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Learning and developing during lesson study through professional conversations

Lesson study is a collaborative practice recognised as a useful approach for teachers' learning; however, we barely find studies analysing its practice amongst higher education faculty members. This research does so, studying the content of their conversations, that reveal the learning opportunities that lesson study opens. Content analysis shows that the participants learnt through descriptive and interpretative learning, making explicit their ideas about the lesson and emphasising them over their thoughts about the students. Results also indicate that the participants have room to increase their attention on the students and their disputational talk, with the help of a knowledgeable other.

Keywords: academic development; content analysis; conversation; higher education; lesson study

Introduction

Lesson study (LS) is a teachers' training and professional development practice originating in Japan; it began to receive international attention after Stigler and Hiebert's work (1999) and today it is used in over 30 countries (Lewis & Lee, 2017).

LS is claimed to contribute to teachers' learning (Dudley, 2013) in an active manner (Bocala, 2015), among other reasons, for its collaborative nature and the chances it offers them to interact professionally (Vrikki et al., 2017). However, these benefits are mainly found within primary and secondary education. We know little about the possibilities of LS in higher education, where we find few examples of its

practice in relation to the academic development of higher education faculty members (i.e., Dillard, 2019; Hervas et al., 2020).

Considering that the teachers learn in a situated manner as part of their participation in a social process (Lave & Wenger, 1991), that professional conversations play an important part in the context of work-based learning (Readman & Rowe, 2016) and understanding LS as an active learning space (Perry & Lewis, 2009), this study aims to address the lack of studies about LS in higher education by analysing the participants' conversations to reveal the themes they talk and learn about.

Lesson study: process, teachers' conversations, and active learning

LS consists of an iterative inquiry-based teaching practise carried out by groups of teachers who, together, collaborate in conducting a cycle consisting of: (1) designing one lesson (named 'research lesson') and the inquiry around it to analyse it, (2) teaching the lesson and observing its instruction, and (3) analysing and discussing both the lesson designed and the instruction in a post-lesson discussion (Takahashi & McDougal, 2016).

Sometimes, this cycle takes a more elaborated form. In this regard, we find that the post-lesson discussion is occasionally followed by the dissemination of the lesson and the knowledge that arises from its analysis to the educational community (Lewis, 2009). In addition, the cycle can be replicated, with the same group of teachers using their analysis to redesign the lesson and teaching it to a different group of students. Finally, at times, groups of teachers carrying out LS (or their institutions) invite a 'knowledgeable other' to participate; knowledgeable others are educational or disciplinary experts who take part in the post-lesson discussion and provide comments on the lesson and its instruction from an outside perspective (Takahashi, 2014).

LS's procedures and stages are not entirely unfamiliar to faculty developers, as many academic development initiatives are—implicitly or explicitly—based on a PDCA/PDSA (Plan, Do, Check/Study, Act) cycle (Langley et al. 2009) and follow its same rationale for professional development. Also, LS combines features that we separately find in other approaches to academic development such as Instructional Skills Workshops (Foxe et al., 2016), Teaching Squares initiatives (Berenson, 2017), and Teaching and Learning Cycles (Sutherland et al., 2020). LS shares with them that it includes peer-observation of teaching and feedback meetings. Nevertheless, many differences arise when comparing them. Differently to Instructional Skills Workshops, in LS the lesson is taught in a real teaching and learning environment, and content and teaching processes are equally relevant. Differently to Teaching Squares and to Teaching and Learning Cycles, LS requires not only self-evaluation, but it also expects participants to provide feedback on the instruction observed. And finally, differently to all three approaches, LS involves collaboration to design a lesson; hence, the lesson is a product designed by all participants, and not something alien to most of them.

Typically, LS aims to improve students' learning. The process of inquiry around a lesson allows the teachers to revise their practices and creates an environment of collaborative learning in which they share their expertise, reflections, and knowledge. These elements have brought previous studies to highlight features and effects of LS in relation to the teachers' professional development:

- Its effectiveness for teaching enhancement (Hiebert & Stigler, 2017).

- Its potential for curriculum reform (Lewis & Takahashi, 2013).

- Its possibilities for the development of the teachers' pedagogical content knowledge (Coenders & Verhoef, 2019).

- Its provision of conditions for supporting teachers' efficacy (Chong & Kong, 2012) and instructional improvement (Lewis et al., 2006).

