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What higher education teachers talk about when they talk about their students: nature of their conversations during lesson study

Abstract:

Lesson study is acknowledged as a valuable practice for teachers' professional development. Recent studies analysing teachers' conversations during lesson study partially show that it tends to promote a student-centred approach to teaching amongst those who put it into practice. However, none has been conducted yet amongst faculty members in higher education. In this study, we conducted a multiple case study to approach this topic of research and present the content analysis of faculty members' conversations during lesson study. We discuss the topics that were discussed in relation to students (their engagement, their thinking, their potential learning, their discourse and interactions and general ideas about them), the relative frequency of these topics within the faculty members' conversations, how the faculty approached these topics and connected them to other topics of conversation, and the type of pedagogical actions and professional learning paths that were promoted through the discussion of these student-related topics.

Keywords:

lesson study; higher education; content analysis; teachers' conversations; studentrelated topics.

1. Introduction

Decades of research and training programmes emphasising the importance of adopting a student-centred approach in education seem to have had an impact on how teachers understand their practice. This shift towards a student-centred approach has also been found in the practice of lesson study (LS) (Helgevold, Næsheim-Bjørkvik, and Østrem 2015; Parks 2008; Lee Bae et al. 2016; Suzuki 2012), although some studies continue reporting opposite results, revealing that during LS teachers pay little attention to students in their conversations (Amador and Weiland 2015; Bjuland and Mosvold 2015).

In this study, our goal was to identify the topics that faculty in higher education (HE) discussed when talking about their students, the relative importance they granted to these topics (as measured by the allotment of time to each topic), and how these student-related topics were connected to the rest of the themes that appeared in their conversations. To this end, we conducted a content analysis of their talks during LS. LS is a collaborative practice of inquiry in whose final stage—the post-lesson discussion (PLD)—teachers discuss their design of a lesson and their teaching of it in class. From a sociocultural and sociocognitive perspective (van Dijk 2014), teachers' discourse and their professional conversations reflect their priorities and play an important role in their learning (Readman and Rowe 2016). Thus, these conversations become an essential space and source of information allowing us to examine how faculty address student-related topics, the pedagogical actions that discussing them promotes, and the learning paths that such conversations open for faculty.

2. Lesson study and teachers' talk

LS is a Japanese originating practice in which a group of teachers collaborate to carry out a cycle that consists of designing a lesson, teaching it while being observed by other participants, and analysing the lesson and the teaching of it in a PLD in order to improve them and gain insight for future lessons (Doig and Groves 2011; Dudley 2014; Fernandez and Yoshida 2004; Lewis and Hurd 2011; Maybee et al. 2016).

Researchers have described LS as practice that provides a testing ground that helps educators learn and develop professionally (Fujii 2015) and that offers conditions for teaching enhancement (Hiebert and Stigler 2017), for supporting teachers' efficacy (Chong and Kong 2012), for helping teachers develop their pedagogical content knowledge (Coenders and Verhoef 2018), and for changing teaching beliefs and routines (Lewis and Perry 2014). These features of professional development during LS are linked to the ultimate goal of improving students' learning (Lewis 2009; Murata 2011; Suzuki 2012; Verhoef et al. 2013; Yoshida 2012).

Thus, the lessons that teachers design during LS are meant to address the gap between students' present competences and those that their teachers want them to develop, highlighting potential learning difficulties and stating the learning goals and the expected learning outcomes (Doig and Groves 2011; Fernandez 2010; Lewis and Hurd 2011; Murata 2011; Takahashi and McDougal 2016; Yoshida 2012). In this sense, LS allows teachers to move towards student-oriented teaching practices (Fernandez and Zilliox 2011; Lewis and Tsuchida 1999; Lewis et al. 2013; Murata and Takahashi 2002; Takahashi and McDougal 2016) and, according to Japanese teachers', encourages them to develop 'eyes to see children (students)' (Lewis 2002, 12).

