say?" or "With whom one can we learn?"; and finally, in the temporal subdimension (questions about when one learns) with questions like "Imagine that you have to tell a kid when do you learn - what would you say?" or "When do you learn?"

### *Data collection*

To study was conducted with the previous informed consent of the Ministry of Education, school administrations, students and their parents.

The interviews were carried out in school facilities, such as the library or socializing rooms, and within school hours, having an average duration of twenty minutes. At the beginning of each interview the study goal was introduced to the participants and they were informed that their collaboration was voluntary and their responses confidential. Audio recording of the interviews was requested for later transcription and analysis.

### *Data analysis*

The processing of the collected data was performed through a content analysis, which followed an intermediate approach between the deductive and inductive method (Miles & Huberman, 1994), which means that it was based on previous theoretical knowledge about the students' conceptions of learning, attempting to verify their existence in the sample studied, but new emergent conceptions were also considered, particular to the sample surveyed. This approach involved three moments: the selection of a criterion of segmentation of the answers in units of analysis to be later categorized; the development of a system of categories of analysis to apply to the segmented units; and the test of the confidence of the categories found, through inter-rater reliability assessment.

Segmentation of the responses in units of analysis was independently performed by two analysts and later also discussed to reach a consensus. In a "training" phase, analysts segmented 25% of the units of analysis and compared their segmentation. The type of segmentation performed was deductive, using a "thematic" criterion (Flores, 1994), considering as a unit to categorize the entire response segment that addressed, by its content, any of the considered conception of learning dimensions (for example, referential, procedural or contextual). To categorize the segmented units, an "intermediate" approach was used, that is, the phenomenological reference was used to categorize the units, whenever possible, based on the recurrent categories identified by previous research, but also with sensitivity to emerging conceptions. After several analysis rounds, a category system considered stable was achieved, with the construction of a first grid for the analysis of the conceptions of learning for each of the dimensions. Subsequently, a second grid was elaborated with the confirmed and emerging categories. This second grid was later used in a second analysis of all units. Based on the results of this second analysis, a final system of conception of learning categories was found, presented in the results. This last categorization, which resulted in the final category system, was carried out by two independent judges, in order to calculate the "inter-rater agreement," aimed at assessing its validity. The calculation of the "inter-rater agreement" as to the categorization of each dimension was made based on the formula suggested by Bakeman and Gottman (1986):  $PA = (FA / (FA + FD)) / 100$ ; where PA means percentage of agreement, FA frequency of agreements and FD frequency of disagreements. The value of the inter-rater agreement was of 76.6% for the referential dimension, 80.3% for the procedural dimension and 85.4% for the contextual dimension.

In order to explore the representativeness of the descriptive categories of the conceptions of learning found, the relative frequency (%) of each category in the sample of participants was accounted using the qualitative analysis program NVivo (version 8), a software that assists in the categorization, organization and processing of qualitative data.

## **Results**

Based on the content analysis of interview responses presented in the previous section of Method, it was possible to observe in the sample studied a variety of conceptions of learning for each of the studied dimensions, which are shown in Table 1.

Table 1. Summary of dimensions, meta-categories and categories

| Dimension   | Meta-category          | Category                     |
|-------------|------------------------|------------------------------|
| Referencial | Passive – Quantitative | Acquire                      |
|             |                        | Memorize                     |
|             | Active – Qualitative   | Realize                      |
|             |                        | Explain                      |
| Procedural  | Passive – Quantitative | Change                       |
|             |                        | Bein taught                  |
|             |                        | Listening/absorbing          |
|             |                        | Reproducing                  |
|             |                        | Memorizing                   |
|             | Active – Qualitative   | Observing                    |
|             |                        | Applying                     |
|             |                        | Trial and error              |
|             |                        | Understanding                |
|             |                        | Endeavoring                  |
| Contextual  | Institutional          | Institutional                |
|             | Spatial context        | School                       |
|             |                        | Home                         |
|             |                        | Any place                    |
|             | Temporal context       | Time of day                  |
|             |                        | Point in life                |
|             | Social context         | With support                 |
|             |                        | Educational staff            |
|             |                        | With teachers                |
|             |                        | With other educational staff |
|             |                        |                              |

continues...

