



**HAL**  
open science

## Understanding the moral of the story: Collaborative interpretation of visual narratives

Michael J Baker, Gwen Pallarès, Talli Cedar, Noa Brandel, Lucas Bietti, Baruch Schwarz, Françoise Détienne

### ► To cite this version:

Michael J Baker, Gwen Pallarès, Talli Cedar, Noa Brandel, Lucas Bietti, et al.. Understanding the moral of the story: Collaborative interpretation of visual narratives. *Learning, Culture and Social Interaction*, 2023, 39, 10.1016/j.lcsi.2023.100700 . hal-03990554

**HAL Id: hal-03990554**

**<https://telecom-paris.hal.science/hal-03990554>**

Submitted on 15 Feb 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

# Learning, Culture and Social Interaction

journal homepage: [www.elsevier.com/locate/lcsi](http://www.elsevier.com/locate/lcsi)

Full length article

## Understanding the moral of the story: Collaborative interpretation of visual narratives

Michael J. Baker<sup>a,\*</sup>, Gwen Pallarès<sup>b</sup>, Tali Cedar<sup>c</sup>, Noa Brandel<sup>c</sup>, Lucas Bietti<sup>d</sup>,  
Baruch Schwarz<sup>c</sup>, Françoise Détienne<sup>a</sup>

<sup>a</sup> Centre National de la Recherche Scientifique, Télécom Paris, France

<sup>b</sup> Université de Reims, France

<sup>c</sup> The Hebrew University of Jerusalem, Department of Education, Israel

<sup>d</sup> Norwegian University of Science and Technology, Trondheim, Norway

### ARTICLE INFO

#### Keywords:

Moral thinking  
European values  
Narrative  
Images  
Interpretation  
Collaboration

### ABSTRACT

Fostering moral thinking and cultural literacy are major contemporary concerns in Europe and beyond, as means for young people to co-create social futures. We present a theoretical-methodological approach to understanding students' moral thinking in the context of collaborative interpretation of visual narratives ("wordless texts") with ethical implications. Six layers of interpretation are defined, from referential reconstruction of characters' intentions, through semiotic symbolism, to making the moral of the story explicit in terms of conceptualisations of three key European values (empathy, inclusion and tolerance). Within a case-study approach to analysing computer-mediated dialogues, we show the extent to which students are led to discuss and understand ethical implications of a particular narrative, and how this relates to the quality of collaboration.

### 1. Introduction

Fostering students' moral thinking and cultural literacy has become a growing international concern, both in instructional programs worldwide (Kairè et al., 2021; Rapp & Freitag, 2015) and in educational research in general (Vadeboncoeur et al., 2021). As noted by these latter authors, teaching, schooling, and educating have profound moral weight given the possibility for students to co-create social futures through dialogue and reflection about moral values.

In developmental and educational psychology, moral thinking has mostly been studied by observing children playing games and subsequently interviewing them (Piaget, 1932/1965), or else by analysing responses to well-known moral dilemmas (Kohlberg, 1984). Students' moral thinking is thereby situated with respect to predefined stages of development, often with reference to philosophical theories of ethics, such as utilitarianism or deontics. A third possibility — the one that is adopted here — is to study how young people understand the moral issues raised by tales, stories, narratives.

This renews with the old educational tradition of fairy tales (for example, those collected by the Grimm brothers and by Charles Perrault) that lead children to grapple with moral choices as well as their deepest fears (Bettelheim, 1976). Rousseau (1762/1966) did,

\* Corresponding author at: Télécom Paris, Département SES, 19 place Marguerite Perey, 91123 Palaiseau Cedex, France.

E-mail addresses: [michael.baker@telecom-paris.fr](mailto:michael.baker@telecom-paris.fr) (M.J. Baker), [gwen.pallares@univ-reims.fr](mailto:gwen.pallares@univ-reims.fr) (G. Pallarès), [talli.cedar@mail.huji.ac.il](mailto:talli.cedar@mail.huji.ac.il) (T. Cedar), [noa.brandel@mail.huji.ac.il](mailto:noa.brandel@mail.huji.ac.il) (N. Brandel), [lucas.bietti@ntnu.no](mailto:lucas.bietti@ntnu.no) (L. Bietti), [baruch.bschwarz@mail.huji.ac.il](mailto:baruch.bschwarz@mail.huji.ac.il) (B. Schwarz), [francoise.dettienne@telecom-paris.fr](mailto:francoise.dettienne@telecom-paris.fr) (F. Détienne).

<https://doi.org/10.1016/j.lcsi.2023.100700>

Received 24 April 2022; Received in revised form 2 December 2022; Accepted 6 February 2023

Available online 10 February 2023

2210-6561/© 2023 Elsevier Ltd. All rights reserved.

however, warn that tales had to be very carefully chosen for educational purposes, so that children could understand them and not derive inappropriate conclusions or “morals”. For example, Perrault’s tale known as “Puss in Boots” in English (*Le maître chat ou le chat botté*) is provided with two explicit “morals” (*moralités*), that can be summarised as: (1) hard work and know-how can be worth more than inherited wealth, and (2) good clothes, a fine face and youth can be useful in life (for example, in winning the heart of a princess). Such a tale, involving a wily cat, represents an ancient cultural archetype across Europe and the Mediterranean basin, and can thus provide a common reference. The “moral of the tale” does not, however, necessarily involve ethical choice (c.f. Puss in Boots); but it often does, such as in the case of the tale Red Riding Hood, who is warned by her mother not to stray from the right path.

The research described here aims to study secondary school students’ group interpretations of narratives in the form of “wordless texts” (i.e. sequences of pictures in books, or else moving images in videos, without text or speech, organised as narratives) that raise ethical issues. The students’ task — from the point of view of the teachers and education researchers — is to reconstruct the narrative from the sequence of images, and to discuss the ethical issues that arise. This research was carried out within the framework of the EU-funded H2020 DIALLS<sup>1</sup> project (2018–2021), whose overall aim was to promote cultural literacy and understanding of the key European values of empathy, inclusion and tolerance, by engaging students in dialogues on the basis of wordless texts. Such image-based narratives are particularly suited to cross-cultural education and research, given that they are not expressed in a specific natural language and leave open a broad potential space of interpretation and dialogue. Within the DIALLS project, pedagogical scenarios were developed for three types of educational situations: teacher-led face-to-face classroom interactions in each participating country, computer-mediated dialogues within each country across different schools, and computer-mediated dialogues between participating countries.<sup>2</sup> In this paper, we analyse a corpus of dialogues collected in the second type of situation, computer-mediated dialogues, between schools in a given country, in this case Israel.

Our aim here is therefore to understand how students collaborate in interpreting narrative sequences of images, in relation to the moral issues that arise from the narratives. The main questions driving this research are thus: what are the processes by which students co-construct interpretations of narrative sequences of images, and how — to what extent — do issues relating to values arise within such interpretative processes? Within a case-study approach involving detailed qualitative analysis of students’ dialogues, we define an analysis method comprising six *layers of interpretation*, beginning from the links between images, intentions states of characters and graphical symbolism, moving towards the discussion of moral issues raised by the narrative. We analyse how students collaborate in transitions between these layers of interpretation. Our main conclusions are that effective collaboration can favour rich narrative interpretations involving moral issues, and that engaging in explicit and extended discussion of moral concepts requires teacher guidance.

In what follows, we first summarise the directly relevant research background on interpretation of texts with moral implications in education, and processes of collaboration in learning situations. We then describe the empirical study, the methodological approach and results of qualitative analyses of four case-study computer-mediated dialogues, the original data of which is reproduced in [Appendix B](#). In the discussion and conclusion sections, we discuss implications of this research for educating students with respect to European values, together with possible roles for teachers.

## 2. Research background

[Rouvière \(2018\)](#) carried out research on the nature of reading of literary texts in educational settings, focusing on the notion of the reader’s engagement in the story, that is seen as having an essentially ethical nature. Students’ reflections on the values embedded in the text can lead to a form of ethical reflexivity about their own values. More generally, “axiological reading” (concerned with judgements) has three main components: the ethical, the empathetic and the (pre-)philosophical.

Regarding the ethical and empathetic component of axiological reading, through the notion of “fictional empathy” ([Larrivé, 2015](#)), [Rouvière \(2018\)](#) describes how students discover otherness (*altérité*) through the process of reading, thereby going beyond an illusion of self-sufficiency concerning values. In other words, the act of reading is a first step towards envisioning dialogue on values, since the text already acts as an ‘other’ with its own values, against which students can confront their own. The text has indeed its own ‘intentions’, which are accessible through interpretation and deliberation between readers (for example about what they would have done in a character’s place - [Larrivé, 2015](#)). This empathetic component implies the (pre-)philosophical component of axiological reading: the activity of reading is (pre-)philosophical when readers discuss their personal interpretations and raise issues about the text. The activity of reading can become fully philosophical when students, guided by their teachers, conceptualise the ethical notions embodied in the text. Such conceptualisation is considered as philosophical once students explicitly name the main abstract values at stake in the narrative, the general reasons for characters’ actions and try to discuss these issues in a more general manner.

Although Rouvière’s research is specifically focused on literary written texts, it can be extended within a broader approach to literacy which encompasses all types of texts. Thus, scholars such as [Hassett \(2010\)](#) point out that the activity of reading can be seen as interpretation and meaning-making of multiple sign systems, going beyond written texts to include other visual signs. In this regard, we focus here on wordless texts, such as picture-books or silent short films. The value of such wordless texts as means for fostering students’ collaborative meaning-making has been shown in earlier work. For example, [Maine’s \(2013, 2015, 2020\)](#); see also the collection of articles in [Maine & Vrikkki, 2021](#)) work regarding the use of wordless texts in classrooms has shown that the interaction of

<sup>1</sup> Dialogue and Argumentation for Cultural Literacy Learning in Schools: <https://dialls2020.eu/>.