- Its incorporation as a key element of teachers' inquiry (Vrikki et al., 2017), creating bridges to connect theory and practice (Cajkler et al., 2013).

Following this last feature, previous studies have referred to LS as a practice in which teachers' active learning happens in terms of content knowledge (Perry & Lewis, 2009) and beliefs and routines (Lewis & Perry, 2014), emerging through their conversations with colleagues (Bocala, 2015) when they analyse the strengths and weaknesses of the lessons they design (Lumpe et al., 2012).

As seen, research connects learning in LS with collaboration and discussion, recognising that there is room for learning when teachers cooperate, reason, and actively examine their beliefs and practices. These studies adopt a sociocultural approach, which we also take in our research, in which conversations are understood as learning tools (Readman & Rowe, 2016) and learning is situated and can be described as participating in a community of practice (Lave & Wenger, 1991) in which meanings are locally determined. In LS, this is particularly observable during the post-lesson discussion, because it brings together communicating and reasoning about what has been observed and experienced.

These discussions in LS—the visible display of the teachers' thinking—have been receiving attention lately given that, when the teachers assess their own work, they engage in learning as they perceive problems that trigger their reflection (Loughran, 2010).

Amador and Carter—in Amador and Carter (2016), Amador and Weiland (2015), and Carter and Amador (2015)—Bjuland and Helgevod (2018), and Parks (2008) report results of studies with preservice, prospective and student teachers using

LS. These researchers approach their conversations from different angles. Parks (2008) focuses on participation and topics of the conversations, Amador and Carter (in their different publications) reveal elements that contribute to professional noticing (turn-taking or the figure of a knowledgeable other), and Bjuland and Helgevod (2018) study dialogic processes in field practice conversations and reveal the importance of the knowledgeable other to stimulate interthinking.

A different group of studies—Suzuki (2012), Dudley (2013), Lee Bae et al. (2016), Vrikki et al. (2017), Warwick et al. (2016), Warwick et al. (2019), and Kvam (2018)—analysed from different perspectives cases of elementary, primary, middle and secondary schoolteachers. Suzuki (2012) and Lee Bae et al. (2016) examine professional development in LS and found that the teachers' discourse was focused most frequently on students. Following a different approach, Dudley (2013) studied what the discourse interactions during LS reveal about teachers' learning and his findings show five knowledge types and talk types. Correspondingly, Vrikki et al. (2017), Warwick et al. (2016), and Warwick et al. (2019) studied dialogic mechanisms and the use of talk in professional learning. Among their results, they found that interpretative learning was more probable when the teachers focused on the group of students. Finally, differently to most previous research, Kvam (2018) investigated the potential for learning during LS and show that the teachers' analysis was too superficial to promote learning and that they tended to legitimise their practices.

Method

Focus of the research

What is common to all these studies is that they were carried out in the context of primary and secondary education or during undergraduate teachers' training, mainly in

the teaching of mathematics and science. Since context and discourse are related (Van Dijk, 2009) and the sharing of a 'common ground' (Clark et al., 1983, p. 246) within an epistemic community affects talk, we cannot assume that higher education teachers' conversations focus on the same themes and follow the same dynamics as those already studied.

To understand the potential of LS for higher education faculty members' learning, we aim to uncover the themes that they discuss (the 'aboutness' of their conversation), how long they discuss them, and how they connect them, because we understand that those elements reveal learning possibilities. To do this, we analyse their conversations during the post-lesson discussion, when the participants engage in deeper explicit reflection—assessing their work—and evince what they consider relevant and what (and about what) they might have learnt during LS.

Participants and context

This research was conducted between 2017-2019 within the framework of a programme for teaching innovation at four Schools of a public university in Barcelona.

A total of 204 teachers across the different Schools participated in the programme. Data for this article come from teachers at the School of Medicine and Health Sciences. Inclusion criteria to determine the participants were: willingness to be recorded, no previous experience with LS, and representation of different health education disciplines and of different academic career moments. Our 11 participants included the nine teachers who met these criteria and two knowledgeable others (KO1 and KO2) who offered their insights during the post-lesson discussions and had been selected for their disciplinary and educational expertise. Amongst the nine teachers, five are from the bachelor's degree in nursing (N1, N2, N3, N4 and N5), three from the bachelor's degree in podiatry (P1, P2 and P3) and one from the bachelor's degree in

medicine (M1). They carried out three LS cycles and participated in the post-lesson discussions as seen in Table 1.