Table 1. Continuation

| Dimension  | Meta-category | Category   |
|------------|---------------|--|
| Contextual |               | Family   |
|            |               | With mother, father or both parents                          |
|            |               | With other family members, such as cousins and grandparents. |
|            |               | Colleagues   |
|            |               | Others   |
|            |               | Autonomously   |

### Referential Dimension – “What is learning?”

For the referential dimension of the conception of learning (Table 2), we found five different approaches to what constitutes learning, beyond a vague notion that does not explicitly define it. Four conceptions seem to correspond to a “Passive - Quantitative” conception, defining learning as: acquisition of information; memorization; performing activities involving basic skills such as reading, writing or arithmetic; and explanation of learned content. These categories point to a notion of learning as a receptive and cumulative act of information, which must be memorized, transmitted (or returned in formal terms) and applied to concrete tasks.

There has also been an “Active - Qualitative” conception that defines learning as a shift to a state of higher intelligence.

Table 2. Referential Dimension – “What is learning?”

| Meta-category          | Category             | Definition  | Response example  |
|------------------------|----------------------|---|---|
| Vague                  |                      | Non-explicit definition of the nature of learning   | “[Learning is] good to us”                                      |
|                        | Acquire              | Learning consists in acquiring information  | “[Learning is] knowing about new things”                        |
| Passive – Quantitative | Memorize             | Learning consists in memorization/ retention of information   | “[Learning is] memorizing things”                               |
|                        | Perform              | Learning consists of activities involving one or more of the basic learning skills (e.g. reading, writing and arithmetic) | “To do things like math, make calculations, read”               |
|                        |                      | Explain   | Learning consists in explaining what was learned                |
|                        | Active – Qualitative | Change  | Learning consists in shifting to a state of higher intelligence |

*Procedural Dimension – “How to learn?”*

Regarding the procedural dimension of the conception of learning (Table 3), ten distinct categories were verified, beyond a vague notion of the learning process, which does not make it explicit. In this way, we can observe seven categories, as expressions or variants of a “Passive - Quantitative” conception about the learning process, which defines learning as: being taught; listening and absorbing information; copying and reproducing information; memorizing information; observing behaviors; applying or exercising knowledge or skills; and by trial and error. These categories are

related to the idea that the learning process constitutes a set of procedures or behaviors of passive reception of information.

In addition to these categories, we also detected an “Active - Qualitative” conception of the learning process, which conceptualizes it as a procedure for understanding school subjects. Simultaneously, an “Active - Effort” conception emerged, in which one learns through personal effort or motivation, and which also indicates the notion of the learner as an active agent of his learning process.

Finally, an institutional category was detected - which equates the learning process of being promoted to the next school grade, through tests and evaluations.

Table 3. Procedural Dimension – “How to learn?”

| <i>Meta-category</i>   | <i>Category</i>     | <i>Definition</i>   | <i>Response example</i>   |
|------------------------|---------------------|---|---|
| Vague                  | -                   | Text units that do not explain the learning process   | “To keep on studying”   |
| Passive – Quantitative | Being taught        | Learning is being taught  | “We have to have a school and teachers to explain, for them to learn”   |
|                        | Listening/absorbing | Learning is to listen and assimilate transmitted information                                    | “To keep quiet, not talk to colleagues and listen to the teacher”   |
|                        | Reproducing         | Learning is to copy or reproduce information provided by teachers                               | “The teacher explains. She writes on the board, we copy to the notebook”  |
|                        | Memorizing          | Learning is memorizing information  | “[People] learn by memorizing the things the teacher says”  |
|                        | Observing           | Learning is observing behaviors   | “... we can see other people doing it and we are learning at the same time”   |
|                        | Applying            | Learning is applying/exercising knowledge skills (such as writing, reading or solving problems) | “One can learn by reading, copying, writing. Doing calculations, solving problems, making numbers”  |
|                        | Trial and error     | Learning is to make mistakes and correct them   | “We also learn when we make mistakes at school, we correct them and learn”  |
| Active – Qualitative   | Understanding       | Learning is to understand school subjects   | “... the teacher explains to us, if we do not understand, she asks us again...”<br>“Sometimes the teacher will admonish us, but we have to respect her because she admonish us but it is for us to learn and to strive more and, for me, that’s how we learn” |
| Active – Effort        | Endeavoring         | Learning is achieved through personal effort/motivation   | “...then we do the tests, and then we get to know things and we get promoted to the next grades”  |
| Institutional          | Institutional       | Learning is to be promoted to the next grade, through tests and evaluations                     |   |