<sup>2</sup> The DIALLS project was not able to study inter-country dialogues, due to the covid-19 epidemic that, whilst on the one hand increased the general use of videoconferencing over time, created additional organizational difficulties during the duration of the project.

students around interpretations of wordless texts can be a fruitful way for enabling them to co-construct meanings, as in the case of literary written texts. Dialogues about the interpretation of a wordless text indeed allow a diversity of ideas or points of view to be expressed about the text, as the activity of putting the wordless text into words already constitutes an interpretation which can be collaboratively discussed by students.

Despite the important role that dialogue can play in moral education, whilst some authors have considered moral development within the parent-child interaction (Grusec & Goodnow, 1994; Kochanska & Aksan, 1995), little research has focused on the analysis of the processes of moral thinking within peer interactions involving the co-construction of ethical notions. A noteworthy exception is the research of Damon and Killen (1982), who studied patterns in student's discourse within small group interactions with respect to a distributive justice problem. They noted that higher levels of progress in moral thinking (evaluated through pre-/post-tests) were associated with collaboration between students. However, the research made by Damon and Killen did not study moral thinking embedded in the discourse, since moral thinking and the quality of collaboration (in dialogue) were evaluated separately.

In education research, shared meaning-making processes in dialogue have been studied in the area of collaborative learning research (Dillenbourg, 1999). There is now broad consensus that collaboration itself can be seen as a continued and mostly synchronous joint effort towards shared meanings of the problem to be solved (Baker, 2015; Baker et al., 1999; Dillenbourg, 1999; Roschelle & Teasley, 1995). Collaborative dialogue also involves many other processes, such as argumentation (Schwarz & Baker, 2017), regulation of emotions (Baker et al., 2013), interaction management (e.g. interruption, inviting or ceding a turn) and functional-hierarchical relations, such as question-answer pairs with embedded exchanges (Moeschler, 1985). However, the core of collaborative problem solving — our focus here, where the 'problem to be solved' is to interpret a wordless text having ethical import — is to be found in the processes by which students co-elaborate problem solutions in dialogue. These processes can be analysed in the form of (inter-)discursive relations between segments of discourse (Baker, 1995; Grize, 1982; Mann & Thompson, 1988). Thus, a dialogue sequence will be said to be collaborative to the extent that participants build on the discourse of others (producing "inter-discursive" relations between discourse segments) rather than elaborating their own discourse in the presence of others (producing "auto-discursive" relations). In the analyses presented below (Figs. 3, 4, 5 and 6), collaboration across layers of interpretation is performed using this basic distinction between inter- and auto-discursive relations.

To summarise, what it means for students to become (more or less) deeply engaged in reading and understanding narrative or literary texts is intimately bound up with their making ethical judgements (the axiological dimension) concerning characters, actions and events, 'putting themselves in their shoes' and reflecting on what they would and should do in their place. Especially with guidance from teachers, such processes may culminate in explicit evocation and philosophical or definitional discussion on the meaning of ethical notions embodied in texts. The interpretation of wordless texts with ethical implications involves particularly complex processes of interpretation, since the narrative itself must also be reconstructed textually, interwoven with meaning-making of ethical notions.

### 3. Method

#### 3.1. Educational situation, learners' task and corpus

The educational situation studied here was organised during a 3-day seminar held at the Hebrew University of Jerusalem, Givat Ram campus, during February 2020. It involved students from two secondary schools in Israel, in Year 9–10 (pupils 13 to 15 years old), from the towns of Alpha and Beta,<sup>3</sup> as well as teachers from these schools. During the study, teachers remained in the background, the sessions being organised and moderated by researchers. From the Alpha school, 38 students participated, who were all from the same "homeroom" class, together with 12 students from an in-school leadership group (Havruta). From the Beta school, 40 students participated, who were chosen by teachers from several classes in view of their participation in the students' council. According to the Israelian Central Bureau of Statistics, in 2017 town Alpha had a socio-economic status of 9 (in the range 1–10, 10 being the highest) and town Beta a status of 7. Therefore, it is likely that all students originated from families with high socio-economic statuses. We mention in passing that an interesting and important question for further research would be to investigate how moral thinking, in the contexts described here, relates to cultural and ethnic diversity of the students' origins.

Altogether, the 90 student participants were assigned to 16 groups, each of which mixed students from the two schools Alpha and Beta. Each group had either 6 members (3 students from each school), or else, in some cases 5 members (2 or 3 students from each school). Students communicated with each other concerning the task that they were set, exclusively using the DIALLS online platform (for precise details, see Bietti et al., 2021). The DIALLS platform is a threaded forum tool (indented hierarchically with replies to replies), combined with a tool for annotating image files, uploaded by the teacher. The image files in the pedagogical situation considered here correspond to pages from the wordless text under study. Once students click on a particular part of the image (for example, on the hat of a transparent man), this is marked by a uniquely coloured and numbered small circle, and a new corresponding discussion thread is automatically created to which the student is invited to give a name (for example "Transparent man's hat"). In this way, the students' forum discussion can be closely anchored in the image that they are analysing. The students do also, however, have the possibility of creating new (named) discussion threads that are not directly anchored in image annotations, which is important for discussing more conceptual issues pertaining to the narrative as a whole.

<sup>3</sup> In line with the new EU GDPR data protection rules, governing projects that it funds, it is not allowable to publish the names of the towns. Similarly, obtaining and publishing information on ethnic origins of the students is also precluded.





Fig. 1. Vacio ("Empty") book, C. Sobral, 2014: cover, and pages 7, 11, 23, 31, 34 (moving from left to right on each row).

The student participants were asked to discuss the wordless picture-book “Empty” (*Vacio*), by Catarina Sobral (2014), an author/illustrator. The book explores the themes of loneliness, isolation, and the need for love and compassion, through the tale of an “empty” and “transparent” man. This character travels around the town seeking fulfilment from different things (work, food, art, nature), none of which make him happy. One day he encounters someone else who is as empty as he is, and a connection of love is formed between them. Students were asked to choose the two pictures that best represent the book and explain their choice. Asking students to discuss this specific picture-book aims at opening up the issues of loneliness and the need for empathy and compassion. By empathising with the loneliness of the main protagonist, with regards to the story of the wordless text, students are led to discuss empathy itself, as it is depicted in the book as the solution to the protagonist’s “emptiness”. Fig. 1 below presents sample images from the picture book, in order to show its style of illustration.

After a short introduction to the task given by the teachers, students each studied the wordless text book *Vacio* individually. All students then discussed together in groups of five/six, as described above, with students working individually on their own computers, typing their individual messages on the platform, that were then visible only to the other students in their group. No discussion of responses, interpretations or other remarks took place outside the online platform. All typewritten discussions were automatically recorded on the DIALLS online platform (see Appendix B for examples). In total, we collected 16 online discussions, in typewritten Hebrew using the DIALLS platform. All of the discussions were translated from Hebrew to English by the third and fourth authors of this article.

We carried out a preliminary analysis in order to exclude from the corpus to be analysed interactions with less than 50 % on-task contributions, and interactions with less than 10 on-task contributions, from the corpus to be analysed. A message was considered off-task if it did not address the wordless text, the management of the students’ task or interaction in general (e.g. general chitchat between students using the platform). This preliminary selection removed half of the initial sample of online discussions. We return to pedagogical implications of the lack of task engagement of some students within half of the dialogues, in the Discussion section below. Note that this does not mean that half of the student participants had low task engagement, rather that this was shown by at least some students in half of the interactions, thereby producing less than 50 % on-task contributions overall. For example, in some interactions, three out of the five participants showed no task engagement, only expressing off-task chit-chat. From this sample of 8 online discussions, we retained four that had the highest proportion of on-task messages and the most elaborate collaborative interpretation processes, for fine-grained qualitative analysis. The results described below bear on the quantitative-qualitative analysis of these four dialogues (D1, D2, D3 and D4), within a case-study approach, designed to illustrate our theoretical-methodological framework for analysing moral thinking within collaborative interpretation of narratives.

### 3.2. Analysis method

We consider moral thinking in the case where it is embedded in the interpretation of a narrative sequence of images, in relation to the semiotic materiality of the narrative, the student-readers and the broader socio-cultural context of society (Greimas, 1973). According to the orientation of the interpretative processes towards these three ‘poles’ — narrative, reader, society, we distinguish six layers of interpretation. We use the term *layer* (of interpretation) in order to avoid the exclusively linear and normative associations of the term *level*. The layers that we distinguish (see Fig. 2 below) have both descriptive and normative dimensions. The descriptive dimension refers to the students’ actual interpretative activities as they unfold in time (see the analyses below, in Figs. 3 to 6). Thus, we make no assumption that students will begin at layer 1 and move ‘upwards’ towards layer 6. As will be presented later in the paper,

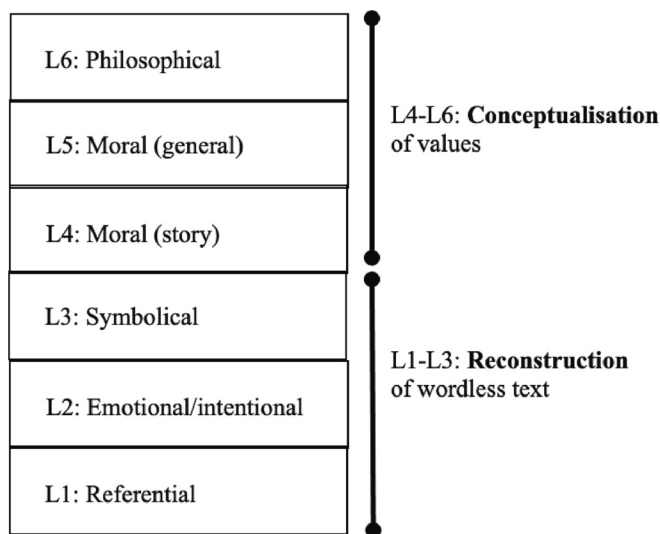


Fig. 2. Layers of interpretation.