Table 1

LS cycle, degree, and participants

LS cycle	Degree in which the lesson was taught	Participants
1	Nursing	N1, N2, N3, P1, KO1, KO2
2	Nursing	N4, P1, P2, P3, KO2
3	Podiatry	P1, P2, P3, N2, N5, M1, KO2

Design, procedure, and data collection

We conducted a multiple case study, a research strategy for obtaining robust data and an appropriate methodology for approaching our research topic because it allows inductive context-sensitive interpretations (Yin, 2009). The cases were the three post-lesson discussions of the three cycles of LS. At the same time, given our sociocultural approach to learning and the importance we assign to language and discourse, we incorporate features of Mercer's (2004) sociocultural discourse analysis and of ethnomethodology for the analysis of the participants' speech.

In our research we made use of a series of instruments and strategies within a process that followed these steps:

- Conducted qualitative semi-structured interviews with the teachers before the beginning of the LS cycles. Our queries were focused on their expectations, professional biography, collaborative experiences, and conceptions of teaching. The objective was to get to know them to better understand and interpretate their insights during the post-lesson discussion.

- Audio-recorded and observed the meetings conducted to design the lessons and video-recorded the teachers delivering them in class. This was done to know their designs and to connect their talks to the experiences they described.

- Conducted participant observation of the post-lesson discussions, with audio- and video-recording, allowing for the analysis of the conversations.

- Conducted qualitative semi-structured interviews with the teachers after the LS cycles ended. The objective of these interviews was to discuss our emerging analysis with them to gain understanding of some segments studied.

Data analysis

We analysed the data following what Hsieh and Shannon (2005) describe as summative content analysis: to identify thematic contents, quantify them and understand their implications and meanings. Our goal was to uncover the themes that appear during the post-lesson discussion of LS, their relative importance in terms of time dedicated to each, and the connection among those themes. The transcriptions of the three post-lesson discussions were inductively analysed in a cyclical process of selection, categorisation and comparison based on the coding procedures of grounded theory (Strauss & Corbin, 2015). The process we followed was:

- Transcribing the content of the post-lesson discussions (5h17min34sec).

- Reviewing the audio and video-recordings of the designing of the lessons, their delivery, and the initial interviews as a necessary step in qualitative content analysis to re-familiarise ourselves with the participants and the context (Williamson et al., 2013).

- Open coding of the content of the transcription of post-lesson discussion number one by the first author, who developed a set of 30 inductive codes regarding the

themes of the discussion moving through the data phrase by phrase—

microanalytically (Strauss & Corbin, 2015).

- Axial coding to distil the sensitivity of the codes by the second author, who

  reviewed the data and revised the accuracy of the codes, clarifying and refining

  their properties and reducing the number of codes to 27.

- Coding of the content of the transcription of post-lesson discussion number two

  by the first author, using the revised set of 27 codes that emerged from post-

  lesson discussion number one and adding new inductive codes for a total of 36.

- Axial coding by the second author following the procedure previously described

  and obtaining a total of 37 codes.

- Coding of the content of the transcription of post-lesson discussion number three

  by the first author, using the revised set of 37 codes that emerged from post-

  lesson discussion number two and adding new inductive codes for a total of 43.

- Axial coding by both authors following the procedure previously described and

  obtaining a total of 30 codes.

- Testing of the set of 30 codes to verify their reliability and validity by both

  authors who, separately, coded 15% of post-lesson discussion number one and

  post-lesson discussion number two's transcriptions, obtaining a high agreement

  for each code (the inter-coder agreement for all the codes was from 85 to 92%).

- Recoding of the full content of the transcriptions of post-lesson discussion

  number one and two, using the revised set of 30 codes that had emerged from

  post-lesson discussion number three. The three post-lesson discussions were

  coded in a total of 455 segments of different lengths (mostly under 1 minute) as

  the themes changed.

- Integrating the codes into a relational model of seven categories and 30 subcategories.

- Counting for each category and subcategory the number of segments coded and of discussion time they involved.

- Analysing the thematic relationships among the 455 segments. This was done since the subcategories in which these segments were included are highly interrelated and because our model classifies, into discrete units, segments that occur in a continuum in the teachers' conversation. We obtained 361 relevant connections among subcategories that allowed us to quantify the degree of relationship among categories.

Findings

The analysis reflected the emergence of seven categories related to the themes that appeared during the post-lesson discussions.

