

DEVELOPING THE CONCEPTION AND QUALITY OF LEARNING THROUGH LITERATURE AND CINEMA

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Abstract. Previous research suggests the possibility of promoting students' conceptions of learning and the quality of their learning products through the arts. In this framework, the present article reports two quasi-experimental studies that intended to test an art-based psychoeducational intervention: Study 1 through Literature, with 42 secondary students (divided between a control and an experimental group); and an exploratory Study 2 through Cinema, with 20 university students (divided into an intervention and non-intervention group). The aim was to evaluate the interventions' potential to promote the development of the conception of learning (CL) and of the quality of learning outcome (QLO). Both variables were assessed pre- and post-test: CL was measured through the "Conceptions of Learning Inventory – COLI", and an open question; and QLO through a commentary on a chosen text (Study 1) or movie scene (Study 2), evaluated using the

"SOLO Taxonomy". The interventions consisted of orienting participants to analyse and discuss excerpts of works of Art (Study 1 with literary texts; and Study 2 with movie scenes) on the theme of active *versus* passive learning. Study 1's quantitative data underwent statistical analysis using Mann–Whitney U and Wilcoxon signed-rank tests, as well as a case-by-case analysis. Study 2's data was solely subjected to a case-by-case analysis. Thematic analysis was employed on qualitative data. Results suggest a potential of such interventions to both increase a *qualitative* CL and the QLO, and to reduce a *quantitative* CL. Interindividual variability in the interventions' effects was also observed. Limitations and suggestions for future studies are proposed.

Keywords: Arts, cinema, conception of learning, literature, quality of the learning product.

Developing the Conception and Quality of Learning through Literature and Cinema

Students' Approaches to Learning (SAL) theory has revealed that learning outcomes are related both to students' approaches to learning and to their conceptions of learning (e.g., Alkhateeb & Milhem, 2020; Marouchou, 2011).

A student's conception of learning can be defined as his or her representation or belief system regarding what learning means (Vermunt & Donche, 2017). Two main types have been observed: a quantitative or reproductive conception, which views learning as mere memorization for later reproduction; and a qualitative, transformative or constructive conception of learning, which takes learning as a process of understanding or reinterpreting existing knowledge that can lead a personal change (Säljö, 2005; Zhao, 2022).

Several authors conceptualize these conceptions as hierarchically organized (e.g., Purdie & Hattie, 2002; Vermunt & Vermetten, 2004), emphasizing that a qualitative conception of learning encompasses a quantitative conception, and that the former has a more positive impact on the process and product of learning (Zhao, 2022). Furthermore, several studies have linked this conception of learning to better academic performance while associating a quantitative conception to worse learning outcomes (Rossel et al., 2017; Vettori et al., 2020). Specifically, this line of research states that qualitative conception of learning and/or a deep approach to learning (which combines an intrinsic motivation for learning with an understanding-based learning strategy) correlates with higher levels of structural complexity of the learning product, as measured by Biggs and Collis' SOLO Taxonomy - Structure of the Learning Outcome (1982).

The SOLO Taxonomy conceptualizes the quality of the learning outcome (operationalized as an answer to a question about something the individual has learned) in five levels of increasing structural complexity: prestructural – the learning outcome does not present any relevant element to the posed question; unistructural - the outcome presents only one relevant element; multistructural – the outcome contains several relevant elements but without a link between them; relational – the outcome contains several relevant aspects

and their link is explicit; and abstract – besides presenting several relevant elements and their connection, the outcome involves a generalization and application of these concepts to other contexts. Thus, the quality of the learning outcome reflects both the amount of retained information and individuals' ability to relate concepts and to abstract reflections and applications (Hook & Roberts, 2018; Hook et al., 2015).

Considering the abovementioned relationship between conception and product of learning, the development of interventions that promote these two variables in students is relevant. Limited research indicates that modifying learning contexts (e.g., Matsushita, 2018) or using psychoeducational interventions can shift students' views on learning. Findings from a single-case study with a university student suggest that the promotion of metacognitive reflection developed her personal conceptions of learning and the quality of reading literary texts and essays (Vitorino, 2010). Similarly, an intervention study with a group of engineering students showed that fostering metacognitive reflection on personal learning could reduce a quantitative conception of learning and increase a qualitative conception (Cunningham et al., 2018).

Furthermore, some studies indicate that using the SOLO taxonomy can enhance learning outcomes and academic success, as the taxonomy promotes students' ability to express clear and in-depth ideas about their learning objects. For example, Lucander and collaborators (2010) presented an effective introduction of the SOLO Taxonomy to dental medicine students, by exemplifying its different levels and involving them in the construction of responses for each level. Similarly, Jones and collaborators (2014) instructed physical therapy students to construct cognitive maps on the theme of ethics based on the taxonomy levels. Both studies suggest the effectiveness of the taxonomy's inclusion to foster students' learning outcomes. Finally, the purpose of these interventions seems particularly important considering the predominance of a multistructural level among secondary and higher education students (e.g., Claudia et al., 2020).