From a sociocultural stance, we would expect the shift towards student-centred practices in teaching to be apparent in the teachers' conversations and discourse, as the observable display of their thinking. Several researchers have used conversation analysis to study or offer information about the topics that teachers discuss in LS. Parks (2008) analysed conversation events amongst preservice teachers and found that, amongst the

six themes they discussed, the episodes of conversation about students were second in number, only after the discussion of pedagogical strategies. Fernández (2010) studied prospective teachers' learning through a modified version of LS and included the analysis of their conversations. Although the study did not address the topics of conversations as Park (2008) had done, the author reports a participants' growth in their attention to the student-learning goal over the course of the LS process. Meyer and Wilkerson (2011) analysed the impact of LS in middle schoolteachers' knowledge. They focused their analysis on discussions of lesson design and their findings reveal a connection between the length and depth of teachers' talk dedicated to discussing and anticipating students' questions and responses, and the growth of their knowledge for teaching the content. Suzuki (2012), on the other hand, instead of studying conversations during the lesson design as Meyer and Wilkerson (2011) did, analysed the final meetings with five elementary school teachers. The author reveals that teachers' professional discourse focused on connecting students' learning to what they had taught and on analysing their own learning from watching the students learn. Like Suzuki (2012), Murata et al. (2012) report on research amongst elementary schoolteachers. The authors analyse conversations amongst three teachers during their LS meetings and find that, at the PLD, the teachers talked more about their students than about the contents or their own teaching. Following Suzuki (2012) and Murata et al. (2012), Dudley (2013) also studied two elementary schools LS cases. The author analyses teachers' discourse interactions and reports that the participants seemed to have gained knowledge about their students' way of learning, given their talk about what the students found hard, about learning difficulties and about what the students still needed to learn. Like Parks (2008), Amador and Carter (Amador and Carter 2016; Amador and Weilan 2015; Carter and Amador 2015) focused their research amongst preservice teachers. The authors analyse the participants' conversations during LS and found that preservice teachers paid attention to and interpreted students' actions and words (Amador and Carter 2016), but that most of their talk-72% of the comments analysed—was not focused on students' thinking (Amador and Weiland 2015). In a similar vein, So, Weiving and Xiong (2016) analysed levels of participation and the depth and topics of conversations during LS amongst secondary teachers and reveal that, in relation to students, the teachers discussed group work and collaboration, attitudes, meta-cognition, thinking and misconceptions. Concurrently, in the study most similar to our own in terms of goals and approach, Lee Bae et al. (2016) studied middle school teachers' talk to analyse their learning. The authors developed a set of codes related to the teachers' professional learning and change, five of them specifically related to how the teachers talked about their students (their capacities, their ways of learning, the teachers' goals for them, their possible behaviours and their content knowledge and ideas). Differently to what Amador and Weiland (2015) found amongst preservice teachers, Lee Bae et al. (2016) found that the middle school teachers' conversations were primarily focused on students and, most frequently, this was to talk about students' knowledge and points of view, including talk about how and what students learn. In a group of interrelated studies—Warwick et al. (2016), Vrikki et al. (2017), Warwick et al. (2019), and Vermunt et al. (2019)—the authors studied primary and secondary education teachers' conversations during LS. These authors report that the episodes in which the teachers discussed their students' learning strategies and promoted future pedagogical intentions were 'only a small part of the total content of the teachers' discussions in their reflective sessions' (Warwick et al. 2016, 566). Nevertheless, they also show that the participants were able to develop professionally through discussing their students' difficulties and learning (Warwick et al. 2016). They argue that if teachers focus their attention on particular students—rather than on the whole group—this 'partly' (Vrikki et al. 2017, 221) promotes teachers' individual learning and 'may' (Vermunt et al. 2019, 70) also contribute to foster meaning-oriented learning paths for them. Another group of studies, conducted by Helgevold et al. (2015), Bjuland and Mosvold (2015) and Bjuland and Helgevod (2018), analysed dialogic moves and focus areas within mentoring conversations with student teachers. These studies reveal that participants talked more about students during LS interventions than in interventions conducted under a 'business-as-usual condition' (Helgevold et al. 2015, 130). However, they also report struggles to shift the teachers' attention towards students' learning (Bjuland and Mosvold 2015) and the importance of mentors acting as knowledgeable others to move the dialogue towards the discussion of students' learning (Bjuland and Helgevod 2018). Finally, Kvam (2018) reports on research about the potential of LS to foster learning amongst primary education teachers and reveals that their conversations were mainly descriptive and focused on practical rather than analytical features.