Table 2

Thematic categories

	Segments coded	Seconds coded	Total time %	Connections with other categories
Lesson	116	4111	25.20%	31.09%
Change proposals	54	3478	21.32%	12.56%
Teaching	81	3071	18.83%	14.70%
Students	79	1742	10.68%	19.91%
Instruction	52	1653	10.13%	11.33%
Post-lesson discussion session	52	1178	7.22%	4.90%
Communication	21	1078	6.61%	5.51%

- 'Lesson': encompasses in ten subcategories the comments about the lesson, its features and properties, context, and design. Despite amounting for the longest time coded, none of its subcategories appears among the most discussed overall.

Table 3

'Lesson' subcategories

	Total time %
Lesson design process	4.81%
Structure & strategies	4.06%
Contextualising the lesson in the subject	3.89%
Activities	2.81%
Materials	2.11%
Contextualising the lesson in the degree	2.07%
Gaps detected without a change proposal	2.06%
Global impression	1.78%
Objectives	1.43%
Physical context	0.17%

Participants mostly discussed the process of designing the lesson, exemplified with this segment from post-lesson discussion number three:

'P1: It was such an effort, honestly… there was a moment with so much work that I was like "let's make someone else do it."
P2: Yes, like "let's return to the traditional lecture."'

We also find that the participants frequently referred to the immediate context of the lesson (5.96% of the conversation time was about the subject or the degree). When we analyse the connections of this subcategory, we observe that talking about the context was mainly used to introduce 'Other teaching experiences' (25.8% of the connections) or comment on the 'Students' thinking processes related to the lesson' (9.7%).

Looking more closely at the interrelationship among the 30 subcategories (omitting the intra-category relationships within this category), we find that the participants principally connected 'Lesson' with the subcategories 'Changes for the lesson' (17% of the connections) and 'Students' engagement during instruction' (6.5%).

- 'Change proposals': encompasses in two subcategories the comments connecting the lesson or its instruction with a proposal of change.

Table 4

'Change proposals' subcategories

	Total time %
Changes for the lesson	14.57%
Changes for the instruction	6.76%

The time discussing changes for the lesson was twice the amount of time devoted to changes for its instruction; similar to what we find if we compare the amount of talk for 'Lesson' and 'Instruction' (25.20% versus 10.13%). An example from the post-lesson discussion number two illustrates the most-discussed subcategory, 'Changes for the lesson,' throughout the whole data set:

'P3: I don't know if it could be a good option to start from the beginning with everything, engaging them to participate and leave to the end all the theory, preparing a table…'

Examining the interrelationship among the 30 subcategories, we find that the participants mainly connected 'Change proposals' with the subcategories 'Structure & strategies' (25.9%) and 'Students' engagement during instruction' (18.5%).

- 'Teaching': encompasses in three subcategories the participants' comments related to their ideas about teaching and learning and other previous experiences.

Table 5

'Teaching' subcategories

	Total time %
Other teaching experiences	8.52%
Teaching-learning general ideas	8.49%
Previous LS experiences	1.83%

Even if 'Teaching' is the third most-discussed category, two of its subcategories are the second and third most-discussed overall. In 'Teaching-learning general ideas,' this is particularly motivated by the contributions from the knowledgeable other. Logically, the last subcategory—comments regarding the experience of other LS cycles—appeared only in post-lesson discussion number two and three, after some of the participants had experienced the first cycle of LS.

With little difference, the most relevant subcategory integrates the comments referring to other teaching experiences (25% of the connections we find for this category relate to the 'Students' engagement during instruction'). This segment from post-lesson discussion number two exemplifies it:

'P3: This has never happened to me. A student has never taken a picture [of the presentation] with a camera.
N4: But your lessons are practical.
P3: I also have theoretical lessons and they have never used a camera.
N4: But, do they have your presentation uploaded [in the virtual campus]?
P3: Yes, I share the presentation with them.'

Examining the interrelationship among the 30 subcategories, we find that the participants specially connected 'Teaching' to the subcategories 'Students' engagement during instruction' (15.5%), 'Structures & strategies' (10.7%) and

the combination of 'Contextualising the lesson in the degree' and 'Contextualising the lesson in the subject' (9.7%).

- 'Students': encompasses in four subcategories the participants' comments regarding their students.