Concurrently, research suggests that art-based psychoeducational interventions (which use the appreciation and the creation of art as instruments of change) present an equal potential to promote students'

conception and quality of learning. In this regard, Gladding (2021) emphasizes the various advantages that the arts provide in a counselling context, such as providing a relaxed, active, and playful environment, which reduces possible resistance; offering a non-verbal medium; encouraging creativity, expression and communication; and promoting cooperation.

In particular, counselling processes that use fictional literature as a resource have been found to promote personal change by stimulating the elaboration of hypotheses about the consequences of human behaviour and events. Moreover, these processes tend to encourage contact with different perspectives on solving everyday problems, simulate social situations and the promote ethical reflections (e.g., Mulder et al., 2017; Oatley, 2016). Of special relevance to Study 1 below, Hoggan and Cranton (2015) conducted a quasi-experimental study in which a group of university students read and discussed a brief story that incorporated metaphors and symbolism on the theme of knowledge relativism. The study gathered evidence that this activity promoted transformative learning, emphasizing the acquisition of new perspectives, critical reflection on what is learnt and personal change. This finding aligns with the notion of a qualitative conception of learning (Säljö, 2005; Zhao, 2022). Furthermore, Mesquita and Duarte (2018)'s investigation with university students revealed that instruction on the topic of academic learning, based on a personal analysis of literary texts about learning (contrasting between the use of an 'active' versus 'passive' mode of learning), followed by discussion, increased the frequency of a qualitative conception of learning. Additionally, Duarte and collaborators (2020) reported testing an intervention which involved university students in a close reading's activity of literary texts (followed by a writing activity about such reading) to evaluate its impact on their ability to analyse this type of text. The results suggest an increase in this competence among participants, as measured by the SOLO Taxonomy (Biggs & Collis, 1982).

Similarly, there is evidence to support the use of cinema as a counselling tool. Research has shown that cinema is an important tool for personal representation (e.g., Uppal, 2019) and behaviour modelling (e.g., Bandura, 2016) as many movies depict com-

mon problems and solution-oriented endings (Lampropoulos & Spengler, 2005). Gladding (2021) states that incorporating the visualization and discussion of selected movies into the counselling process can help individuals to develop self-awareness and effect personal change. In the context of psychoeducational counselling, Niemiec and Wedding (2014) advocate the promotion of viewing and discussing thematic artistic films to foster 'virtues' such as passion for learning, curiosity, creativity, open-mindedness and broadened perspective.

Nonetheless, although art-based methods have been frequently applied in pedagogical (e.g., Alkhaifi et al., 2022) and clinical (e.g., He & Zhang, 2025) settings, studies investigating their integration into psychoeducational interventions, particularly from a SAL perspective, are scarce. In addition, existing research mainly focuses on its application at university level, and highlights the need to compare results between experimental and control groups (e.g., Duarte et al., 2020; Mesquita & Duarte, 2018). In this sense, the present article aimed to meet these gaps and suggestions, by testing the potential of an art-based counselling procedure to promote the conception and the quality of learning. Two quasi-experimental studies were then conducted, with the two most prominent art forms in this line of research: Study 1 through Literature, with high school students; and Study 2 through Cinema, with university students.

Study 1

Aims and Hypotheses

This study aligns with research that explores the potential of developing the conception and quality of learning through the arts, particularly literature. The aim was to investigate the effects of an intervention promoting the analysis of learning-themed literary texts in conceptions of learning and competence to analyse this type of text with high school Portuguese students. The research hypothesis entail that the intervention would lead to an increase of a qualitative conception of learning and a reduction of a quantitative conception (H1), as well as an increase in the competence to analyse

literary texts (H2). In line with an Aptitude Treatment Interaction - ATI research paradigm, which emphasizes the interaction between an intervention and the individual characteristics of participants (Cronbach & Snow, 1977), interindividual variability in the effects of the intervention was also expected (H3).

Method

To test H1 and H2 (related to the modification of the conception of learning and the competence to analyse literary texts, respectively), a “quasi-experimental” research design was chosen. An experimental group was recruited to participate in the intervention (the independent variable), and two assessment moments (pre- and post-test) were carried out. A control group was also recruited (who only participated in the same assessments).

Concurrently, to assess H3 (related to the interindividual variability in response to the intervention), a design based on a “multicase experience design” was used (e.g., Smith, 2012). The dependent variables were assessed in each participant before and after the intervention (i.e., a case-by-case comparison of the results in the pre- and post-test moments). In addition, the participants’ perceptions about the possible changes caused by the intervention were evaluated through the application of an open question.