Lastly, it is worth mentioning that many of the studies described here were about cases that included elements and/or were conducted in contexts that could have affected the topics participants talked about and their relative importance within the discussions. Examples of this are the use of guidelines to design the lessons (Parks 2008), the use of observation guides to support the later discussion about students' thinking and learning (Amador and Carter 2015), the provision of directions to guide the thinking of the participants during the discussions (Fernández 2010; Murata et al. 2012; So et al. 2016), and the use of 'case pupils' (Dudley 2013, 110; Vrikki et al. 2017; Warwick et al. 2016; Vermunt et al. 2019), allowing the participant teachers to use the students' voices in their discussions (Warwick et al. 2019) and, this way, supporting the transformation of their teaching practices (Cook-Sather 2019).

3. Methods

3.1 Focus of the research

As our review shows, previous research has generally been carried out in the school context, revealing a lack of studies about HE teachers' conversations during LS, evincing the need of research in relation to LS at this educational level (Vermunt et al. 2019). Given the strong relationship between context and discourse (van Dijk 2009), we cannot assume that the topics that HE teachers discuss when they talk about their students will be the same and will be discussed in the same manner as it has been found amongst schoolteachers and preservice schoolteachers. For this reason, we aim to unveil the student-related topics that faculty in HE discuss, their relative importance, and how they are connected to other conversation topics. This approach also allows us to analyse how student-centred faculty members' approach to teaching is, the dynamics of their professional conversations and the course of their learning paths.

3.2 Participants and context

Our research was conducted between 2017 and 2019 after receiving ethical approval (Institutional Review Board 00003099). The participants were faculty from different university campuses in Barcelona who were enrolled in an innovation programme in which they carried out LS or clinical supervision to design their lessons.

As of July 2019, 204 faculty members had participated in the programme. In this article, we analyse and discuss conversational data from health-education faculty. The inclusion criteria for participants was that they were: 1) carrying out a LS cycle, 2) teaching for different health-education degrees, and 3) committed to participating in the programme until its end, agreeing to be audio- and video-recorded.

Our 11 participants included nine faculty members meeting these criteria and two knowledgeable others (also faculty) who accompanied them throughout the programme and, following Takahashi (2014), provided final comments from an external point of view. As for the faculty, they came from undergraduate degrees in medicine (one participant), nursing (five participants) and podiatry (three participants) and carried out three full LS cycles following the process earlier described of designing a lesson, teaching it under observation by other participants, and analysing it jointly in a PLD. The students who attended the delivery of the three lessons (n=140) voluntarily consented in writing to be recorded and for the recordings to be used in our research.

3.3 Design, procedure, data collection and analysis

We carried out a multiple case study, in which the cases were the three LS cycles that the participants conducted. Following Stake (1995), the case study allows for inductive interpretations of a research topic that, at the same time, remain sensitive to the context. Moreover, the multiple case study makes it possible to reveal new meanings and is considered useful for retrieving more robust data (Yin 2009).

For the analysis of the data, in order to identify student-related topics, quantify their importance and analyse their connections with other topics, we carried out a summative content analysis (Hsieh and Shannon 2005). This approach is aligned with our stance regarding the connection between conversation and discourse, on the one hand, and learning and knowledge, on the other (Readman and Rowe 2016; van Dijk 2014).

The main source of data for our study was the transcriptions of the conversations during the PLDs (PLD1, PLD2 and PLD3) that the faculty carried out at the end of each of the LS cycles. Beyond this, we also conducted pre- and post- qualitative semistructured interviews, and audio-recorded and observed the different meetings carried out and the delivery of the lessons that the participants had designed. We did this to know more about the participants, to better understand their comments during the PLDs and to improve our understanding of the conversation segments we analysed.