*Contextual Dimension – “Where one learns?”*

Regarding the contextual dimension of learning (Table 4), the spatial, temporal and social scopes were mentioned, as well as a vague notion of the learning context, without being explicit.

The conception of the spatial context of learning points to this learning being accomplished: in school; at

home; or anywhere. In turn, the notion of the temporal context of learning refers to: certain times of the day (indicating timetables); and certain moments in life (for example, in youth, in adulthood).

With regard to the social context of learning, it was observed that learning is viewed as something that is given support to, which can come from educational agents (e.g. teachers and other educational agents), family

(e.g. mother, father, both parents, other family members), colleagues and other known people. Parallel to this, the notion of learning without external support was also observed, as an activity carried out autonomously by the learner.

In this way we can verify both the perception of more restricted contexts of learning (for example: school, home, time of the day, period of life, and with support) and of broader contexts (for example: anywhere; autonomously).

In order to explore the categories resulting from the content analysis, we analyzed the representativeness of the meta-categories (for example, relative frequency) in the sample of participants considered. In the referential

dimension, most students expressed a “Passive - Quantitative” conception of learning (14; 87.5%) and a minority (4; 25%) expressed an “Active - Qualitative” conception. In the procedural dimension, all students manifested a “Passive - Quantitative” conception (16; 100%), three (18.8%) an “Active - Qualitative” conception, one (6.3%) an “Active - With effort” and two (12.5%) also expressed an institutional conception. In the contextual dimension, 16 (100%) of the students reported a spatial context and a social context for learning. The temporal context of learning was reported by eight (50%) of the cases. In addition, sixteen (100%) reported a restricted context for learning and nine (56.2%) reported a broad context.

Table 4. Contextual Dimension – “Where learning occurs?”

| <i>Meta-category</i> | <i>Category</i>  | <i>Definition</i>   | <i>Response example</i>  |
|----------------------|--|---|--|
| Spatial context      | School   | Learning occurs in a school context   | “[You can learn] in school, ... in the library; ... in kindergarten.”  |
|                      | Home   | Learning occurs in a household context  | “[You can learn] at home and at other people’s homes.”   |
|                      | Anywhere   | Learning occurs in any spatial context  | “... you can learn anywhere.”  |
| Temporal context     | Time of day  | Learning occurs at certain times of the day   | “[You can learn] from nine to five-thirty.”  |
|                      | Moment in life   | Learning occurs at certain moments in life  | “[You can learn] when (if) you are older... [Students] can also be teenagers.”                                     |
| Social context       | With support   | Learning occurs with the external support of other people   |  |
|                      | School educational agents<br>With teachers                 | Learning occurs with the support of teachers  | “[You can learn] with the teachers...”   |
|                      | With other educational agents                              | Learning occurs with the support of other educational agents in the school context: educational assistants, principals, coaches | “[You can learn] with the coaches in the clubs.”   |
|                      | Family   | Learning occurs with the support of family members  |  |
|                      | With mother, father or both parents                        | Learning occurs with the support of parents   | “Our parents, who were also students, can also teach some of the subjects we are learning at school.”              |
|                      | With other family members, such as cousins or grandparents | Learning occurs with the support of other family members besides the parents  | “With our family”;<br>“We can learn with our grandparents”;<br>“Our older cousins”                                 |
|                      | Colleagues   | Learning occurs with the support of colleagues  | “[You can learn] with students who know more than we do and who are ahead of us”                                   |
|                      | Others   | Learning occurs with the support of other people not mentioned above, such as friends and acquaintances                         | “Oh, even my father’s boss taught me things, he taught me how to handle machines, he taught me how to use them...” |
|                      | Autonomously   | Learning occurs autonomously, without external support  | “We ourselves learn to ride a bicycle and sometimes we learn to do things alone, by ourselves”                     |