The sample consisted of a total of 42 secondary (12th grade) school students from a ‘science and technologies’ course, and comprised 19 (45.2%) boys and 23 (54.8%) girls, with an average age of 17.19 (SD = .51). Specifically, the experimental group consisted of twenty-one students: 13 (61.9%) boys and 8 (38.1%) girls, with an average age of 17.29 (SD = .64). The control group, likewise, comprised twenty-one students from a different class: 6 boys (28.6%) and 15 (71.4%) girls, with an average age of 17.09 (SD = .30). The participants, their tutors, and teachers gave their informed consent, and the study was approved by a deontological commission.

In the two foreseen assessment moments (i.e., pre- and post-test), participants’ conceptions of learning and their competence to analyse literary texts were tested. At post-test, an instrument was added to assess the

participants’ perception of possible changes caused by the intervention in their conceptions of learning.

Conceptions of learning were assessed through the Portuguese adaptation of the Conceptions of Learning Inventory – COLI (Chaleta, 2018) – of Purdie and Hattie (2002). This adaptation comprises 30 items, divided into 5 scales: 1) ‘learning as gaining information’ (INFO – five items; e.g., i10 is ‘Learning means acquiring as many facts as possible’), 2) ‘learning as remembering information’ (REC – 4 items; e.g., i11 is ‘If I’ve learned something, it means I can remember that information whenever I want’), 3) ‘learning as understanding, using and applying’ (UUA – 5 items; e.g., i4 is ‘Learning means giving meaning to new information and ways of doing things’), 4) ‘learning as personal change’ (PERS – 9 items; e.g., i6 is ‘I use learning to develop myself as a person’), and 5) ‘learning as the development of social skills’ (SOC – 7 items; e.g., i8 is ‘Learning is knowing how to relate to different types of people’). Integrating the INFO and REC scales, it is possible to consider a ‘composite scale’ for the quantitative conceptions of learning (QUANT). In the same way, with the UUA and PERS scales, a ‘composite scale’ for the qualitative conception of learning was created (QUAL). Participants answered the questionnaire using a Likert scale ranging from 1 (‘I totally disagree’) to 7 (‘I totally agree’). Considering the present study’s aim, data from the SOC scale were not considered.

Competence to analyse literary texts was assessed in terms of its level of the structural complexity. This variable was tested by asking the participants to read two literary texts (one for the pre-test and the other for the post-test) and then to write a comment about what was presented in those texts. The two selected literary texts were linguistically equivalent concerning their subject (i.e., academic learning, which was the same as the intervention texts), their word and sentence counts and their readability (adequate to the level of education of the participants) as measured by the Fernández-Huerta index (Legible, n.d.). The texts are an excerpt from *A Neve Preta* (The Black Snow), a short story from the book *Deste Mundo e do Outro* (From This World and the Other), by José Saramago (1971), for the pre-test and an excerpt from the short story *Cada Qual com Seu Natal* (Each One with His Own Christmas), from the book *Em Minúsculas* (In Lowercase

Letters) by Herberto Helder (2018), for the post-test. The comments for these literary texts were assessed using the SOLO taxonomy of Biggs and Collis (1982), presented in the Introduction section. The assessment was validated by a second independent analyst's assessment of 14% of the comments (with 83% agreement).

Perception of possible changes caused by the intervention was assessed through an open question ("In what sense might your notion of learning have changed as a consequence of this experience?"). The answers were subjected to an inductive thematic analysis of the content, which involved their segmentation into units of meaning (i.e., singular propositions) and the consequent inductive categorization of each unit. The internal logic of the resulting category system was rectified and applied in a second categorization of all units. The system was validated through the categorization of 21.7% of the units by a previously trained independent analyst (agreement in 80% of the units).

The intervention occurred over five 100-minute weekly sessions (with a 10 to 20 minutes' interval) during the academic schedule. The intervention began with an introduction of the main modes of academic learning, as conceptualized by the SAL theory, to the participants: the surface approach to learning (i.e., a strategy of passive memorization of information associated with an instrumental motivation to avoid failure) and the deep approach to learning (i.e., a strategy of understanding associated with an intrinsic motivation to learn for pleasure). These approaches were introduced through the analysis of two illustrative cases. The intervention proceeded with a series of demonstration episodes, with one or two texts on the theme of learning followed by the participants' application to other similar texts (individually and collectively, with discussion), with the following strategies of analysis, derived from research in the psychology of literature (e.g., Oatley, 2016): imagining oneself in the scene described in the text and trying to have the same experience as the characters; identifying memories, ideas and experiences associated with the story; and developing hypotheses about characters' mental states (i.e., motivations, feelings, and thoughts) and behaviours. A strategy for identifying how the text relates to the two presented approaches to learning and for describing how the text would be reconstructed so that it could better