The process we carried out to gather and analyse the data was as follows:

- Interviewing the participants before the beginning of the LS cycles.
- Observing and audio- or video- recording the meetings for lesson design, the teaching of the lessons, and the three final PLDs.
- Transcribing the PLDs. Recorded time was five hours, 17 minutes and 34 seconds.
- Reviewing the recordings and interviews; an essential strategy in qualitative content analysis to re-familiarise ourselves with participants and context (Williamson, Given and Scifleet 2013).
- Interviewing the participants after the LS cycles to resolve our doubts about our interpretation of the segments transcribed.
- Open coding of PLD1 by the first author. Moving through the data phrase-byphrase in a cyclical process of selection, categorisation and comparison (Strauss and Corbin 1998), the first author developed a set of 30 inductive codes describing the topics discussed by the faculty.
- Axial coding by the second author. Author 2 reviewed PLD1 to improve the sensitivity of the set of 30 codes, revise their accuracy and refine their properties. Through this process, the number of codes was reduced to 27.
- Coding of PLD2 by the first author using the set of 27 codes. Nine new inductive codes emerged, amounting to a total of 36 codes.
- Axial coding by the second author reviewing PLD2. Through this process, the number of codes was increased to 37.
- Coding of PLD3 by the first author using the set of 37 codes. Six new inductive codes emerged, amounting to a total of 43.

- Axial coding by both authors reviewing PLD3 in order to refine the properties of each code. After this, the number of codes was reduced to 30 (different from the initial 30).
- Testing the reliability and validity of the 30 codes. Separately, both authors coded 15% of PLD1 and PLD2. The inter-coder agreement remained between 85 to 92% for all the codes.
- Recoding the PLDs using the tested set of 30 codes. The five hours, 17 minutes and 34 seconds were coded in 455 conversation segments as the topics shifted.
- Creating a relational model with seven categories (broad topics) in which the 30 codes were integrated as subcategories (subtopics).
- Counting and analysing for each category and subcategory the total of segments coded and the time that participants dedicated to discussing each one.
- Analysing the connections amongst the 455 segments found. We conducted this analysis because when we fragment a conversation, we are isolating elements that occur in a continuum. Thus, we consider that attending to how the segments were related to each other offers a more valid representation of the conversations and of their dynamics. To do this, for each of the 455 segments, we assessed whether it was connected to or entirely differentiated from its immediate surrounding segments; thus, for the 455 segments we studied whether they were topically related to the preceding or succeeding segment. Given this, each segment had two potential connections, except for the first and last of each of the three PLDs, which only had one. Overall then, the number of potential connections was 904. In our analysis, we found a total of 722 relevant connections amongst the 455 segments, allowing us to quantify and study the relation amongst topics.

4. Findings

Our findings reveal six different topics of conversations in which the faculty, explicitly, refer to and talk about the students to whom were teaching the lesson, amounting for a 14.33% of the total conversation time and a 23.13% of the connections found (see Table 1). These topics are:

- Students' engagement during instruction: segments of conversation in which the faculty discussed the students' engagement and participation during the instruction of the lessons they were analysing (usually in terms of lack). This segment from PLD2 (0:05:56-0:06:06) by a nurse educator exemplifies this topic: 'I only "play" with 30% of the students, those who respond, participate and do things. But the others...'.
- Student-teacher interaction during instruction: segments in which the faculty commented on in-class interactive situations with the students. This segment from PLD2 (0:53:04-0:53:03) by a podiatry educator exemplifies this topic: '(the student) *said something and you told him, "Speak louder", but it was like he had already done enough by opening his mouth to begin with*'.
- Students' thinking during instruction: segments in which the faculty discussed what they thought their students were thinking during the delivery of the lessons. This segment from PLD3 (0:06:52-0:07:06) by a podiatry educator exemplifies this topic: '*Before reading and trying to do what we asked them, they just see some tasks to do and think "Phew, what a drag! I didn't expect so much work!"*'.
- General ideas and beliefs about their students: segments in which the faculty commented on their general points of view about their students (how they perceive their motivation, comparisons with past cohorts, etc.). This segment from PLD3 (1:15:23-1:15:50) by a medical educator exemplifies this topic: '*It is difficult for*

them. Professor Seldon (pseudonym) always says that students are "course credit highwaymen". And they know it. For them, once something is done, it's done, don't ask them about it again'.

- Students' learning as a consequence of the lesson: segments in which the faculty reflected on and discussed what they thought their students might have learnt because of the lessons. This segment from PLD3 (1:00:54-1:01:05) by a podiatry educator exemplifies this topic: '*I think that, at the end, they understood what the meaning of a structural plan is, something they didn't get at first'*.
- Students' discourse: segments in which the faculty mentioned how the students expressed themselves and the type of language they used during the lesson. This segment from PLD2 (0:23:30-0:23:41) by a nurse educator exemplifies this topic: *These students were showing their satisfaction as they were reaching the correct answer*'.