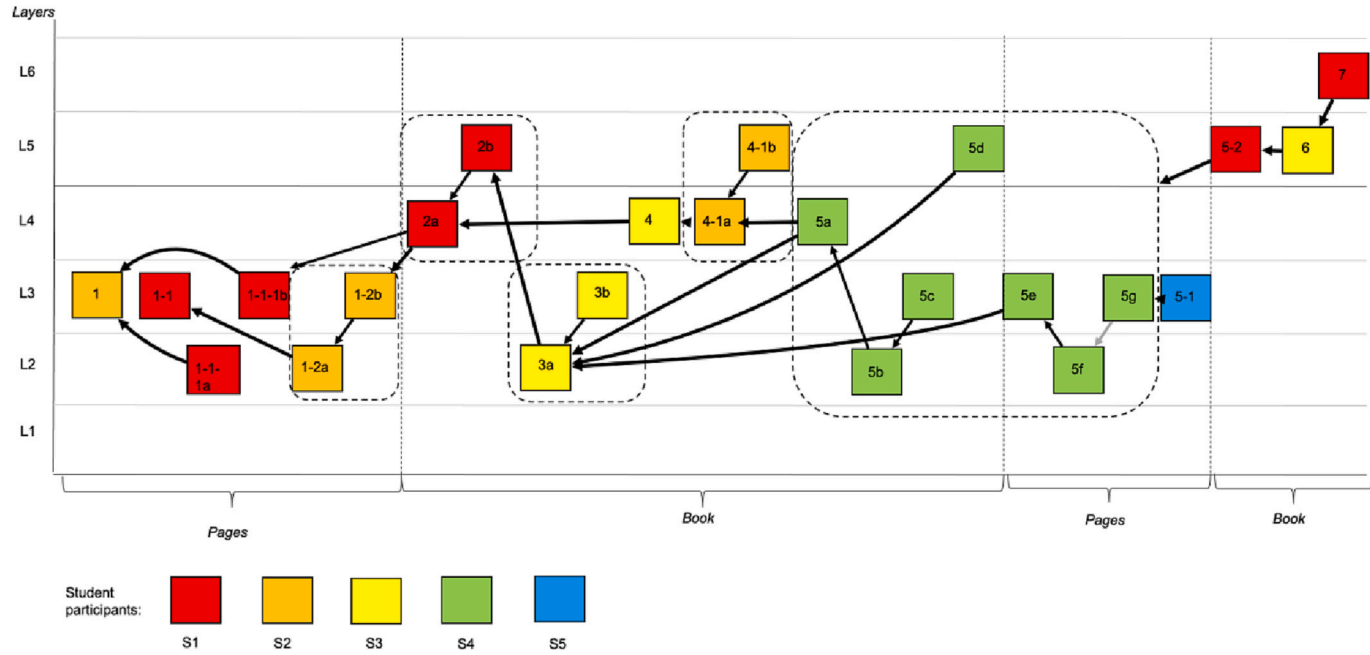


Fig. 3. Analysis of collaboration across layers of interpretation (Dialogue D1).

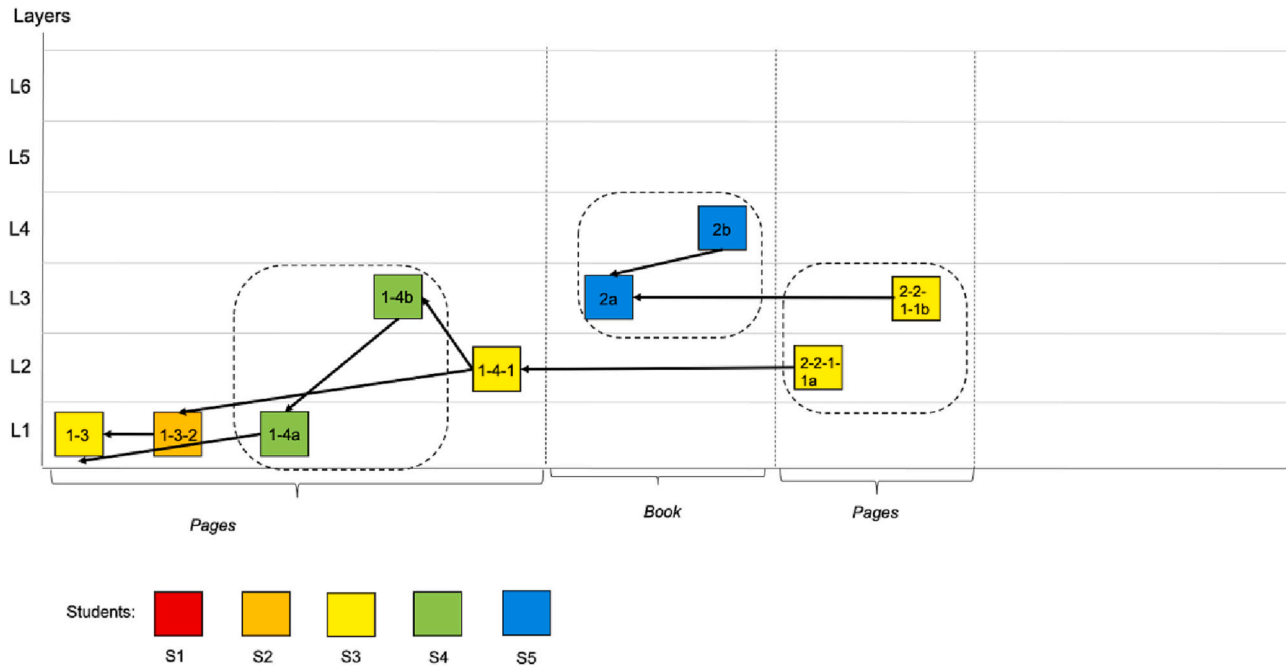


Fig. 4. Analysis of collaboration across layers of interpretation (Dialogue D2).



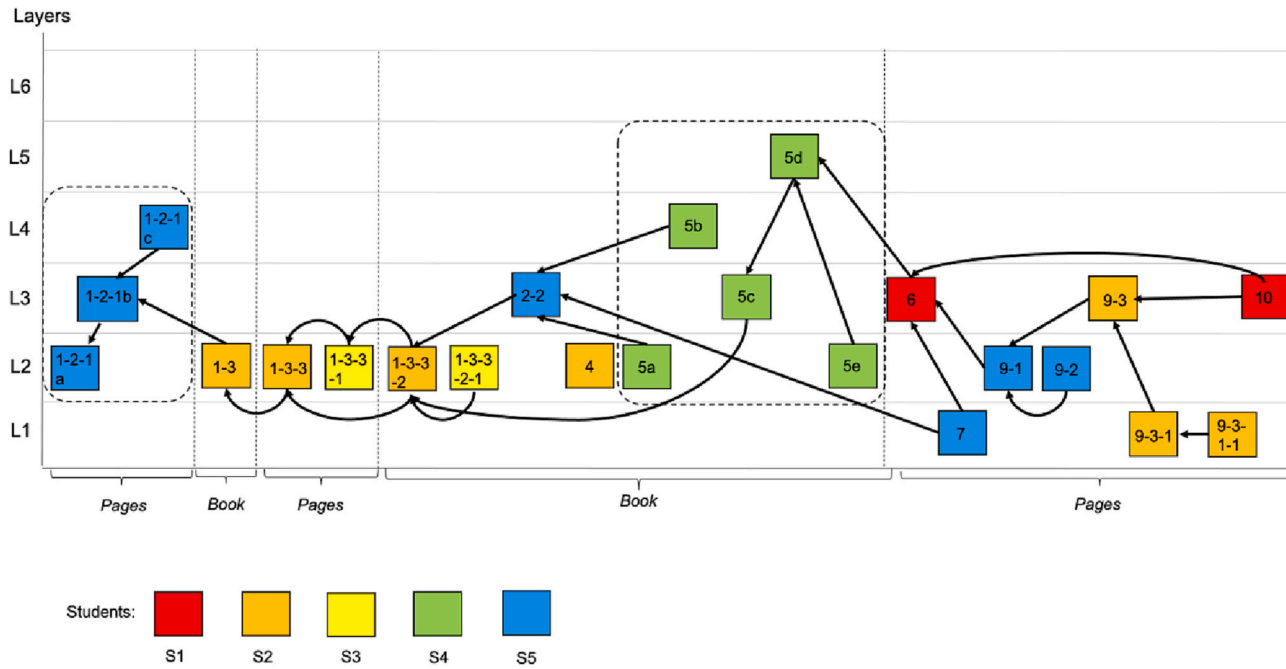


Fig. 5. Analysis of collaboration across layers of interpretation (Dialogue D3).

students may begin from a global understanding of the narrative, and some of its symbolic features (such as the use of black or white, or transparency) and immediately access the moral of the story, the ethical issues at stake, with their implications for their own and others' lives in society. Or else they may begin by reconstructing the narrative, actions, events and intentions of characters, ask themselves what the story means for themselves and, perhaps, then bring out and discuss a more general ethical concept, such as tolerance. The normative dimension of the layers refers to the pedagogical goals of the situation, from the points of view of the teachers and researchers involved, which are precisely that the students attain the conceptual layers (4 to 6) of interpretation, on the basis of a reconstruction of the narrative, closer to the semiotic materiality of the wordless text. As descriptive and normative dimensions interact, it is unlikely that students attain the prescribed pedagogical goals in a linear manner, as it were, moving up the layers from 1 to 6.

Fig. 2 shows the layers of interpretation that we have defined on the basis of the theoretical literature (e.g. Rouvière, 2018) and our own previous work on analysing ethical concepts in students' face-to-face classroom dialogues (Cedar et al., 2021).

The layers of interpretation can be divided into two main groups. The first group of layers, L1, L2 and L3, is more or less anchored in the *reconstruction of the narrative* from the sequence of images: the objects and events (L1), characters' intentions and emotions (L2) and the symbolic materiality of the images (L3). The second group includes layers L4, L5 and L6, and the shift towards *conceptualisation of ethical issues* arising from the narrative, identifying the 'moral of the story', a more general principle and discussion of the meaning of that moral/principle.

Definitions of these layers of interpretation in relation to moral issues are provided in Table 1. Further elaborations of these definitions appear in Appendix A.