reflect the theme of the approaches to learning was also added. The literary texts were selected on the same criteria applied in the selection of the texts used in the assessment moments. The texts used in the demonstration and application of the analysis strategies consisted of excerpts that contrast 'active' learning (based on a deep approach to learning) with 'passive' learning (based on a surface approach to learning), chosen by a group of specialists on the SAL perspective, and were taken from the following works: *Florence and Giles*, by John Harding (2010); *Sinais de Fogo* (Signs of Fire), by Jorge de Sena (2019); *The Catcher in the Rye*, by Jerome Salinger (2011); *O Diário Secreto de Camila* (Camila's Secret Diary), by Ana Magalhães and Isabel Alçada (1999); *Capitães da Areia* (Captains of the Sand), by Jorge Amado (1937/2016); and *Harry Potter and the Philosopher's Stone*, by Joanne Rowling (2002).

The interventions' impact was examined by comparing experimental and control group's participants' values at pre- and post-test; and by analysing each experimental group's participant's values in the two assessment moments. Specifically, to test H1 (related to the modification of the conception of learning), non-parametric tests (Mann-Whitney U Test and Wilcoxon Signed-Rank Test) were applied, considering the small sample size and an assumption of non-normality of the data ($W_PERS_{(21)} = .903$, $p < .05$, for the control group at post-test, as one of COLI's scale; for competence to analyse literary texts at both assessment moments for the two groups – $W_EG_{(21)} = .894$, $p < .05$ and $W_CG_{(21)} = .658$, $p < .001$ at pre-test, and $W_EG_{(21)} = .721$, $p < .001$ and $W_CG_{(21)} = .702$, $p < .001$ at post-test). To test all hypotheses (related to the modification of the two variables and the inter-individual variability in response to the intervention), the number of participants who increased, reduced or maintained their conceptions of learning and their competence to analyse literary texts were analysed and compared. Finally, the number and percentage of experimental group's participants with each perception were calculated through thematic content analysis of the posed open question.

Results

In most of the COLI scales at pre-test, the experimental and control group's results were not significantly different, and therefore were considered as equivalent. However, statistically significant differences were observed between the two groups in their conception of 'learning as personal change' (PERS) ($U = 121.50$, $z = -2.495$, $p < .05$) and their 'qualitative' conception of learning (QUAL) ($U = 129.50$, $z = -2.294$, $p < .05$). A statistically significant difference was also observed at the level of competence in analysing literary texts at pre-test ($U = 133.50$, $z = -2.337$, $p < .05$). These variables' results were, therefore, solely analysed through a "multicase experience design".

Regarding the modification of the conception of learning in response to the intervention (H1), as shown in Table 1, a statistically significant difference was observed in the conception of 'learning as information gain' (INFO) between the two assessment points ($T = 5$, $p < .05$, $r = -.30$) in the experimental group. This conception showed a significant reduction ($p < .05$) from pre- (Mdn = 5.00) to post-test (Mdn = 4.60), with moderate effect (Cohen, 1988). There were no significant differences in the same conception of learning between pre- and post-test in the control group. Additionally, no statistically significant differences were recorded between the pre- and post-test for any of the other conceptions of learning in the experimental group, and these were also not statistically different from those of the control group at pre-test: $T_REC_ = 7$, $p = .624$; $T_UUA_ = 8$, $p = .160$; and $T_QUANT_ = 8$, $p = .181$. Likewise, no statistically significant differences were observed in the conceptions of learning of the control group which were not statistically different from those of the experimental group at pre-test: $T_INFO_ = 7$, $p = .285$; $T_REC_ = 6$, $p = .137$; $T_UUA_ = 9$, $p = 1.000$; and $T_QUANT_ = 7$, $p = .062$. Finally, there were no statistically significant differences between control and experimental group at post-test for any of the conceptions of learning that were also not statistically different at the pre-test stage: $U_INFO_ = 203.50$, $z = -.430$, $p = .675$; $U_REC_ = 204.50$, $z = -.404$, $p = .694$; $U_UUA_ = 156$, $z = -1.628$, $p = .105$; and $U_QUANT_ = 219.50$, $z = -.025$, $p = .985$.

Group	INFO		REC		UUA		QUANT	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
EG	5.00	4.60*	5.00	5.00	5.60	5.40	5.11	4.89
CG	5.00	4.80	5.25	4.75	5.80	5.80	5.11	4.89

Table 1. Conceptions of learning of the experimental (EG) and control (CG) groups (median of each conception measured by its corresponding scale). Note. *significantly different ($p < .05$) compared to the pre-test.