Table 6

'Students' subcategories

	Total time %
Students' engagement during instruction	4.29%
Students' thinking processes related to the lesson	2.24%
General ideas about students	2.11%
Students' learning from the lesson	2.04%

'Students' engagement during instruction' was the most discussed. This is an example of this subcategory from post-lesson discussion number two:

'P3: There was this group that participates, they were stirring each other up and were answering, and it was great but, there was this other group of students that…'

Examining the interrelationship among the 30 subcategories, we find that the participants mainly connected 'Students' with the subcategories 'Previous teaching experiences' (15%) and 'Changes for the lesson' (9.3%).

- 'Instruction': encompasses in four subcategories the comments regarding the development and perceptions about the instruction of the lesson.

Table 7

'Instruction' subcategories

	Total time %
Descriptions of the development of the instruction	5.35%
Self-perception of teaching	2.54%
Difficulties perceived without a change proposal	1.23%
In-situ modifications to the lesson	1.01%

Descriptive comments on the development of the instruction occurred (in time) twice as often as any other subcategory. These comments were most frequently related to expressing 'Teaching-learning general ideas' (18.9% of the connections found) and to referring to specific 'Student-teacher interactions' (18.9%). This segment from post-lesson discussion number one exemplifies this subcategory:

'P1: You encountered new things and it was visible that you were trying to react in-situ but didn't have enough leeway.
N1: In what part was that? At the beginning or when?
P1: When they were bringing their ideas together.'

In terms of the interrelationship among the 30 subcategories, we find that the participants mainly connected 'Instruction' to the subcategories 'Students' engagement during instruction' (15.6%) and 'Student-teacher interaction' (11.7%).

- 'Post-lesson discussion session': encompasses four subcategories related to the post-lesson discussion.

Table 8

'Post-lesson discussion session' subcategories

	Total time %
Post-lesson discussion management	4.03%
Post-lesson discussion and LS assessment	1.31%
Congratulations	0.96%
Justifications for one's opinion	0.93%

When we analyse the interrelationship among the 30 subcategories, we find in this category the lower percentage of connections with other subcategories (4.90%). This is mainly due to the subcategory 'Post-lesson discussion management,' self-referential and basically composed of segments of talk by the knowledgeable other (KO2). We exemplify it with this segment from post-lesson discussion number three:

'P3: I'll say one more thing and stop.
KO2: It's fine, it's only that I don't know what time it is and N5 needs to leave.
[To N5]. Do you want to say anything?
N5: It's fine; I still have 20 minutes.'

Going into detail about the interrelationship among the subcategories, we find that the participants mainly connected 'Post-lesson discussion session' with the subcategory 'Lesson design process' (14.3%), principally to congratulate teachers on lesson design.

- 'Communication': encompasses in three subcategories the comments regarding discourse and interactions during instruction.

Table 9

'Communication' subcategories

	Total time %
Student-teacher interaction	3.17%
Teachers' discourse & non-verbal communication	2.96%
Students' discourse	0.48%

The participants discussed their own discourse much more than the students'. However, the most relevant subcategory involved both agents and is exemplified with this segment from post-lesson discussion number one:

'N1: I was trying to raise doubts in them, but they don't answer as when I ask them to think. Maybe they are feeling…
KO1: Intimidated?
N1: Intimidated. Yes, that's possible.'

In terms of the 30 subcategories, we find that the participants specially connected 'Communication' with the subcategories 'Description of the development of the instruction' (25%) and 'Students' thinking processes related to the lesson' (19.4%).

Discussion and conclusion

To reveal LS' potential for the teachers' learning and development, we have described the themes that they discussed, the time each theme was discussed and our findings about the connections among the different thematic subcategories. Here, we discuss the most relevant findings with respect to the participants' learning and contrasting them with previous research focusing on teachers' conversations during LS.

Our results show that the most-discussed theme was the lesson and its changes. The participants granted more importance to the product they designed than to its

instruction. This reflects an understanding of LS as a practice in which the teachers are more committed to enquiring into and gaining clarity on what they have created collectively than on the particular action of an individual teacher during the instruction, avoiding criticising as Lewis (2009) invites to do.

The greater importance assigned to the lesson over its instruction is a reflect of the participants' shared expectations in relation to the ways they should behave and talk when collaborating with colleagues. Although sharing expectations is useful for promoting learning, in our research it also led to a lack of the talk type that Dudley (2013) defines as disputational. The comments about the instruction were mainly descriptive and show the teachers' lack of habit commenting on the actions of a colleague, as observed by Chassels and Melville (2009).