## Discussion

The analysis of the answers to the interviews demonstrated a replication of some of the main conceptions of learning usually observed by phenomenographic studies. In this manner, we verified the presence of a quantitative conception (for example, learning as accumulation of information), a qualitative conception (for example, learning as an understanding) and an institutional conception (for example, learning as a means of obtaining grades). Thus, there seems to be a parallelism between the conceptions found among the participants of this study, young students of the first grade levels, and the conceptions expressed in the samples usually studied by phenomenography, that is, students of Higher or Secondary Education.

In the referential dimension, we found a correspondence between the different conceptions of learning of the elementary education students interviewed and the conceptions of learning in general (Marton & Booth, 1997). We observed “Passive - Quantitative” conceptions that seem to replicate others previously observed: learning as information acquisition, previously detected (Wang & Tsai, 2012) and as memorization of information, already proposed by Säljö (1984). On the other hand, new conceptions of the same type seem to have emerged: learning as performing specific educational activities and as explaining or returning information. In the other pole, an “Active-Qualitative” conception of learning was observed: the idea that learning consists of shifting to a state in which one has more intelligence (Marton, F., Dall’Alba, G. & Beaty, 1993). This “Passive - Quantitative”/“Active - Qualitative” antinomy seems to demonstrate that the system of learning conceptions of elementary education students is an outline of the differentiation between the conceptions of learning of the students of secondary and higher education, although still little developed, as the classical studies of Pramling (1983) suggest. It also stands out the presence of other categories that point to basic learning tasks (for example, reading and writing), confirming the concrete character of the thinking and a notion of instrumentality of learning tasks among these students, that is, the student realizes that the tasks performed in the present constitute a means to achieve quality learning (Arroz, Figueiredo & Sousa, 2009; Marin & Scheuer, 2014).

In the procedural dimension we can also observe a differentiation among the categories that fit into a “Passive - Quantitative” conception of learning, which points to processes of assimilation, memorization and passive reproduction of information, in addition to apparently new categories, such as “observing” and “trial and error.” On the other hand, we observed an “Active-Qualitative” conception of learning, which sees understanding as a learning process.

This differentiation again replicates the dichotomy of children’s representations about the learning process previously found (Pramling, 1983). In addition, the seemingly new “Active - Effort” conception emerged, which emphasizes the role of motivation in the learning process. While the “Active - Qualitative” category seems to reflect an awareness of the deep-level approach to learning (Asikainen, 2014), the “Active - Effort” category seems to point to a self-regulated learning awareness in the sense that the students already demonstrate an agency conscious of their own learning process (Steketee, 1997). Both active conceptions thus indicate that already at this stage the students seem to understand a relation between their agency and the learning of the contents. Finally, we also observed in this dimension the replication of the institutional conception of learning, previously mentioned in the specialized literature (Biggs & Moore, 1993).

Regarding the contextual dimension, we found the dichotomy typically mentioned by phenomenological research between a conception of a more restricted context and of a broader context of learning (Arroz, Figueiredo & Sousa, 2009; Biggs, 1990). Effectively, learning can occur for the interviewed students in specific contexts (e.g. school, home, certain times of day or moments in life) and in broad contexts (for example, anywhere). On the other hand, we observed not only the conception that learning can occur with external social support, but also the conception that one can learn autonomously, and this conception may highlight the idea that learning is a personal and autonomous process that combines with a qualitative conception of learning, even though students refer more to learning with support (e.g. of educational agents, family members and others) and to a restricted context of learning (e.g. school and home), which expresses a quantitative conception of learning (Arroz, Figueiredo & Sousa, 2009; Biggs, 1990).