Finally, two additional points need to be made. Firstly, there are clearly relations of interdependency between certain layers: for example, students' interpretations concerning feelings of characters (layer 2) may relate to their interpretations of symbolism in the pictures, such as colour (layer 3), even though this may not be made explicit by the students (cf. Maine, 2015). Secondly, we also analyse the focus of students' interpretations, either on specific pages of the book or else on the book as a whole, the latter being often associated with increasing generalization of the discussion of value concepts, moving 'up' the layers (see results below).

As mentioned above, we analyse how the students collaborate in interpreting narrative sequences of images, in terms of (inter-)discursive relations between segments of discourse. A segment is a semantically distinct discourse unit; thus, a message may comprise one or more such units. Criteria used for determining which other discursive units a given unit relates to (i.e. elaborates) are as follows;

- occurrence of linguistic connectors such as "also", "therefore", "and" and "because", between discourse segments;
- a preference for relations immediately preceding contributions within the same exchange/thread;
- literal uptake of parts of previous contributions;
- logical and semantic relations between discourse segments (e.g. that reformulate similar semantic contents).

Analyses were carried out collaboratively, between the authors of this paper, whereby two authors collaboratively analysed a given dialogue, and then discussed their analysis with the other members of the group, resolving any differences. This was carried out in relation to category definitions (see Table 1), that occasionally needed to be refined in order to best fit the data, in some cases. Analysts had previously reached agreement on segmentation of (some but not all) messages into distinct propositions, between which it was possible to analyse the discursive relation.

## 4. Results

We present results of analyses of collaboration across layers of interpretation for the four dialogues chosen for detailed analysis, D1, D2, D3 and D4. These dialogues are reproduced in Appendix B. We firstly present quantitative results (numbers of analysis categories) for the four dialogues, then qualitative analyses showing collaborative processes of interpretation.

### 4.1. Quantitative analyses

Table 2 presents the numbers of times the students' dialogues attained the different layers of interpretation. The second column, "referents", corresponds to the number of times specific pages of the book, or else the whole book, were referred to in the dialogues. From Table 2 it can be seen that the incidence of different layers of moral thinking greatly varied among discussions, as did the number of references to the wordless text (from 3 to 9).

Table 2 shows that layers L2 (Emotional/intentional) and L3 (Symbolical) predominated across the four dialogues. Conceptualisation of values being present from layer L4 (Moral of the story) onwards, all four dialogues involved at least one conceptual layer, with dialogue D1 being the only case where L6 (Philosophical) was present.

Turning to collaborative processes, Table 3 shows the numbers of discursive operations (i.e. cognitive-linguistic processes that create discursive relations) performed in each of the four dialogues, divided into auto-discursive (elaborating own contribution) and inter-discursive (elaborating on the basis of other interlocutors' contributions).

In all of dialogues D1 to D4, inter-discursive operations predominate. Dialogue D4 stands out from the other three in terms of the high percentage of inter-discursive relations it comprised.

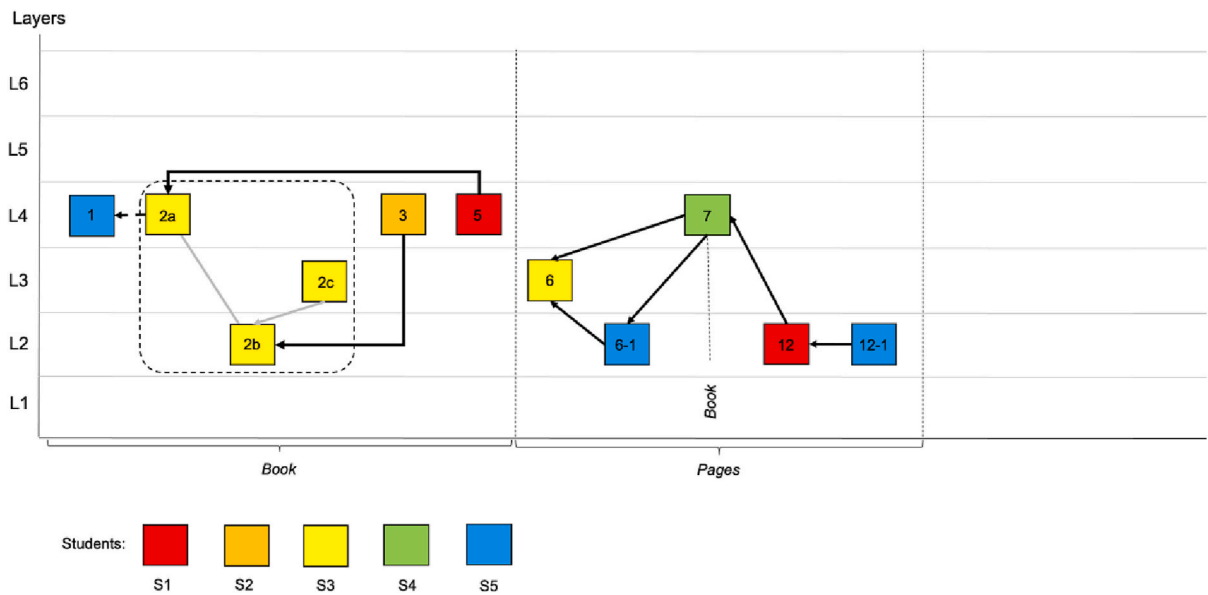


Fig. 6. Analysis of collaboration across layers of interpretation (Dialogue D4).

Table 1

Layers of interpretation of wordless texts.

Layer	Definition	Examples from the corpus
L1: Referential	Students describe the objects (entities, characters) and/or events (actions, movements) depicted in the wordless text.	“there’s also a picture in the book of two white people there’s this picture where the two transparent people move away from each other and eventually, even when they find someone like them, their destinations were different and they moved away from each other”
L2: Emotional/Intentional	Students explain what is depicted in the wordless text, regarding the characters’ feelings, thoughts and motivations	“I think it’s the result of the loneliness and pain were so deep that even two people in the same state didn’t connect with each other and turned to each other”
L3: Symbolical	Students discuss the symbolism used in the book (colours, shapes, abstract meaning of what is depicted) and the message it conveys	“I think that when he was white too, he was covered with snow, it symbolizes transparency, loneliness and more.”
L4: Moral (story)	Students try to express the general message of the book without considering concrete actions regarding this message	“the book tries to make us understand the complexity in loneliness and understand the effect of loneliness on the other”
L5: Moral (general)	Students consider explicitly that the book raises issues relevant to their lives, society and/or the world they live in, and/or that it should be inspirational for people	“I agree with you and I would like to add, that this book also pertains to our life as there are people in the world who are very lonely and depressed, and we must assist them and be their friends and not hurt them anymore directly by not helping them.”
L6: Philosophical	Students explicitly use the concept-word of the abstract values and try to define the concept and/or what actions are related to it	“the book means to say that we as a society should be caring and empathetic to those who are alone and understand what they are going through and stop their loneliness.”

Table 2

Layers of interpretation and moral thinking in the corpus (4 dialogues).

Dialogue	N references to text	L1	L2	L3	L4	L5	L6
D1	3	0	5	8	4	5	1
D2	4	3	2	3	1	0	0
D3	9	3	10	6	2	1	0
D4	4	0	3	2	5	0	0
Total	16	6	20	19	12	6	1

Note. L = layer; D = discussion; L1 = Referential; L2 = Emotional/Intentional; L3 = Symbolical; L4 = Moral (story); L5 = Moral (general); L6 = Philosophical.

#### 4.2. Qualitative analyses

For the four dialogues studied here, we present analyses in the form of diagrams (Figs. 3, 4, 5 and 6, below) that represent and relate five dimensions of analysis, as follows:

**Table 3**

Auto- and inter-discursive operations in the four dialogues.

Dialogue	Auto-discursive operations	Inter-discursive operations	Total operations	Degree of collaboration (% inter-discursive)
D1	8	14	22	64 %
D2	3	5	8	63 %
D3	9	13	22	59 %
D4	2	8	10	80 %
Total	22	40	62	–

- 1) *Student participants* in each dialogue, who collaborate and produce segments of discourse. In each diagram, they are represented by different coloured squares. Note that since the participants of each dialogue are different, a particular student participant noted as, for example, S1 in one dialogue does not correspond to the S1 of another dialogue.
- 2) *Discursive segments* are represented by numbers of messages, followed by, in certain cases, their segmentation into parts (e.g. message number 5, divided into 5a, 5b, 5c, etc.). For increased readability, discursive segments of a given message are grouped together using round-edged dotted line boxes. The segmented dialogues are reproduced in [Appendix B](#).
- 3) *Discursive relations*, between discourse segments are represented by arrows, pointing backwards in time (a present discourse relates to a previous discourse). Arrows between the same participant's segments (same-coloured squares) represent auto-discursive operations, and arrows between different participants' discourse segments (differently coloured squares) represent inter-discursive operations.
- 4) References made by the students in their dialogues to either specific pages or else to the book as a whole are shown on the horizontal axis.
- 5) The vertical axis represents the different layers of interpretation, as defined in [Table 1](#).

Overall, the diagrammatic analyses are designed to bring out the distribution of collaborative activity across the different layers of interpretation.

Since dialogue D1 is the most elaborated and is the only case where layer 6 of interpretation is attained, we discuss it in more detail than the other three dialogues.

#### 4.2.1. Dialogue D1

[Fig. 3](#) presents a graphical analysis of dialogue D1, using the conventions described above.

In this dialogue, the students alternate between referring to the book as a whole and selecting specific pages of the wordless text as particularly important for representing its 'main message'. The five students interact in an asymmetrical way, S4 (green) producing a single yet complex contribution, and S5 (blue) a single short contribution. Otherwise, the collaboration mostly concerns a subset of participants, S1 (red), S2 (orange) and S3 (yellow). The dialogue can be divided into four main sections, corresponding to the alternations between discussing specific pages of the book and discussing the book in general.

The first section (thread 1, segments 1 to 1-2b) involves students S1 and S2 discussing specific pages of the book, alternating and making links between the symbolic layer (L3) and the emotional/intentional layer (L2). Thus, for S2, the picture where the invisible man and woman are suddenly in colour symbolises that they are no longer lonely (L3). S1 establishes the link with emotions: the lonely man meets someone who feels just like him, the white snow symbolises loneliness (L2). Clearly, the students are focused here on what the images, in the narrative, symbolise in terms of the protagonists' feelings.