P.	INFO		REC		UUA		PERS		QUANT		QUAL	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	5.60	4.60	6.00	5.00	5.53	5.80	6.33	5.56	5.78	4.78	6.05	5.64
2	4.60	5.60	6.00	6.25	6.20	6.80	7.00	7.00	5.22	5.89	6.71	6.93
3	4.60	3.20	3.25	3.50	4.40	3.80	5.44	5.22	4.00	3.33	5.07	4.71
4	4.40	3.60	5.50	4.50	5.40	5.00	5.56	6.11	4.89	4.00	5.50	5.71
5	5.20	4.60	5.75	5.00	6.60	5.40	6.67	6.67	5.44	4.78	6.64	6.21
6	5.80	5.40	4.75	4.75	5.72	5.40	6.56	6.67	5.33	5.11	6.26	6.21
7	5.60	6.20	5.75	6.00	5.80	5.80	4.89	5.78	5.67	6.11	5.21	5.79
8	5.60	5.20	6.00	5.00	5.20	5.40	5.89	5.56	5.78	5.11	5.64	5.50
9	4.80	4.80	5.50	5.75	6.00	6.20	5.22	5.67	5.11	5.22	5.50	5.86
10	4.80	4.60	5.00	3.50	5.80	5.00	6.00	5.67	4.89	4.11	5.93	5.43
11	5.40	4.60	4.75	4.00	5.40	5.00	5.78	6.00	5.11	4.33	5.64	5.64
12	4.40	5.40	4.75	5.75	5.60	6.20	5.44	5.56	4.56	5.56	5.50	5.79
13	4.60	2.80	4.00	4.35	5.20	5.00	5.00	4.78	4.33	3.44	5.07	4.86
14	4.00	4.00	4.25	4.50	5.60	4.20	5.89	5.78	4.11	4.22	5.79	5.21
15	4.80	5.00	3.75	4.75	5.60	4.60	5.67	4.33	4.33	4.89	5.64	4.43
16	5.00	5.40	4.75	6.00	5.20	5.60	5.11	5.11	4.89	5.67	5.14	5.29
17	5.98	5.20	5.50	5.25	6.80	6.40	6.78	6.33	5.77	5.22	6.79	6.36
18	5.80	5.80	6.00	7.00	5.80	7.00	6.78	6.89	5.89	6.33	6.43	6.93
19	5.60	4.00	4.75	5.50	5.60	5.20	6.22	6.56	5.22	4.67	6.00	6.07
20	4.00	3.20	2.75	3.50	4.40	3.80	4.11	5.11	3.44	3.33	4.21	4.64
21	5.20	4.60	5.00	5.50	5.80	6.00	5.78	5.11	5.00	5.00	5.79	5.86
Δ	-0.38		0.07		-0.20		0		-0.18		-0.06	

Table 2. Conception of learning of each experimental group's participant (average of each of the four conceptions measured by their corresponding scales and of each composite scale). Note. P. = Participant; Δ = Mean difference; green text = expected increase or decrease at post-test; red text = unexpected increase or decrease at post-test.

The interindividual variability in response to the intervention (H3) was studied by comparing each of the experimental group's participants' results at pre- and post-test. Regarding their conceptions of learning, as shown in Table 2, specifically in the conception of 'learning as gaining information' (INFO), there was a reduction in 13 participants, an increase in five participants and no change in three participants after the intervention. In the conception of 'learning as remembering information' (REC), there was a reduction in seven participants, an increase

in 13 participants and no change in one participant. In the conception of 'learning as understanding, using and applying' (UUA), there was an increase in eight participants, a reduction in 12 participants and no change in one participant. As for the conception of 'learning as personal change' (PERS), there was an increase in nine participants, a reduction in eight participants and no change in four participants. Regarding the 'composite scales', there was a reduction in 13 participants and an increase in eight in the 'quantitative conceptions of learning' (QUANT); and there was a reduction in 10 participants, an increase in 10 participants and no change in one participant in the 'qualitative conception of learning' (QUAL).

Regarding the competence to analyse literary texts, as shown in Table 3, there was an increase in the level of structural complexity of the learning outcome in 12 participants, a reduction in four participants and no change in five participants after the intervention.

P.	Pre	Post
1	4.0	4.0
2	5.0	4.0
3	5.0	4.5
4	3.0	4.0
5	4.5	5.0
6	4.0	4.0
7	5.0	5.0
8	4.5	5.0
9	4.0	4.5
10	4.5	5.0
11	4.5	5.0
12	3.5	5.0
13	4.0	5.0
14	3.5	4.0
15	5.0	4.0
16	3.5	4.0
17	4.0	5.0
18	5.0	5.0
19	4.5	4.0
20	5.0	5.0
21	3.5	4.5
Δ	0.20	

Table 3. Level of structural complexity of the learning product of each experimental group's participant (measured on the 5-point ordinal scale of the SOLO Taxonomy).