Considering the representativeness of the meta-categories found, the greater expression of both the “Passive-Quantitative” conception (referential and procedural dimension) and the restricted context conception (contextual dimension) is consistent with the results of similar studies carried out with elementary education students.

A possible interpretation for the predominance of the quantitative conception verified may be that the context within which the students’ learning occurs is predominantly an environment of transmission and acquisition of knowledge. In fact, we know that the learning context influences the perceptions of and the approaches to the learning process on the part of the students (Chen & Dhillon, 2012, Diseth, 2013, Sabzevari, Abbaszade & Borhani, 2013). In this way, the classroom context (for example, teachers’



conceptions of learning; educational goals; teaching methods) may influence both the conceptions of learning and the approaches that students use to deal with them, since the very first education levels. Specifically, certain teaching methodologies (e.g. the ones which focus on the transmission of information and the use of less participatory modes of learning) may influence the student to adopt a surface approach to learning (Burnett & Proctor, 2002). This approach may be related, as verified in the literature review, to conceptions of learning more quantitative in nature. It would be pertinent, thus, to explore and characterize in more depth the context of learning of the student population of which the sample was obtained, in order to verify this relation.

We should also remember that elementary education, attended by the participants, is based on the emphasis on the acquisition of basic learning. Several studies have shown that, as the student progresses from one grade to the next, his or her conception of learning also progresses, getting more complex and more qualitative (e.g. learning as understanding and personal change) (Marín, Pérez-Echeverría & Scheuer, 2014; Marton et al., 1993). The conceptions seem to be in line with the development of the student and of his thinking, progressing in function of time and experience, through a growing awareness of new aspects related to learning.

Considering that this study was based on a qualitative methodology, using semi-structured interviews for deepening the understanding of and obtaining the perceptions of elementary education students, one of the limitations is the very process of collecting data. First-graders, a population that is still in the early stages of development (especially at the meta-cognitive level), may not find easy to structure and articulate their responses to a topic that is not verbalized on a day-to-day basis at school and that address their psychological functioning. In this sense, considering future studies, other complementary techniques of analysis - for example, analysis of drawings about learning and answers to interviews based on them (Wang & Tsai, 2012) - may be relevant in obtaining a more accurate understanding of the conceptions of these students.

On the other hand, it will be necessary to take into account the specificity and the size of the sample

when addressing the question of generalizing our results. Sixteen interviews were conducted, which is a small sample with an exploratory purpose and with the aim of investigating a generalization of the theory. Therefore, for generalizing the results to the whole population, further research will be necessary on this topic to confirm or expand the results, especially with larger samples of elementary students from different geographic areas. Future studies to obtain more knowledge about the conceptions of learning of primary education students should explore the effect of these conceptions on the structuring of curricular areas such as Portuguese, Mathematics, Environmental Studies and English Language.

This study also contributes to a better understanding of the factors influencing students' quality of learning, especially their conceptions of learning. In terms of the implications of these results, it is important to consider that students' conceptions of learning probably reflect and influence in part the way they learn. Thus a successful and quality learning should be an active process, based on the notion of learning as a personal construction of meanings based on understanding, rather than as a literal reproduction and memorization of information.

One of the paths for achieving this quality learning may be that of psychological intervention in students' conceptions of learning, either by stimulating the awareness of their conceptions of learning or by sharing alternative conceptions and possible restructuring of existing ones, through a psycho-educational counseling for students. At the same time, teachers and other educators can stimulate the adoption of qualitative learning concepts by students by promoting a notion of learning as an integral part of a progressive and continuous development, and by countering a view of learning as restricted to a given time. On the other hand, it is important to encourage the intrinsic motivation to learn, either through the use of teaching practices that stimulate participation, discovery and autonomy, in an accepting, cognitively stimulating and emotionally intelligent educational climate. In the domain of learning strategies and the deep-level approach to learning, the importance of a curriculum that fits the teaching and training of meta-cognitive competences and self-regulation of learning is also well established.