In Table 1 we show how much these topics were discussed relative to the total conversation time. We also show the percentage of the total connections for each of these topics.

[TABLE 1 HERE]

Out of the 23.13% of connections for student-related topics, Table 2 reveals with which other topics they were connected and the relative weight of these connections.

[TABLE 2 HERE]

More specifically, student-related topics were connected to other topics in faculty members' discussions as follows:

• Students' engagement during instruction (10.11% of total connections). This topic occurred in sequence most frequently with:

- o Descriptions of previous teaching experiences: 16.44% of the connections
- Change proposals for the lessons they designed: 13.70%
- The activities they designed: 9.59%
- Student-teacher interaction during instruction. (3.19% of total connections). This topic occurred in sequence most frequently with:
 - Descriptions of other situations occurred during the instruction: 30.44%
 - o Students' engagement during the instruction: 17.39%
 - The activities they designed: 13.04%
- Students' thinking during the lesson. (4.99% of total connections). This topic occurred in sequence most frequently with:
 - Students' engagement during the instruction: 13.89%
 - o General ideas and beliefs about their students: 11.11%
 - o Students' discourse: 8.33%
 - o General ideas and beliefs about teaching and learning: 8.33%
- General ideas and beliefs about their students. (2.63% of total connections found).
 This topic occurred in sequence most frequently with:
 - o Descriptions of previous teaching experiences: 31.58%
 - Students' thinking during the lesson: 21.05%
 - o Participants' overall impression of the lesson they designed: 10.52%
- Students' learning as a consequence of the lessons. (1.66% of total connections). This topic occurred in sequence most frequently with:
 - Contextualising the lesson in the context of the subject: 16.67%.

• Descriptions of previous teaching experiences: 16.67%.

• Students' discourse. (0.55% of total connections). This topic occurred in sequence most frequently with the topic of students' thinking during the lesson: 75%.

5. Discussion and conclusion

Our results show the topics that faculty discussed in relation to their students, the relative time dedicated to each (as a measure of importance), and how these student-related topics were connected with the rest of topics that the faculty discussed. Here, we discuss the most relevant findings and contrast them with previous research about LS in order to bring light to faculty's conversations focusing on students and to their professional learning.

As described, all the student-related topics taken together amount to only 14.33% of the conversation time. This is different from previous studies analysing teachers' conversation topics during LS (Parks 2008; Suzuki 2012; Murata et al. 2012; Lee Bae et al., 2016), in which these topics were the most discussed. Instead, our results are closer to what Bjuland and Mosvold (2015) and Amador and Weiland (2015) found, given that faculty seemed to struggle to shift their attention to students' learning and that student-related topics accounted for only a small part of the discussion time. As a matter of fact, our 14.33% is very similar to the 10% that Amador and Weiland (2015) found when they analysed the contribution to the discussions during LS of doctoral students with teaching experience. Differently from what Helgesvold et al. (2015) found, our participants behaved more as teachers under 'business-as-usual conditions' rather than under the conditions that a LS approach is supposed to foster, in terms of moving towards a student-centred approach to teaching (Fernandez and Zilliox 2011; Lewis and Tsuchida 1999; Lewis et al. 2013; Murata and Takahashi 2002; Takahashi and McDougal 2016).

Despite the fact that the time that faculty spent discussing student-related topics was low, these topics were involved in 23.13% of the 722 thematic connections we found amongst conversation segments. The different percentage between conversation time (14.33%) and connections (23.13%) reveals that student-related topics were important conversational axes that often linked to discussion about other related topics.