Note. P. = Participant; Δ = Mean difference; green text = expected increase or decrease at post-test; red text = unexpected increase or decrease at post-test.

Concerning the perception of the intervention's impact, the perceptions with higher relative fre-

quency indicated that this intervention caused an increase in the knowledge and/or understanding of the concept of learning (76.2% - e.g., '(...) *this experience helped me to better understand what it means to learn.*') and a change in the way learning was conceived (57.1%; e.g., '*This experience has clearly led to an evolution in my notion of learning, which is deeper now.*').

Study 2

Aims and Hypotheses

The present study's aim and hypotheses were equivalent to those of Study 1. Study 2 aimed to test the potential for developing students' conception and quality of learning through a cinema-based intervention. Specifically, its objective was to examine the impact of an intervention promoting the analysis of learning-themed movie clips in conceptions of learning and competence to analyse this type of material with Portuguese university students. Similarly to Study 1, the research hypothesis entail that this intervention would lead to an increase in a qualitative conception of learning and a reduction in a quantitative conception (H1) and an increase in the competence to analyse still images (H2). Interindividual variability in the effects of the intervention (H3) was also expected.

Method

To achieve its aims and to test the hypotheses, a similar research design of Study 1, based on a 'multiple-case experience design', was used. Its dependent variables were assessed in each participant before and after the intervention (i.e., a case-by-case comparison of the results at pre- and post-test). A non-intervention group was included as a means to develop a between-group comparison, although no statistical analysis was applied due to its small sample size. Participants' perceptions of the possible changes were also assessed at post-test for the intervention group.

The sample of this study comprised a total of 20 female university students who were attending the

second year of an integrated master's degree in psychology programme. The average age of the intervention group's students was 19.1 years ($SD = .32$), and the non-intervention group was of 19 years. The participants gave their informed consent, and the study was approved by the same deontological commission.

In the two foreseen assessment moments (i.e., pre- and post-test), conceptions of learning and the competence to analyse still images were examined. A measure to assess the intervention group's participants' perceptions of possible changes in their conception of learning was added.

Conceptions of learning were also assessed by the Portuguese adaptation of the Conceptions of Learning Inventory – COLI (Chaleta, 2018) – of Purdie and Hattie (2002), already presented for Study 1.

The competence to analyse still images from movies, operationalized in terms of the level of structural complexity of that analysis, was tested by asking the participants to comment on two still images through writing (one for the pre-test and the other for the post-test). Two equivalent images from the same scene of Peter Weir's movie *Dead Poets Society* (1989), both with the theme of academic learning, were used. The comments were also assessed using the SOLO taxonomy of Biggs and Collis (1982), presented in the Introduction section. The assessment was validated by a second independent analyst's assessment of 25% of the comments (agreement in 80% of the cases).

Perceptions of the possible changes caused by the intervention in the conceptions of learning was assessed by the same open question of Study 1. The answers were subjected to an inductive thematic analysis of the same type of content (supported by the NVivo 12 program), and the resulting category system was validated by the categorization of 10% of the units by a previously trained independent analyst (agreement in 80% of the units).

For this study, the intervention involved six weekly sessions of approximately 110 minutes each during the academic schedule. The intervention had the same format as the intervention used in Study 1 with the difference being the use of movie clips with the theme of learning as modelling and analysis material. The clips were analysed by the participants with the following analysis strategies, derived from research on the psychology of cinema (e.g., Persson, 2003): categorization of the characters, psychological analysis of the

characters (motives, emotions, conceptions, and strategies), advantages and drawbacks of the character's learning mode, and summarization of the plot. A strategy for identifying how the scene relates to the two presented approaches to learning and for describing how the scene could be reconstructed so that it would better reflect the theme of the approaches to learning was added. The scenes used in the demonstration and testing of the analysis strategies consisted of scenes that also contrasted 'active' learning (based on a deep approach to learning) and 'passive' learning (based on a surface approach to learning), chosen by a group of specialists on the SAL perspective, and were taken from the following movies: *Polina, danser sa vie*, by Valérie Müller and Angelin Preljocaj (2016); *Art School Confidential* (2006) and *Ghost World* (2001), both by Terry Zwigoff; *Freedom Writers*, by Richard LaGravenese (2007); *Dangerous Minds*, by John N. Smith (1995); and *Mona Lisa Smile*, by Mike Newell (2003).

The impacts of the intervention on the conceptions of learning and the competence to analyse still images from movies for each participant were examined in the same way as in Study 1.