### **Concepções de aprendizagem em estudantes portugueses do primeiro ciclo do Ensino Básico**

**Resumo:** Pretendeu-se conhecer as concepções de aprendizagem de estudantes portugueses do 1º ciclo do Ensino Básico, verificando a possível replicação e inovação em relação às concepções identificadas pela perspectiva fenomenográfica. Realizaram-se entrevistas semiestruturadas centradas em três dimensões da concepção de aprendizagem: *referencial* (o que é a aprendizagem), *processual* (como se aprende) e *contextual* (onde se aprende). Uma análise de conteúdo de tipo intermédio das respostas demonstrou uma correspondência entre as concepções encontradas e as concepções básicas reveladas pela fenomenografia (por exemplo, aprendizagem como acumulação de informação, como compreensão ou

como obtenção de classificações) e também permitiu desvendar novas concepções de aprendizagem, representando-a como realização de atividades específicas, devolução da informação por explicação, ou realizável através do esforço pessoal e autônomo.

**Palavras-chave:** aprendizagem, concepções de aprendizagem, 1º ciclo do ensino básico.

### Conceptions d'apprentissage chez les élèves portugais du primaire

**Résumé :** Cette étude vise à comprendre les concepts d'apprentissage des étudiants portugais du primaire, en vérifiant la réplication et l'innovation possibles par rapport aux conceptions identifiées par la perspective phénoménographique. Des entretiens semi-structurés ont été conduits, centrés sur trois dimensions de la conception de l'apprentissage: référentiel (ce qu'est l'apprentissage), procédural (comment on l'a appris), contextuel (où l'on apprend). Une analyse de contenu de type intermédiaire des réponses a démontré une correspondance entre les concepts trouvés et les concepts de base révélés par la Phénoménographie (par exemple, l'apprentissage comme accumulation d'informations, comme compréhension ou comme obtention des classifications) et a également permis de dévoiler de nouvelles conceptions d'apprentissage, en les représentant comme la réalisation d'activités spécifiques, le retour de l'information par explication, ou réalisables grâce à des efforts personnels et autonomes.

**Mots-clés:** apprentissage, conceptions d'apprentissage, éducation de base.

### Concepciones de aprendizaje de estudiantes portuguesas del primer ciclo de la Enseñanza Básica

**Resumen:** Se pretendió conocer las concepciones de aprendizaje de estudiantes portuguesas del 1.º ciclo de la enseñanza básica y verificar la posible replicación e innovación sobre las concepciones identificadas por la perspectiva fenomenográfica. Se realizaron entrevistas semiestructuradas, centradas en tres dimensiones de la concepción del aprendizaje: *referencial* (qué es el aprendizaje); *procesual* (cómo se aprende); y *contextual* (dónde se aprende). Un análisis de contenido de tipo intermedio de las respuestas demostró una correspondencia entre las concepciones encontradas y las concepciones básicas reveladas por la fenomenografía (por ejemplo, aprendizaje como acumulación de información, como comprensión o como obtención de clasificaciones) y también permitió desvelar nuevas concepciones de aprendizaje, que la representan como una realización de actividades específicas, como la devolución de la información por explicación, o realizable por medio del esfuerzo personal y autónomo.