The second section (segments 2a to 5d) involves discussion of the book as a whole, within a collaborative shift from layers 2 and 3, up to layers 4 and 5 concerning the moral of the story and the beginnings of conceptualisation of values. S1 (red; 2a and 2b) begins by saying what the book is "about", i.e. the moral of the story (L4 and L5): "In my opinion, the book is about how others aren't supposed to behave towards those who are lonely," (L4, moral of the story), "and about how lonely people feel throughout their lives." (L5: general moral). S3 (yellow) then returns to layers 2 and 3, concerning how the transparent man cannot be seen by society, and feels lonely and empty, moving back up to layer 4 (the book is about the complexity of loneliness and its effect on others). S2 (orange) builds on this idea, saying that the book is also about willingness to help others break through a situation of loneliness (L4, L5). This section ends with student S4 (green) producing a complex message that links together layers 2 to 5, culminating (5d) in the statement "In my opinion, the book is a kind of a message according to which, there are lots of lonely people in the world, and together with people who feel 'full' it gives you a sort of a choice, of what you prefer being, transparent or full of life" (layer 5).

In the third section, students 4 (green) and 5 (blue) return to instantiate their previous statements about the book in general, in specific pages of it (S4):

"the two parts I chose are the parts where he becomes really transparent and empty until he already disappears into the snow which symbolizes the deep and heavy feeling of emptiness, and the part where he finds another transparent and lonely person, where in this part you can already see that something is missing in their heart, waiting for something to complete it".

The last section of the dialogue returns to the book in general, where S1 (red) and S3 (yellow) return to the discussion. S1 states the general moral (L5) that the book pertains to "our life", "we must assist lonely people", to which S3 adds, "especially in this generation". The dialogue closes with the single instance of L6 in the whole corpus, produced by S1: "the book wants to say that we as a society should be caring and empathetic to those who are alone and understand what they are going through and stop their loneliness."

In this analysis of D1, we have seen how students build on each other's contributions, to construct relations between layers of interpretation in a bottom-up and top-down manner, moving from the symbolism and emotions of specific pages to the book in general, with its more or less general moral for society and the students' lives.

#### 4.2.2. Dialogue D2

Fig. 4 shows a graphical analysis of collaborative interpretation of the wordless text for dialogue D2.

D2 is mostly focused on selecting specific pages of the wordless text. In the first section, reasons for choosing particular pictures do not seem to be oriented towards understanding what the book is about:

S3/1-3 “we can take the sofa and snow picture or with the bird” [L1: literal]

S2/1-3-2 “the sofa and the snow is gorgeous”

S4/1-4a “we can take the one with the snow cause you can't see him cause they're both white”.

S4 (green) and S3 (yellow) then introduce symbolical and emotional/intentional interpretations: “it represents that he's not seen”, and “the people don't care about him because like he's meaningless”.

In the second section, student S5 (blue) attempts to say what the book is about — “transparency, the woman is a transparent woman and nobody notices her”, moving towards a moral of the story, whereby “in real life, there're lots of people and kids who feel like that, that nobody notices them”. In the last section of the dialogue, S3 (yellow) returns to the specific picture with the sofa, and the idea that “people don't show any caring towards him”.

This dialogue is short principally because the students remain on the problem of choosing and discussing specific pages and pictures. The statement by S5 in 2-1-1-1, “I know how to BS good when I need to” is an indication of the relatively low degree of engagement of the students in the meaning-making process.

#### 4.2.3. Dialogue D3

Fig. 5 shows a graphical analysis of collaborative interpretation of the wordless text for dialogue D3.

Whilst dialogue D3 comprises extensive task-focused contributions, the concrete moral of the story (L4) is only mentioned twice and the general moral (L5) is only mentioned once. In fact, this dialogue shows several signs of collaboration of low quality. Firstly, whilst the minimal requirement for collaboration is a shared task focus (Baker, 2015), for example on deepening interpretation of a particular page of the book, this dialogue spreads discussion across nine different referents (as shown in Table 2). In fact, student S5 (blue; in 1-2-1c) says that the book is about “many extensive topics” and that it is “too hard to only do 2” (i.e. to follow the task instructions). Secondly, in some parts of the dialogue focused on managing the task (see Appendix B) there are explicit indications from the students concerning a lack of shared task and understanding, for example:

2/S1: explain to me what happened in the book I didn't understand anything  
111!!

2-1/S4: if you listened you'd understand S1!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Similarly, towards the end of the dialogue, the students seem unclear about what they should be trying to do:

7-1/S2: shouldn't we choose a question

7-2/S3: but it's not only you choosing everyone chooses together.

7-3/S2: ohhh we're also supposed to choose a picture...

8/S1: fine what're we choosing...!?????????????????

8-1/S5: now ayayayaya

9/S5: I'm expecting a long explanation you did see what we wrote!1

9-1/S5: in the task we're supposed to choose two... which one do you think illustrates his loneliness?

It also appears that moving up to higher layers of interpretation is a largely individual enterprise. Thus, at the beginning, student S5 (blue) moves in a single message from the emotional/intentional (“they're both in the street and lonely”), to the symbolical (“the last picture illustrates that they're alone”) to the moral of the story, L4 (“this book deals with many extensive topics”), stated, however, in an insufficiently concrete way. Similarly, student S4 (green), in message 5, as part of a discussion of the book in general, begins with the moral of the story, described as its “theme” (emptiness and loneliness), to a general moral (“people have social urges from the go and so if you have no friends or interest in anything you're just transparent”). It is no longer elaborated by another participant. S1 (red; message 6) and S5 (blue; messages 7 and 9.1), whilst sharing the same sub-task (choosing pictures), do not elaborate on S4's contribution.

#### 4.2.4. Dialogue D4

Fig. 6 shows a graphical analysis of collaborative interpretation of the wordless text for dialogue D4.

This dialogue is unusual in that it begins with a discussion of the book in general, which is then followed by a discussion of specific pages. This illustrates the top-down/bottom-up nature of interpretation of the wordless text, that can in fact begin from a global understanding of the narrative.

At the outset, two competing ‘morals’ of the story are expressed, first by S5 (blue) then by S3 (yellow):

1/S5: I think the book is about our desire to change not willingly but from an urge to be like everyone else

2/S3: I think the book is about loneliness.

Each of these morals is in fact taken up and elaborated on by other students. The first, “S5/urge to be like everyone else”, is taken up by S1 (red) in message 5, who conjoins it, in an elaborated generalized form (being like everyone else → satisfying society) with the other “loneliness” moral:

5/S1: I think the book is about loneliness and changing your external and internal appearance wishing to satisfy our society.

The second “loneliness” moral is taken up later in the dialogue, in the phase where the students try to find specific pictures that correspond to the morals or themes of the book that they have initially identified:

7/S4: the book is about the loneliness people feel the important pictures on my opinion are the picture where he can’t see his bones in the x-ray and the picture where he meets the woman taken over by loneliness.

Despite the attempt to reconcile the two ideas of loneliness and social conformity in message 5, the students never formulate a deeper, integrated and shared moral of the story. The dialogue ends without achieving agreement on the two most important pictures in the book, that best illustrate its main message.

## 5. Discussion

The aim of the research presented in this paper is to describe an approach to analysing students’ collaborative processes of meaning-making for moral issues, on the basis of their study of wordless narratives. For this, we were able to select from the corpus of the students’ dialogues four examples where these processes were sufficiently frequent and elaborated to form a basis for development of the method. Nevertheless, the overall validity of the pedagogical situation under study requires discussion, given that (as stated in [Section 3.1](#) above) within half of the online discussions collected, on-task messages were lower than 50 %, this being attributable to some but not all students in the inter-school groups.

One possible explanation would be that such tasks are simply not meaningful and motivating for the students who are asked to engage in them. However, there is now significant evidence that students are in fact able and willing to engage in dialogue on moral issues within such tasks ([Maine, 2013, 2015, 2020; Maine & Vrikki, 2021](#)), and that the role of the teacher, in the regular classroom, is highly important in this case. The literature shows that students are able, in these situations, to autonomously co-create meanings for the wordless text, and to at least thereby *approach* understanding and discussion of more abstract concepts. In order to fully engage with such concepts, teachers are needed to provide adaptative guidance, and also more generally to create a general *ethos* in the classroom, where children feel included and learn to be tolerant and empathetic to the ideas of each other ([Maine & McCaughran, 2021](#)). This is confirmed by our analyses presented here, of a restricted corpus of computer-mediated dialogues, where students only rarely reached the philosophical layer of interpretation when working largely autonomously.

We therefore interpret the degree of low engagement in the (teacher/research defined) task that we observed in terms of the extra-curricular, exploratory and experimental nature of the computer-mediated situation under study. As stated in [Section 3.1](#) above, the study took place out of school hours at the university. Although teachers accompanied their students, and were present during the study, they remained as observers in the background, any guidance or management of the sessions being carried out by researchers. In addition, the task and the tools were completely new to the students and teachers, which leads us to conjecture that a higher degree of engagement would be attained once the pedagogical situation has been appropriated by teachers and students on a more long-term basis, including direct teacher guidance. A further relevant aspect of the situation under study is that students interacted at a distance with others from a different school, that they had not already encountered. This could have had several effects, such as problems of mutual understanding and of being particularly uninhibited in the dialogue with respect to avoiding performing the set task (cf. [Ainsworth et al., 2011](#)). Finally, the study also fulfilled the function of a usability test of the DIALLS Internet platform, several features of which were subsequently improved ([Bietti et al., 2021](#)). Thus the researchers’ efforts were divided between two roles – managers of the pedagogical sessions and of use of the online platform.

One of our research questions was: in the corpus that we selected for study, how and to what extent were the students who participated in the four dialogues analysed here able to reconstruct a narrative, make explicit the moral issues involved and discuss their meanings?