Still, descriptive conversation can evince the process of descriptive learning found by Vrikki et al. (2017), related to learning at a concrete practical level. Yet, we need to be cautious because when the analysis of a situation is too descriptive and superficial, it might not promote learning during LS (Kvam, 2018); hence, greater openness and recognition of other colleagues' thoughts may be necessary, since they influence the quality of reflection and learning (Loughran, 2010).

In our research, we also encountered examples of reflective discourse (Van Zee & Minstrell, 1997) and interpretative learning (Vrikki et al., 2017) when the participants, as in Cajkler et al.'s (2013) research, articulated practice with theory and beliefs. This is observable within the subcategories 'Teaching-learning general ideas' and 'General ideas about students.' In these moments, the participants elaborated on their pedagogical reasoning by making explicit their tacit knowledge, contributing to their learning (Dudley, 2013) and development.

Vrikki et al. (2017) also find that interpretative learning is more likely to happen when teachers focus on groups of students rather than on individuals. In our research, as in Amador and Weiland (2015), we find the participants noticing group behaviours when they discuss students' engagement, partly due to this engagement being a major concern in higher education (Rocca, 2010).

However, despite the segments related to the students' engagement, 'Students' is only the fourth most-discussed category. This differs from what Lee Bae et al. (2016) found and merits further research, given that LS is meant to stimulate teachers' curiosity about students' thinking (Lewis, 2009). Nevertheless, we can venture that this difference could be related to the inclusion in Lee Bae et al. (2016) research of teachers with experience in LS because, as Lewis et al. (2012) report, time practicing LS leads to a greater focus on students' thinking. Despite this, in our study the participants still discussed students more than instruction. This aspect helps the teachers work together (Dudley, 2013) and reflects, as in Suzuki's (2012) study, a discursive mode that is, at some degree, more interested in the students' learning than in teaching problems.

The knowledgeable other is an important figure in helping faculty members to pay more attention to the students' learning, contributing to their noticing (Amador & Carter, 2016). Our results are congruent with previous findings (Amador & Carter, 2016; Lee Bae et al., 2016) and show the potential of this figure to diminish the conversation time dedicated to unrelated themes that, for example, Parks (2008) found. However, further research should analyse the contributions of the knowledgeable others, since their excessive inputs could generate a contrary effect (Amador & Carter, 2016).

We have also reported that participants shared pieces of their pedagogical and professional knowledge. When teachers problematise their work and beliefs in order to

make informed decisions—not to legitimise practices, as Kvam (2018) reports—LS has the power to influence their philosophy of teaching (Lewis & Tsuchida, 1999) and to contribute to their pedagogical conceptual change (as defined by Stofflet, 1994).

In conclusion, our study shows that the participants granted themselves greater learning and developing opportunities in relation to the lesson. They considered possible changes for it more than any other theme and assigned great importance to its design. Participants discussed the students more than their instruction, mainly displaying concerns, ideas and experiences related to the students' engagement. Making explicit their tacit knowledge and connecting practice with theory, the participants learnt through descriptive and interpretative processes. Nonetheless, we have revealed that the participants' discussions still have the potential to become more disputational and less descriptive, and to move towards centring the focus on the students.

Despite the limitations of this study (such as the number of participants and their specific disciplinary field), bringing light to the learning opportunities for higher education faculty members during LS, this work can contribute to generating informed LS processes for academic development. Faculty developers can make use of LS to design academic development initiatives integrating teaching, observation, cooperation, research, and reflection. Our results show the variety of learning paths that LS offers; this diversity also exposes the need of using a facilitator to manage and guide conversations toward relevant topics, while promoting reflection rather than description and stimulating— as in Bjuland and Helgevod (2018)—dialogic interthinking. Knowledgeable others, particularly those invited for their educational expertise, can play this role and should be selected considering their contribution to participants' noticing.

Finally, as mentioned, future research could explore the knowledgeable other's contributions, analyse the influence of the disciplinary field on the conversations and compare novice and senior faculty members' talks and learning.

Disclosure statement

In accordance with Taylor & Francis policy and our ethical obligation as researchers, we are reporting that there is no potential conflict of interest.

Ethical Review

Ethical approval was granted from the research ethics review committees at the university sites where the study was conducted (Institutional Review Board 00003099).

Data availability statement

The data that support the findings of this study are available from the corresponding author, [GH], upon reasonable request.

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