**Palabras clave:** aprendizaje, concepciones de aprendizaje, 1.º ciclo de la enseñanza básica.

## References

- Alamdarloo, G. H., Moradi, S., & Dehshiri, G. R. (2013). The relationship between students' conceptions of learning and their academic achievement. *Psychology, 4*(1), 44-49.
- Antoniadou, P., & Skoumios, M. (2013). Primary teachers' conceptions about science teaching and learning. *The International Journal of Science in Society, 4*(1), 69-82.
- Arroz, A. M., Figueiredo, M. P., & Sousa, D. (2009). "Aprender é estar quietinho e a fazer coisas a sério" – perspectivas de crianças em idade pré-escolar sobre a aprendizagem. *Revista Iberoamericana de Educación, 48*(4), 1-18.
- Asikainen, H. (2014). *Successful learning and studying in biosciences*. Tese de doutoramento não publicada, Universidade de Helsínque, Helsínque, Finlândia.
- Bakeman, R., & Gotman, J. (1986). *Observing interaction: An introduction to sequential analysis*. London: Cambridge University Press.
- Bartsch, K., Horvath, K., & Estes, D. (2003). Young children's talk about learning events. *Cognitive Development, 18*(2), 177-193.
- Biggs, J. B. (1987). *Students approaches to learning and studying*. Melbourne: Australian Council for Educational Research.
- Biggs, J. (1990). Teaching for desired learning outcomes. In N. Entwistle (Ed.), *Handbook of Educational ideas and practices* (pp. 681-693). London: Routledge.
- Biggs, J., & Moore, P. (1993). *The process of learning*. New York: Prentice Hall.
- Burnett, P. C., & Proctor, R. M. (2002). Elementary school students' learner self-concept, academic self-concepts and approaches to learning. *Educational Psychology in Practice, 18*(4), 325-333. doi:10.1080/0266736022000022020
- Chen, L., & Dhillon, J. K. (2012). Deep approaches to learning in improving reading skills: A Case Study from