We saw a predominance of the emotional/intentional (L2) and symbolical (L3) layers of interpretation. In this sense, the students were able to rise above the image-narrative, to understand the protagonists’ emotions and intentions, and to make a first move towards the meaning of the story and the conceptualisation of values, in their understandings of symbolism (for example, whiteness symbolising loneliness). Nearly all groups reached layer 4, the “moral of the story”, or, to use the students’ own words, the “theme” of the book, what it is “about”. For example, “the book is about”, its “theme is”:

[D1] “how others aren’t supposed to behave towards those who are lonely”; the effects of loneliness on people; “loneliness and emptiness”; the complexity in loneliness and ... the effect of “loneliness on the other”



[D3] “emptiness and loneliness”

[D4] “loneliness”; “the personal internal feeling of the person who feels sad lonely and empty”; “the loneliness people feel”.

The next step, towards the abstraction of a more general moral to the story (L5) was only made in 2 out of the 4 dialogues that we analysed in detail: quite extensively in D1 and only once in D3. This transition is crucial for moral thinking, and merits further discussion. For example, in D1, S1 states what the book is “about” at L4: “the book is about how others aren’t supposed to behave towards those who are lonely”. S1 then makes the transition to L5, making a more general statement about a moral injunction concerning “willingness to help others”. In a second case, student S3 builds on S1s statement at L5, according to which “we must assist them and be their friends”, elaborating this (also at L5) to speak of “our private lives” and “this generation”.

Layer 6, involving a philosophical discussion of the meaning of moral concepts, was only reached in one case, in D1, at the very end of the dialogue (message 7), with respect to the concept of “empathy”, that requires that “we as a society should be caring and empathetic to those who are alone and understand what they are going through and stop their loneliness”. In other terms, the student here is defining empathy as about being caring and understanding what people are going through.

In sum, the students were asked to work autonomously, to choose pictures in the book that best represented what it was about. They were able to do this, building up from the images to understand the protagonists’ intentions and emotions in relation to the symbolism of the images themselves. Although they were not explicitly asked to do this, these initial layers of interpretation can be seen as moving towards discussion of the moral of the story and the ethical issues that it embodied.

A further question concerns how students collaborated in interpreting the wordless text, which we analysed in terms of auto- and inter-discursive relations. From Table 3 we saw that in each of the four dialogues, inter-discursive operations dominated over auto-discursive ones. Where the proportion of inter-discursive operations is seen as an indicator of degree of collaboration, this ranged from 59 to 80 % of the total discursive operations in each dialogue, and the students can be said to have achieved a balance between uptake of others’ contributions and further elaboration of them. However, in the detailed qualitative analysis, we saw that in several cases, collaboration suffered from ‘problems’, of finding a shared focus, uptake of others’ proposals (cf. Barron, 2003) and aligning alternative solutions. For example, D4 does not get above L4; D3 does so only once, and as discussed above, these were the two dialogues showing the most problematic collaboration. In several cases, the task design itself could have prevented more abstract interpretations, since students focused on selecting specific images rather than the book as a whole.

When collaboration did function well, in the absence of such problems, we saw that higher layers of interpretation were reached, by students building on each other’s contributions (inter-discursive relations), as “stepping stones”. For example, in D1, S1 moves to layers 4 and 5, in message 2a/b (“In my opinion, the book is about how others aren’t supposed to behave towards those who are lonely,” “and about how lonely people feel throughout their lives”) by building on S2’s L2/L3 statement (“the picture where the man stands in the white snow and you just don’t see him”, “this image emphasizes how much that person is lonely and invisible”. Similarly, at the end of this dialogue (see above), S1 builds on S4 to attain L5 (“this book also pertains to our life as there are people in the world who are very lonely and depressed, and we must assist them and be their friends and not hurt them anymore directly by not helping them”) and then builds on S3’s statement to attain L6 (“the book wants to say that we as a society should be caring and empathetic to those who are alone and understand what they are going through and stop their loneliness”). These results are congruent with the research of Schwartz (1995), who showed that groups of students working in collaboration produce more abstract solutions than students working alone.

In sum, in the corpus analysed here, collaboration, when it functions without manifest problems, enables the students to progress in the elaboration of more abstract interpretations, moving towards the more general moral issues involved.

Finally, the corpus under analysis involved typewritten computer-mediated communication, given the orientation of the EU project towards discussions between different European (and Israeli) cultures. The Internet-based platform could have exerted several types of influence on dialogue and moral thinking, in a complex way. On one hand, typewritten interaction can be seen as a barrier to free expression; however, some research has shown that this is not necessarily a disadvantage, since verbiage can thereby be eliminated, enabling students to focus more on the task. Secondly, the permanence of typewritten messages (Clark & Brennan, 1991) can provide a support for further reflection (Tiberghien & De Vries, 1997). Nevertheless, the presence of an annotation tool in the environment (marking on the pages of the wordless text on the screen) could have encouraged the focus, mentioned above, on specific pages rather than on the message of the book overall.

## 6. Conclusions

On the bases of our analyses, within a case-study approach, we conclude that asking students to interpret carefully chosen wordless texts can be a vehicle for engaging them in moral thinking, in addition to existing approaches based on the study of games and/or moral dilemmas. We have proposed and illustrated the application of an analysis approach based on six layers of interpretation, involving, in the higher layers, discussion of moral issues, either implicitly or else explicitly. Autonomous group work has its limits, however, in that students are not always able to use the appropriate concept-words (Rouvière, 2018) and usually reach a plateau with respect to philosophical-ethical discussions, without the help of their teachers (Maine, 2020). In that sense, the discussions analysed here can be seen as involving sensibilisation of students towards moral issues, that can be taken up subsequently in teacher-led discussions. Such conceptualisation could then lead to collaborative argumentation (Schwarz & Baker, 2017), within a didactic approach to philosophical discussions at school (Chirouter, 2018; Tozzi, 2007).

We also conclude that collaboration between students, when it functions without manifest problems, can be a process by which students make explicit and discuss the morals of stories involving ethical questions. A further role for the teacher would be to intervene,

in online discussions, in order to obviate such collaboration problems (Asterhan & Schwarz, 2010).

Finally, the work described here requires validation at scale with a much larger corpus. Such a multilingual corpus,<sup>4</sup> involving students interpreting wordless texts, is publicly available as an output of the DIALLS EU project. The results reported have been produced within a case-study method, in order to elaborate and validate analysis methods, and as such are limited to the corpus under study. Our ongoing work involves the analysis of relations between students' dialogues on ethical issues and the ethics of their interpersonal relations in those same dialogues (Cedar et al., 2021). The fundamental question that arises is: what are the relations between dialogue on ethics and ethics of dialogue?

## Acknowledgements

This work was supported by the European Commission Research Executive Agency, within the "Inclusive, Innovative and Reflective Societies" programme and the DIALLS project (Dialogue and Argumentation for cultural literacy learning in schools), grant number 770045. We would like to thank the teachers and their students for their participation in this study, as well as two anonymous reviewers, whose remarks enabled us to greatly improve the text.

## Appendix A. Detailed description of layers of interpretation involving moral thinking

**L1: Referential layer.** A contribution on the online platform is coded as "Referential" if it only consists in the description the objects and events represented in the wordless text. In other words, the referential layer corresponds to contributions which decode the pictures of the wordless text and put them into words (Maine, 2015), without further interpretation of the story regarding moral thinking or intentionality of characters. This layer refers to two types of contributions:

- Contributions where the student describes the static objects, the entities depicted in the text (e.g. "*I actually think about the picture with the white man sitting between two people*")
- Contributions where the student interprets the static pictures through dynamic events, actions, and/or movements, introducing a dimension of *time* into the story, but without this interpretation being linked with moral thinking (e.g. "*there's a picture where the man is standing in front of the mirror and draws himself a body*")

It is to be noted that contributions are coded as referential if they contain *only* such descriptions *and no other interpretation which embeds moral thinking*, as the verbalization and description of the events and actions is, at least from a language standpoint, necessary to produce a deeper moral interpretation of the wordless text, particularly in the layers L2 and L3 presented above.

**L2: Emotional/Intentional layer.** A part of a contribution is coded as an Emotional/Intentional interpretation if the student interprets and explains the story depicted in the wordless text (e.g. events or actions) regarding the characters' intentions, feelings, thoughts and motivations. This layer of interpretation is the first layer embedding moral thinking (according to Rouvière's, 2018, components of axiological reading), as Emotional/Intentional interpretations appeals to students' empathy for the characters of the story. As such, this is also the first layer where students can produce a moral *judgement* (Cedar et al., 2021) regarding the story, since they have to consider thoughts and moral values that are not their own. For example, the contribution "*and the sofa [picture] 'cause the people don't care about him like he's meaningless*", referring to page 7 of the book, focuses on the characters' thoughts ("*don't care about him*") and produce a moral judgement of this thought and the value system underlying it ("*like he's meaningless*").

**L3: Symbolical layer.** A part of a contribution is coded as a Symbolical interpretation if it explicitly focuses on the symbolism used in the wordless text to address its underlying message (e.g. "*it expresses*" or "*it symbolizes*"). This layer is associated to an operation of abstraction, where students construct their interpretation and make meaning of values from the wordless text (Maine, 2015). The symbolism in the wordless text *Emptiness* mostly concerns the colours used in the pictures, especially concerning the main character, who is white and transparent; but it can also be embedded in the narration itself and the events depicted. For example, the following contribution from dialogue D1, referring to pages 26 and 27 of the wordless text, where the white character walks in snow and then almost disappears from view, coded as a Symbolical interpretation, tackles both of these aspects: "*the second image [we chose] is the one where the lonely man is walking in the snow, and that he's that transparent and missing that you don't notice him. It expresses the sadness and his lack of home for the rest of his life in loneliness*".