Results

Regarding conceptions of learning, as shown in Table 4, in the conception of 'learning as gaining information' (INFO), there was a reduction in four intervention group's participants, an increase in five participants and no change in one participant after the intervention (in comparison with a reduction in two and an increase in eight non-intervention participants). In the conception of 'learning as remembering information' (REC), there was a reduction in one participant, an increase in six participants and no change in three participants (in comparison with a reduction in five, an increase in four and no change in one non-intervention participants). In both the conception of 'learning as understanding, using and applying' (UUA) and in 'learning as personal change' (PERS), there was an increase in seven participants, a reduction in two and no change in one participant. Concurrently, an increase in three, a reduction in four and no change in three non-intervention participants was observed for UUA; and an increase in four, a reduction in five

and no change in one participant was noted for PERS. Considering the “composite scales”, there was a reduction in five participants and an increase in five others in the ‘quantitative conception of learning’ (QUANT) (in comparison with a reduction in three and an increase in seven non-intervention participants). As for the ‘qualitative conception of learning’ (QUAL), there was an increase in eight participants and a reduction in two participants (in comparison with an increase in three, a reduction in six and no change in one non-intervention participants).

P.	INFO		REC		UUA		PERS		QUANT		QUAL	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	6.40	6.40	4.75	6.00	6.80	6.60	6.89	6.89	5.58	6.20	6.84	6.74
2	5.40	4.60	4.75	4.75	5.40	5.60	5.44	5.33	5.08	4.68	5.42	5.47
3	5.40	5.80	6.00	6.00	5.40	6.00	6.33	6.44	5.70	5.90	5.87	6.22
4	3.80	5.20	4.50	5.25	5.80	6.00	6.67	6.78	4.15	5.23	6.23	6.39
5	4.00	4.60	3.50	6.25	5.60	6.40	5.56	6.44	3.75	5.43	5.58	6.42
6	4.20	5.80	5.00	5.75	6.00	6.60	6.00	6.67	4.60	5.78	6.00	6.63
7	5.40	3.40	5.25	5.75	6.20	6.40	6.44	6.33	5.33	4.58	6.32	6.37
8	3.80	4.00	3.50	3.00	4.60	4.60	6.00	6.78	3.65	3.50	5.30	5.69
9	5.40	5.00	4.75	4.75	6.60	6.00	6.78	6.89	5.08	4.88	6.69	6.44
10	5.00	4.40	4.50	5.00	5.00	5.40	5.33	6.11	4.75	4.70	5.17	5.76
Δ	0.04	0.60	0.22	0.33	0.32	0.27						
11	5.60	4.80	4.75	4.75	6.00	5.80	6.33	5.78	5.18	4.78	6.17	5.79
12	4.60	5.00	5.00	5.25	6.00	5.40	6.11	6.33	4.80	5.13	6.06	5.87
13	5.00	5.80	6.00	5.75	6.40	6.40	6.22	6.00	5.50	5.78	6.31	6.20
14	4.80	5.40	3.75	4.75	6.20	6.20	6.11	6.11	4.28	5.08	6.16	6.16
15	3.60	4.20	6.00	5.25	6.20	5.80	6.33	5.44	4.80	4.73	6.27	5.62
16	4.80	4.40	3.50	4.50	5.20	4.60	5.89	5.44	4.15	4.45	5.54	5.02
17	5.00	5.20	4.50	4.00	5.60	5.80	5.56	6.11	4.75	4.60	5.58	5.96
18	3.80	4.20	5.50	5.25	5.80	6.20	5.67	5.89	4.65	4.73	5.73	6.04
19	3.80	4.20	4.00	4.50	5.40	5.60	6.44	6.89	3.90	4.35	5.92	6.24
20	4.40	5.40	5.50	4.75	5.80	5.80	5.22	5.11	4.95	5.08	5.51	5.46
Δ	0.32	0.03	-0.10	-0.08	0.17	-0.09						

Table 4. Conception of learning of each participant (average of each of the four conceptions measured by their corresponding scales and of each composite scale). Note. P. = Participant; Δ = Mean difference; green text = expected increase or decrease at post-test; red text = unexpected increase or decrease at post-test; grey shading = non-intervention group.

Concerning the competence to analyse still images, as shown in Table 5, there was an increase in the level of the structural complexity of this analysis in five participants, a reduction in four participants and no change in one participant after the intervention (in comparison with an increase in two, a reduction in three and no change in five non-intervention participants).