- Yunnan Agricultural University. *Theory and Practice in Language Studies*, 2(8), 1603-1613.
- Diseth, Å. (2013). Personality as an indirect predictor of academic achievement via student course experience and approach to learning. *Social Behavior and Personality*, 41(8), 1297-1308. doi:10.2224/sbp.2013.41.8.1297
- Entwistle, N. J. (1988). Motivational factors in students' approaches to learning. In R. Schmeck (Ed.), *Learning strategies and learning styles* (pp. 21-51). New York: Plenum
- Entwistle, N. J., & Ramsden, N. (1983). *Understanding student learning*. London: Croom Helm.
- Entwistle, N. J., & Peterson, E. R. (2004). Conceptions of learning and knowledge in higher education: relationships with study behavior and influences of learning environments. *International Journal of Educational Research*, 41(6), 407-428.
- Entwistle, N. J., Tait, H., & McCune, V. (2000). Patterns of response to an approaches to studying inventory across contrasting groups and contexts. *European Journal of The Psychology of Education*, 15(1), 33-48.
- Flores, J. (1994). *Análisis de datos cualitativos: aplicaciones a la investigación educativa*. Barcelona: PPV.
- Freire, L. G. L., & Duarte, A. M. (2010). Concepções de aprendizagem em estudantes universitários brasileiros. *Psicologia USP*, 21(4), 875-898.
- Gibbs, G. (1992). *Improving the quality of student learning: theory and practice*. Bristol: TES.
- Hewitt, L., & Rose-Adams, J. (2012). What 'retention' means to me: the position of the adult learner in student retention [Special issue]. *Widening participation and lifelong learning*, 146-164.
- Jaidin, J. H. (2008). *Conceptions of learning held by upper primary children in government schools in Brunei Darussalam*. Comunicação apresentada na EARLI SIG 9 Workshop – Implications of Phenomenography and variation theory in practice, Kristianstad, Suécia.
- Khan, S. H. (2014). Phenomenography: a qualitative research methodology in Bangladesh. *International Journal on New Trends in Education and Their Implications*, 5(2), 34-43.
- Lloyd, M. (2013). Transfer of Practices and Conceptions of Teaching and Learning Mathematics. *Action in Teacher Education*, 35, 103-124.
- Marín, C., Pérez-Echeverría, M.P., & Scheuer, N. (2014). Conceptions of woodwind students regarding the process of learning a piece of music. *Research Papers in Education*, 29(4), 479-511.
- Marton, F. (1981). Phenomenography – describing conceptions of the world around us. *Instructional Science*, 10(2), 177-200.
- Marton, F., Dall'Alba, G., & Beaty, E. (1993). Conceptions of learning. *International Journal of Educational Research*, 19(3), 277-300.
- Marton, F., & Booth, S. (1997). *Learning and awareness*. Mahwah: Lawrence Erlbaum.
- Marton, F., & Säljö, R. (1976). On qualitative differences in learning I: Outcome and process. *British Journal of Educational Psychology*, 46(1), 4-11.
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook*. California: Sage.
- Morais, S. A., & Figueiredo, M. P. (2005). O que é aprender? Concepções de crianças em idade pré-escolar. In P. Pequito., & A. Pinheiro (Orgs.), *1º Congresso Internacional de Aprendizagem em Educação de Infância* (pp. 151-162). Porto: ESE Paula Frassinetti.
- Otunuku, M., Brown, G. T., & Airini (2013). Tongan secondary students' conceptions of schooling in New Zealand relative to their academic achievement. *Asia Pacific Educational Review*, 14(3), 345-357.
- Pramling, I. (1983). *The child's conception of learning*. Sweden: ACTA Universitatis Gothoburgensis.
- Rosário, P., Mendes, M., Grácio, M., Chaleta, E., González-Pienda, J., & Hernández-Pina, F. (2006). Discursos de pais e alunos sobre o aprender: um estudo no 5º ano de escolaridade. *Psicologia em Estudo*, 11(3), 463-471.
- Rosário, P., Núñez, J.C., Azevedo, R., Cunha, J., Pereira, A., & Mourão, R. (2013). Understanding gypsy children's conceptions of learning: a phenomenographic study. *School Psychology International*, 35(2), 152-166. doi:10.1177/0143034312469304
- Saban, A.; Koçbeker-Eid, B. N, & Saban, A. (2014). Racing the Marathon or Traveling to a Mysterious Place: Prospective Primary Teachers' Conceptions of Experienced and Ideal Learning. *Educational Sciences: Theory and Practice*, 14(3), 1013-1030.
- Sabzevari, S., Abbaszade, A., & Borhani, F. (2013). The assessment methods and learning approaches in nursing students of Kerman University of Medical Sciences in Iran. *Creative Education*, 4(2), 160-164.
- Säljö, R. (1979). Learning in the learner's perspective. I. Some common-sense conceptions. *Reports from the Institute of Education, University of Gothenburg*, 76. Gotemburgo: Universidade de Gotemburgo
- Säljö, R. (1984). Reading and Everyday Conceptions of Knowledge. In F. Marton, D. Hounsell & N. Entwistle (Eds.). *The experience of learning* (pp. 89-105). Edinburgh: The Scottish Academic Press.
- Sobel, D. M., Li, J., & Corriveau, K. H. (2007). "They danced around in my head and I learned them": children's developing conceptions of learning. *Journal of Cognition and Development*, 8(3), 345-369.
- Stekete, S. (1997). Conceptions of learning held by students in the lower, middle and upper grades of primary school. In *Western Australian Institute for Educational Research Forum 1997*. Recuperado de <http://www.waier.org.au/forums/1997/stekete.html>
- Trigwell, K. Ashwin, P., & Millan, E. (2013). Evoked prior learning experience and approach to learning as predictors of academic achievement. *British Journal of Educational Psychology*, 83(3), 363-378.

- Van Rossum, E.J., & Schenk, S. (1984). The relationship between learning conception, learning strategy and learning outcome. *British Journal of Educational Psychology*, 54(1), 73-83.
- Vedenpää, L., & Lonka, K. (2014). Teachers' and Teacher Students' Conceptions of Learning and Creativity. *Creative Education*, 5(20), 1821-1833.
- Wang, H., & Tsai, C. (2012). An exploration of elementary school student's conceptions of learning: a drawing analysis. *The Asia-Pacific Education Researcher*, 21(3), 610-617.
- Wong, A. K., & Lo, E. S. (2012). Assessing the construct Validity of the Conception of Teaching and Learning Questionnaire (CTLQ) for Chinese University Students in Hong Kong: Going Beyond the Use of Goodness of the Fit Indices. *The Asia-Pacific Education Researcher*, 21(2), 402-413.

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