**L4: Moral (story) layer.** A part of a contribution is considered as being a Moral interpretation focused on the story if the contribution aims at giving the general message of the book without considering concrete actions regarding this message. In other words, L4 interpretations are focused on making meaning from the wordless text as a whole, only considering the text. This represent a step in increasing abstraction of moral thinking in interpretation, as it synthesizes abstract notions (like "loneliness" or "sadness") expressed in specific pictures and organises them as a coherent, direct message, for example: "*I think the book is about the way society relates to lonely people*". L4 is then the first layer where the conceptualisation process (Cedar et al., 2021; Rouvière, 2018) takes place, as the extraction of an abstract moral meaning from the text allows students to explicitly address and discuss its message.

**L5: Moral (general) layer.** A part of a contribution is considered as being a general Moral interpretation if students explicitly consider that the message conveyed by the wordless text applies to their lives, to society or even more broadly the world they live in. An interpretation is also coded as L5 if students explicitly indicate that the message of the wordless text should be inspirational for people, should it be themselves or others. The L5 layer is more a layer of moral thinking than of interpretation, as students'

<sup>4</sup> The multilingual corpus is available at the following address: [https://zenodo.org/record/4742176#\\_YmAG9ZNBzjB](https://zenodo.org/record/4742176#_YmAG9ZNBzjB).

discourse in this layer is more centred on the *student* who appropriates the text (in the Vygotskian sense), as shown in Fig. 2 above, than on the specific wordless text. By ‘making the text their own’, students produce a discourse which is both more abstract, and a generalization of the text’s message for society, and also more tangible, since this message is directly applied to students’ lives in society. This represents an important theoretical distinction between L4 and L5: moral thinking in L4 follows a more descriptive perspective, as the message of the text is considered in isolation from the world, whereas moral thinking in L5 is directly applied to students’ lives, adopting a more deontic perspective. For example, the following contribution from dialogue D1 is considered as a general Moral interpretation:

“The book relates to our private lives since now especially in this generation everyone is connected and everyone can get to everyone through the existing available technologies today there are many situations where we feel lonely and lacking any person to talk to and that way too we know many people to whom we can help”.

- *L6: Philosophical layer.* A part of a contribution is considered as Philosophical if students explicitly use a concept-word designating one of the abstract values underlying the wordless text and the dialogical teaching sequence (namely tolerance, empathy and inclusion), and explicitly try to define the concept, whether with the generalization of an abstract definition, or a more operational definition focused on specific actions to be performed in order to enact the value. In other words, moral thinking within the Philosophical layer is focused on the meaning of the concept for moral judgement. This layer represents a notable advance in students’ conceptualisation processes as the explicitation of the concept-word permits explicit definitory work on the abstract value itself (Cedar et al., 2021). As such, it corresponds more to Rouvière’s (2018) philosophical component of reading. This marks a shift from the first five layers which are more related to its ethical/empathetical component.

## Appendix B. Corpus of four computer-mediated dialogues

### Dialogue D1

Message/ thread	Student	Message
1	S2	The two pictures we chose are: the picture where him and the woman are standing next to each other and are suddenly in color. This picture symbolizes how when two people are together they’re no longer invisible, they’re no longer lonely. They have each other
1-1	S1	The second image is the one where the lonely man is walking in the snow, and that he’s that transparent and missing that you don’t notice him. It expresses the sadness and his lack of home for the rest of his life in loneliness
1-1-1	S1	The first picture is the one where the lonely man meets someone who feels just like him in her life, And then you see that they’re both in their meeting no longer lonely and there’s color and they’re no longer transparent
1-2	S2	The picture where the man stands in the white snow and you just don’t see him, This image emphasizes how much that person is lonely and invisible,
2	S1	In my opinion, the book is about how others aren’t supposed to behave towards those who are lonely, And about how lonely people feel throughout their lives.
3	S3	The book is about a transparent man who’s not possible to sight by society surrounding him though he tries to contain and fill the people around him, the man feels lonely and empty And that’s why he’s transparent
4	S3	The book tries to make us understand the complexity in loneliness and understand the effect of loneliness on the other
4-1	S2	I think that in addition to what you said the book is also about: the book is about the effects of loneliness on people for example: Willingness to help others break through a situation of loneliness (the caged bird) depressed, wants to be noticed etc
5	S4	The book is about loneliness and emptiness as well, Where the hero feels “turned off” Until you can see that he already truly vanishes, unlike other colorful people of are not lonely. In my opinion, the book is a kind of a message according to which, there are lots of lonely people in the world, and together with people who feel “full” it gives you a sort of a choice, of what you prefer being, transparent or full of life The two parts I chose are the parts where he becomes really transparent and empty until he already disappears into the snow which symbolizes the deep and heavy feeling of emptiness, And the part where he finds another transparent and lonely person, Where in this part you can already see that something is missing in their heart, waiting for something to complete it
5-1	S5	I agree with [student]
5-2	S1	I agree with you and I would like to add, that this book also pertains to our life as there are people in the world who are very lonely and depressed, and we must assist them and be their friends and not hurt them anymore directly by not helping them.
6	S3	The book relates to our private lives since now especially in this generation everyone is connected and everyone can get to everyone through the existing available technologies today there are many situations where we feel lonely and lacking any person to talk to and that way too we know many people to whom we can help
	S1	The book wants to say that we as a society should be caring and empathetic to those who are alone and understand. What they are going through and stop their loneliness.

## Dialogue D2

Message/thread	Student	Message
1	S5	What questions do you want to choose?
1-1	S1	I've no idea
1-1-1	S1	What did you think about
1-2	S2	We're supposed to choose pictures
1-2-1	S1	But which
1-3	S3	We can take the sofa and snow picture or with the bird
1-3-1	S3	One of these at least
1-3-2	S2	The sofa and the snow is gorgeous
1-4	S4	We can take the one with the snow cause you can't see him cause they're both white Cause it represents that he's not seen...
1-4-1	S3	And the sofa cause the people don't care about him like he's meaningless
2	S5	The book is about transparency, the woman is a "transparent" woman and nobody notices her, And like in real life, there're lots of people and kids who feel like that, that nobody notices them
2-1	S3	Is that from google?
2-1-1	S5	Nooooooooooooooooooooo
2-1-1-1	S5	I know how to BS good when I need to
2-2	S2	Do we agree on the pictures?
2-2-1	S3	Yes
2-2-1-1	S3	In the picture with the sofa the people don't show any caring towards him and don't see him as meaningless in society And he's emphasized as invisible

## Dialogue D3

Message/thread	Student	Message
1	S3	What question are we choosing?
1-1	S1	{computer language is set to English by mistake}
1-2	S4	Dunno
1-2-1	S5	I think I'll go for the picture where they're both in the street and lonely and the last picture
1-2-1	S5	And the last picture cause it illustrates that they're alone...
1-2-1	S5	Also it's too hard to only 2. I'd rather that we'd had the option to do more than just 2 cause this book deals with many extensive topics
1-3	S2	I say question does he stay lonely and is the person invisible because he feels that
1-3-1	S4	Cool
1-3-2	S3	Cool I'm down
1-3-3	S2	Does he stay lonely? I think he doesn't stay lonely the woman because with him they're friends and they have connections
1-3-3-1	S3	I also think that at the end he doesn't stay lonely, because he has no reason to, he found a woman they identified with each other and had a connection between them
1-3-3-2	S2	And did he stay lonely because he feels that so yes because everything is about the attitude everything that you say I'm lonely I have no friends it will cause ya not to open up and so you'll feel lonely and friendless and also people will see that you're lonely and so won't wanna be with ya
1-3-3-2-1	S3	I think that he was responsible for himself, because a person is responsible for himself, the consequences of your actions and what you communicate is how that people see you, and so until he didn't find the woman he was transparent and when he found the woman they were transparent together and supported each other.
2	S1	Explain to me what happened in the book I didn't understand anything ..... 111 !!
2-1	S4	If you listened you'd understand S1 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
2-2	S5	S1... the book illustrates someone who's alone, and lonely. The part where he goes to the doctor and in the x-ray he's got nothing the intention is to illustrate the loneliness and emptiness inside him. Later in the museum with picture, in the supermarket, in the flower field, he tries to color himself but you see it slowly diffuses and disappears as if it never existed. And if the bird which is also transparent (white) then he sets it free and keeps walking in the rain and meets someone who passes by next to him and they have something in common - the loneliness and emptiness. And they go their different paths and only the soul, that is the heart understands and identifies with the other's loneliness. Also about literature and painting... the colors white and on them other colors illustrates happiness and white with nothing illustrates something different, strange and lonely. Each part and colour has meaning and we can analyse. Jus like in literature!
3	S4	Ok we're supposed to answer what it says in More
4	S2	I think it's all about the attitude. The person comes with the attitude that he's lonely and that's why people didn't talk to him that's to answer question 2
5	S4	The theme in the book is emptiness and loneliness
5	S4	He is expressed in the book by a metaphor that the transparent man is a person who has no content or interest in anything, or more precisely he's got nothing,
5	S4	People have social urges from the go and so if you have no friends or interest in anything you're just transparent,
5	S4	You can understand that by that he's transparent and nobody notices him, and when he sees that woman in the street he thinks she doesn't notice him and also vice versa and so they part from each other and ignore their love for each other, but now they have content in their life
5	S4	And they're no longer transparent

(continued on next page)

(continued)

Message/ thread	Student	Message
5-1	S2	Yeah right
6	S1	I think that we should choose the pages where the person goes in society during rain and it indicates to loneliness and to a transparent man I dunno what else we'll choose because we're supposed to choose two meaningful pages but I think that what I chose is
7	S5	I chose that he's with the x-ray and that their two hearts "met":
7-1	S2	Shouldn't we choose a question
7-2	S3	But it's not only you choosing everyone choose together.
7-3	S2	Ohhh we're also supposed to choose a picture...
8	S1	Fine what're we choosing...!!????????????????
8-1	S5	Now ayayayaya
9	S5	I'm expecting a long explanation you did see what we wrote!1
9-1	S5	In the task we're supposed to choose two... which one you think illustrates his loneliness?
9-2	S5	Since it has to be a general picture. That one with the x-ray is general... the one with the rain... that one at the end... everything actually...
9-3	S2	I think the one of the sofa where they ignored him that's the one that shows the main message of the book loneliness
9-3-1	S2	I think the sofa where they ignore him
9-3-1-1	S2	And the woman and the man
10	S1	I think the guy walking in the rain with the people and it indicates loneliness