P.	Pre	Post
1	3.5	3.0
2	3.0	4.0
3	5.0	4.0
4	5.0	4.5
5	3.0	3.5
6	4.5	4.0
7	4.0	4.5
8	4.0	4.5
9	5.0	5.0
10	3.5	4.0
Δ	0.05	
11	4.5	4.5
12	4.0	4.5
13	3.5	4.0
14	4.5	4.0
15	5.0	4.0
16	3.5	3.5
17	4.0	4.0
18	4.5	4.0
19	4.5	4.5
20	4.0	4.0
Δ	-0.10	

Table 5. Level of structural complexity of the learning product of each participant (measured on the 5-point ordinal scale of the SOLO Taxonomy). Note. P. = Participant; Δ = Mean difference; green text = expected increase or decrease at post-test; red text = unexpected increase or decrease at post-test; grey shading = non-intervention group.

With regard to the perception of the impacts of the intervention, the perceptions with higher relative frequency indicated that this intervention provoked some changes both in the direction of the *qualitative* conception of learning (90% - e.g., ‘(...) [the intervention] helped me to see learning a little bit as something also of everyday life (...)’) and in the awareness of approaches to learning (100%; e.g., ‘In my opinion, the exercises helped me to create a better distinction between the two types of approach (superficial and deep) (...)’).

Discussion

The aim of the present study was to test an art-based psychoeducational intervention’s potential to promote the conception and the quality of learning. To achieve this, two quasi-experimental studies were conducted: Study 1 through Literature, with 42 high school students; and Study 2 through Cinema, with 20 university students.

Concerning the hypothesis test, H1 was partially confirmed in Study 1 and confirmed in Study 2. A reduction in a quantitative conception of learning in the majority of Study 1's experimental group's participants and in half of Study 2's participants after the interventions was noted. In addition, an increase in a qualitative conception of learning in the majority of Study 2's participants was observed. However, no significant statistical difference between Study 1's experimental and control groups was noted at post-test for any conception of learning, and the findings concerning qualitative conception of learning remained particularly inconclusive.

Results, therefore, suggest this intervention has the potential to develop conceptions of learning. Nevertheless, to achieve a qualitative conception, personal changes and a restructuring of the learning context may be necessary (Entwistle, 2023). In the present studies, the interventions were implemented in a pre-established context of teaching and learning, which could not be effectively manipulated or controlled. Furthermore, the intensive nature of the interventions, with five (Study 1) and six (Study 2) sessions, may also explain their lower impacts compared with the same type of interventions with greater amplitudes (e.g., Cunningham et al., 2018). Finally, it should be noted that the majority (Study 1) and the totality (Study 2) of the participants already presented above-average results (i.e., 3.5) on the scales of the qualitative conceptions of learning (i.e., UUA, PERS and QUAL) at the pre-test moment.

In addition, H2 was also confirmed, since there was an increase in the competence to analyse in most of the participants, either of literary texts (Study 1) or of still images (Study 2), after the interventions. The practice of oriented and joint analysis of this type of 'narrative' through strategies based on the psychology of literature (Study 1) and the psychology of cinema (Study 2), thus seems to be an effective means of promoting the structural complexity of analysis of that type of 'narrative' by helping students deepen it.

Finally, H3, which addressed the interindividual variability in the results, was confirmed. This finding suggests that this type of intervention dynamically interacts with personal characteristics, thus having differentiated impacts. These results align with those of

previous studies that point towards an influence of factors such as motivation for learning (e.g., Matsushita, 2018), the learning context (e.g., Myllykoski-Laine et al., 2023), or the personal level of structural complexity of the learning outcome (e.g., Zou et al., 2014) in the conception of and approach to learning.

In conclusion, the two studies showed evidence that a psychoeducational intervention used may reduce the quantitative conception of learning (which takes it as a simple gain of information), increase the qualitative conception (which see it as the understanding of information), increase the competence to analyse 'fictional narratives about learning' and develop awareness about the notion and process of learning in high school and university students. Nevertheless, the results suggest that such effects might be mediated by a positive responsiveness to the intervention, which cannot be expected in all cases.

The present findings also inspire future research using the type of interventions tested here to address its limitations. Recommendations for future studies might contemplate the following: broader samples with greater representativeness, a parallel change in the learning context (e.g., change in teaching methods), an extension of the intervention period (i.e., greater number of sessions), an intervention with materials from diverse artistic fields, the possible integration of a "behavioural" component (i.e., training of learning strategies), a systematic validation of artistic materials, and follow-up assessments.

A further pertinent comparison could be made between the effects of an art-based intervention, such as those examined in this article, and other interventions that utilise the same principles but are not art-based, such as game-based interventions. Previous studies suggest that art- and game-based interventions share foundational psychoeducational values, as both approaches tend to improve student's knowledge and engagement while making the curriculum more accessible (Beagle, 2021; Hsbollah & Rosli, 2022). Concurrently, research suggests that art-based teaching, at least, uniquely cultivates emotional recognition, cultivation of empathy and awareness of multiple perspectives (Alkhaifi et al., 2022; Gladding, 2021). Nevertheless, evidence-based comparisons are lacking.

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