These connections are of particular importance when they show that studentrelated topics were followed by reflections and proposals for pedagogical actions because, as Loughran (2010) points out, when this happens, teachers engage in learning and, potentially, also improve their students' learning (Kreber and Castleden 2008). In our research we observe this especially in the analysis of the most-discussed and mostconnected student-related topic: the students' engagement during the teaching of the lesson. The importance our participants assigned to this topic, also found by So et al. (2016), reveals their worries about the students' lack of engagement—a major concern in HE (Rocca 2010) given its recognised influence on learning (Kahu 2013). At the same time, our analysis of the connections with other topics shows that their concerns about the students' engagement was not exclusive of the lessons the participants were discussing, since they frequently connected their comments about this topic to previous teaching experiences. However, as we have mentioned, their comments about student engagement did not stay at the level of mere description or complaint, as Kvam (2018) found. Instead, we observe that in 13.7% of the connections, these comments were followed in the next segment by a pedagogical action in the form of proposal for changing the lesson and how to teach it, aligning our findings with the ideas of Takahashi and McDougal (2016) and Hiebert and Stigler (2017), who connect LS with gaining insight for teaching enhancement. Thus, as in Vrikki et al. (2017), centring attention on the students had consequences for the faculty in the form of interpretative learning. Concurrently, our results are similar to findings by Warwick et al. (2016), who report that discussions about students (about their learning strategies, their time to think and their group interaction) led to lesson structure changes and agreements about future pedagogical intentions.

Still, signs of interpretative learning were not observed for the other studentrelated topics, for which the results do not show connections to proposals for pedagogical action in the immediately preceding or subsequent segments. Instead, after the expected connections with other student-related topics (21.6%, see Table 2) and with the lesson itself (20.3%), the highest percentage of connections were with descriptions of previous teaching-learning experiences (16.8%). Connecting experiences can lead to equally valuable forms of learning if it is done through reasoning and through examining professional practices (Danielson 2008). However, in our study, participants described previous experiences without engaging in further analysis to seek meaning, in contrast to what Vermunt et al. (2019) finds.

Our findings reflect an even lower number of connections between the studentrelated topics and the participants' ideas and beliefs about teaching and learning (4.8%, see Table 2), their general pedagogical thinking. This shows that, in most cases, conversation about these topics did not lead them immediately to link practice to theory as Cajkler et al. (2013) and Vermunt et al. (2019) found—nor were these topics followed immediately by observable changes in their beliefs (as expressed through talk), as Lewis and Perry (2014) expect to happen during LS.

Our results also reveal that the participants' conversations barely addressed the most relevant topic in a student-centred approach to teaching: the students' learning and thinking itself (see Table 1). This reveals a discursive mode that is not attentive to the connection between students' learning and what teachers teach, in contrast to what Suzuki

(2012) found amongst elementary schoolteachers, and differs from what previous studies report about the teachers' increase in knowledge about and attention paid to the students' learning during LS (Dudley 2013; Fernández 2010; Lee Bae et al. 2016; Suzuki 2012). If we consider that the goal of LS is to improve students' learning by attending to the learning outcomes, the underrepresentation of these topics in our findings reflects that our participants fell short of achieving that goal and, thus, that they did not make use of the potential of LS to, by attending to these topics in a more student-centred approach, increase their teaching efficacy (Chong and Kong 2012).

Previous studies suggest that offering greater support and guidance to the teachers (Amador and Carter 2015; Dudley 2013; Fernández 2010; Parks 2008; Perry and Lewis 2009; Vrikki et al. 2017; Warwick et al. 2016; Vermunt et al. 2019) could contribute to increase the attention LS participants pay to their students, in general, and to their thinking and learning in particular. Still, the connection between more guidance for teachers and teachers paying more attention to students is not a direct one, nor is it the only path to helping teachers take students into account more. Accordingly, we find studies in which supporting teachers more did not make student-related topics majoritarian (Amador and Carter 2016; Amador and Weiland 2015) and others in which (Lee Bae et al. 2016), without any apparent scaffolding, teachers were reported to dedicate a significant portion of their conversations to talking about students. Even in studies analysing modified versions of LS—as in Warwick et al. (2019)—with teachers interviewing case students after the lessons to collect their impressions, we find that the input and voices of these students had a limited impact on the teachers' discussion of the lessons.