## Dialogue D4

Message/ thread	Student	Message
1	S5	I think the book is about our desire to change not willingly but from an urge to be like everyone
2	S3	I think the book is about loneliness That person can't find himself and so he feels lonely and unwelcome and then when he finds someone connected to him and similar to him Then he gets a heart like he's refilling
3	S2	[The book] talks about the personal internal feeling of the person who feels sad lonely and empty from feelings
4	S5	Everyone post who you are
5	S1	I think the book is about loneliness and changing your external and internal appearance wishing to satisfy our society
6	S3	I think that we should choose the picture of the x-ray this in my opinion best reflects the story and theme
6-1	S5	I think we should choose the last picture that he finds someone like him and then they become one
7	S4	The book is about the loneliness people feel the important pictures on my opinion are the picture where he can't see his bones in the x-ray and the picture where he meets the woman taken over by loneliness
8	S1	[off-task]
9	S3	[off-task]
10	S2	[off-task]
11	S5	[off-task]
12	S1	The important pictures are:the he walks around in public places.that he looks at himself in the mirror and sees someone else
12-1	S5	He didn't look in the mirror and see someone else he draw on himself to look like someone else
13	S3	? That's the question I think we can choose is: can anyone become lonely?
13-1	S1	Yes anyone can become lonely

## References

- Ainsworth, S., Gelmini-Hornsby, G., Threapleton, K., Crook, C., O'Malley, C., & Buda, M. (2011). Anonymity in classroom voting and debating. *Learning and Instruction*, 21(3), 365–378. <https://doi.org/10.1016/J.LEARNINSTRUC.2010.05.001>
- Asterhan, C. S. C., & Schwarz, B. B. (2010). Online moderation of synchronous e- argumentation. *International Journal of Computer-Supported Collaborative Learning*, 5, 259–282.
- Baker, M. J. (1995). Negotiation in collaborative problem-solving dialogues. In R. J. Beun, M. J. Baker, & M. Reiner (Eds.), *Dialogue and instruction: Modeling interaction in intelligent tutoring systems* (pp. 39–55). Springer-Verlag.
- Baker, M. J. (2015). Collaboration in collaborative learning. *Interaction Studies: Social Behaviour and Communication in Biological and Artificial Systems*, 16(3), 451–473. <https://doi.org/10.1075/is.16.3.05bak>
- Baker, M. J., Andriessen, J., & Järvelä, S. (2013). *Affective learning together: Social and emotional dimensions of collaborative learning*. Routledge.
- Baker, M. J., Hansen, T., Joiner, R., & Traum, D. (1999). The role of grounding in collaborative learning tasks. In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp. 31–63). Pergamon.
- Barron, B. (2003). When smart groups fail. *The Journal of the Learning Sciences*, 12, 307–359.
- Bettelheim, B. (1976). *The uses of enchantment: The meaning and importance of fairy tales*. Knopf.
- Bietti, L. M., Slakmon, B. Z., Baker, M. J., Détienné, F., Safin, S., & Schwarz, B. (2021). The DIALLS Platform: Supporting cultural literacy and understanding of European values over the Internet. In F. Maine, & M. Vrikki (Eds.), *Dialogue for intercultural understanding: Placing cultural literacy at the heart of learning* (pp. 87–101). Springer Nature. <https://link.springer.com/book/10.1007%2F978-3-030-71778-0>.
- Cedar, T., Baker, M. J., Bietti, L. M., Détienné, F., Nir, E., Pallarès, G., & Schwarz, B. B. (2021). Dialogue on ethics, ethics of dialogue: Microgenetic analysis of students' moral thinking. In F. Maine, & M. Vrikki (Eds.), *Dialogue for intercultural understanding: Placing cultural literacy at the heart of learning* (pp. 103–117). Springer Nature. <https://link.springer.com/book/10.1007%2F978-3-030-71778-0>.

- Chirouter, E. (2018). Platon au programme: Des ateliers de philosophie à l'école primaire à partir de l'anneau de Gygès, un exemple de laboratoire de pensée [Philosophy workshops at primary school on the question of Gyges' ring, an example of a thinking laboratory]. *Spirale - Revue de Recherches en Éducation*, 2(2), 39–50. <https://doi.org/10.3917/spir.062.0039>
- Clark, H. H., & Brennan, S. (1991). Grounding in communication. In L. B. Resnick, J. M. Levine, & S. D. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 127–149). American Psychological Association.
- Damon, W., & Killen, M. (1982). Peer interaction and the process of change in children's moral reasoning. *Merrill-Palmer Quarterly*, 28(3), 347–367.
- Dillenbourg, P. (1999). Introduction: What do you mean by "collaborative learning"? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp. 1–19). Elsevier Science.
- Greimas, A. J. (1973). Les actants, les acteurs et les figures [Actants, actors and figures]. In C. Chabrol, S. Alexandrescu, R. Barthes, C. Bremond, A. J. Greimas, P. Maranda, S. J. Schmidt, & T. A. van Dijk (Eds.), *Sémiotique narrative et textuelle [Narrative and textual semiotics]* (pp. 161–176). Larousse.
- Grize, J.-B. (1982). *De la logique à l'argumentation. [From logic to argumentation]*. Genève: Droz.
- Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, 30, 4–19.
- Hassett, D. D. (2010). New literacies in the elementary classroom: The instructional dynamics of visual texts. In K. Hall, U. Goswami, C. Harrison, S. Ellis, & J. Soler (Eds.), *Interdisciplinary perspectives on learning to read: Culture, cognition and pedagogy* (pp. 87–100). Routledge.
- Kairé, S., Duoblienié, L., & Zaleskiené, I. (2021). Social responsibility through the lens of an agenda for cultural literacy learning: Analyses of national education policy documentation. In F. Maine, & M. Vrikki (Eds.), *Dialogue for intercultural understanding* (pp. 27–43). Springer. <https://doi.org/10.1007/978-3-030-71778-0>.
- Kochanska, G., & Aksan, N. (1995). Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development*, 66, 236–254.
- Kohlberg, L. (1984). The psychology of moral development. In *The nature and validity of moral stages* (Vol. 2). Harper & Row.
- Larrivé, V. (2015). Empathie fictionnelle et écriture en « je » fictif » [Fictional empathy and writing in a fictional "I"]. *Reperes*, 51, 157–176. <https://doi.org/10.4000/reperes.913>
- Maine, F. (2013). How children talk together to make meaning from texts: A dialogic perspective on reading comprehension strategies. *Literacy*, 47(3), 150–156.
- Maine, F. (2015). *Dialogic readers. Children talking and thinking together about visual texts*. Routledge.
- Maine, F. (2020). Reading as a transaction of meaning making: Exploring the dialogic space between texts and readers. In N. Mercer, R. Wegerif, & L. Major (Eds.), *The Routledge international handbook of research on dialogic education* (pp. 336–347). Routledge.
- Maine, F., & Vrikki, M. (2021). *Dialogue for intercultural understanding: Placing cultural literacy at the heart of learning*. Springer Nature. <https://link.springer.com/book/10.1007%2F978-3-030-71778-0>.
- Maine, F., & McCaughran, B. (2021). Using wordless picturebooks as stimuli for dialogic engagement. In F. Maine, & M. Vrikki (Eds.), *Dialogue for intercultural understanding: Placing cultural literacy at the heart of learning* (pp. 59–72). Springer Nature.
- Mann, W. C., & Thompson, S. A. (1988). Rhetorical structure theory: Toward a functional theory of text organization. *Text: Interdisciplinary Journal for the Study of Discourse*, 8(3), 243–281. <https://doi.org/10.1515/text.1.1988.8.3.243>
- Moeschler, J. (1985). *Argumentation et conversation: Éléments pour une analyse pragmatique du discours [Argumentation and conversation: elements for a pragmatic analysis of discourse]*. Paris: Hatier-Crédif.
- Piaget, J. (1965). *The moral judgment of the child*. Kegan Paul.
- Rapp, C., & Freitag, M. (2015). Teaching tolerance? Associational diversity and tolerance formation. *Political Studies*, 63(5), 1031–1051.
- Roschelle, J., & Teasley, S. D. (1995). The construction of shared knowledge in collaborative problem solving. In C. O'Malley (Ed.), *Computer supported collaborative learning* (pp. 69–97). Springer Verlag.
- Rousseau, J.-J. (1762/1966). *Émile ou de l'éducation [Emile, or On Education]*. Paris: Flammarion.
- Rouvière, N. (2018). Les composantes de la lecture axiologique [The components of axiological reading]. *Reperes*, 58, 31–47. <https://doi.org/10.4000/reperes.1692>
- Schwartz, D. L. (1995). The emergence of abstract representations in dyadic problem solving. *Journal of the Learning Sciences*, 4, 321–354.
- Schwarz, B. B., & Baker, M. J. (2017). *Dialogue, argumentation and education: History, theory and practice*. Cambridge University Press. <https://doi.org/10.1017/9781316493960>
- Sobral, C. (2014). *Vacio [Empty]*. Buenos Aires: Adriana Hidalgo Editions.
- Tiberghien, A., & De Vries, E. (1997). Relating characteristics of learning situations to learner activities. *Journal of Computer Assisted Learning*, 13, 163–174.
- Tozzi, M. (2007). Conclusion. Peut-on apprendre à philosopher en discutant? [Conclusion. Can one learn to philosophise by discussing?]. In M. Tozzi (Ed.), *Apprendre à philosopher par la discussion: Pourquoi? Comment? [Learning to philosophise by discussion: Why? How?]* (pp. 177–182). Louvain-la-Neuve: De Boeck Supérieur. <https://doi.org/10.3917/dbu.tozzi.2007.01.0177>.
- Vadeboncoeur, J. A., Panina-Beard, N., & Vellos, R. E. (2021). Moral imagining in student-teacher relationships in alternative programs: Elaborating a theoretical framework. *Learning, Culture and Social Interaction*, 30(Part B), Article 100470. <https://doi.org/10.1016/j.lcsi.2020.100470>