Students' discourse and interaction with the faculty were the other two topics that our participants discussed and, as our findings show, their relevance was low, especially in the case of discourse. The comments related to student-teacher interactions were the second most-discussed student-related topic but, differently from what we found with the discussion of the students' engagement, for this topic we mainly found connections with descriptions of moments of the instruction (30.44%), and not with pedagogical actions. Thus, even if teachers can learn by observing and commenting on their experience (van Dijk 2014), the lack of reasoning and pedagogical inferences would leave the participants' learning related to this topic at a descriptive level (which, in any case, Vrikki et al. [2017] and Warwick et al. [2019] consider equally valuable as interpretative learning). Beyond this, attention to the students' discourse was incidental. On one hand, this finding reflects students' lack of engagement and participation in the lesson. On the other hand, it shows our participants' lack of the habit of or interest in considering students' thinking and intentions, elements that are essential to understanding students, the meanings of their words (van Dijk 2009) and their learning.

In conclusion, our results suggest that faculty's conversations in LS have room to become more student-centred, as does their approach to teaching-learning. Studentrelated topics were under-represented in the discussions, failing to fully realise the expectation that LS will move the teaching practice towards more student-oriented practices. In this sense, our findings contrast with those of previous studies analysing teachers' conversations within LS; however, our study differs in that previous studies were not conducted in an HE context and also their designs tended to provide scaffolding to guide teachers' thinking. However, even if the student-related topics amounted to a low percentage of the conversation time in our study, the analysis of the connections amongst topics reveals that student-related topics served as conversational axes, linking to talk about other topics and providing an essential backbone to the discussions.

Faculty discussions about students were mostly concerned with the students' engagement, and it is precisely in this area that the analysis of the connections to

subsequent segments reflects a more analytical stance amongst the participants. Comments about student engagement were often followed by pedagogical actions and by signs of interpretative learning. This is not the case for the rest of student-related topics students' interaction with the teacher, their discourse and their thinking and learning which had low relative frequency in terms of conversation time and connections with other topic. The results show that for these topics, the participants' stance remained mostly at a descriptive level, rather than leading to proposals for pedagogical changes in their lessons or to the discussion of their ideas and beliefs about teaching-learning.

Our study offers a new approach to analysing discussions, introducing the analysis of the connections amongst topics during LS. It also introduces a new study context: HE. The findings reveal features of these conversations and the student-related topics worth considering when designing faculty development programmes, especially when they involve professional discussions or Plan-Do-Check-Act cycles that create knowledge at individual, subject and institutional levels (Cheng 2019).

Some limitations of this study should be highlighted. The sample size is relatively small and, though the participants came from different disciplines, they all belonged to the health sciences. A bigger sample, extended to include other fields, might reveal different results, given that talk is affected by the 'common ground' (Clark, Schreuder and Buttrick 1983, 246) shared within an epistemic community. Another limitation is that we did not take into account contextual elements that could affect the participants' talk (van Dijk 2009), such as their different appointment types and career stages.

For future research, we propose analysing LS discussions amongst faculty from other disciplines and comparing and contrasting more systematically the distribution of and approach to topics in the talk of novice and senior professors. It is also important to conduct longitudinal studies amongst HE faculty, to learn whether time practising LS affects the participants' focus on the students' thinking, as Lewis et al. (2012) report amongst elementary schoolteachers. Finally, we need to know more about how working with case pupils, as in Dudley (2013), might affect teachers' talk in LS discussions, their pedagogical actions and their professional learning

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Tables

	Total time %	% of connections
		out of 722
Student-related topics	14.33%	23.13%
Students' engagement during instruction	4.29%	10.11%
Student-teacher interaction during instruction	3.17%	3.19%
Students' thinking during instruction	2.24%	4.99%
General ideas and beliefs about their students	2.11%	2.63%
Students' learning as a consequence of the lesson	2.04%	1.66%
Students' discourse	0.48%	0.55%

Table 1. Student-related topics, time discussed and connections with other topics

	% of connections
Other student-related topics	21.6%
Lesson-related topics (activities, overall impression,	20.3%
objectives, design, materials, etc.)	
Descriptions of previous teaching experiences	16.8%
Topics related to the delivery of the lesson (descriptions,	16.7%
self-perception of teaching, difficulties, etc.)	
Proposals for changes to the lesson and how to teach it	13.1%
General ideas and beliefs about teaching and learning	4.8%
Context-related topics (subject, degree, etc.)	4.4%
LS- and PLD-related topics	2.3%

Table 2. Connection of student-related topics with other topics