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What Exactly is Peer Learning? An Exploratory Analysis of Student Class Interaction

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Abstract

The study explores a long-standing assumption that students learn from peers, and that this learning can be enhanced through carefully designed instruction. Nevertheless, empirical evidence about in-class peer learning designed by the teacher is lacking in how it is enacted and how students respond. We analysed class recordings, and perceptions of teachers and students in 15 Bachelor and Masters' class sessions in humanities, social sciences, and medicine at one European Union university. We found great variation in how teachers designed peer-learning activities. We saw, for instance, how the same strategy can vary in its effectiveness depending on the degree of teacher's tactical thinking and why some designs were more effective than others. By documenting the commonalities and differences across the classes, our study offers an empirical foundation on which to build a more robust understanding of how to recognise and compare manifestations of peer-learning in the classroom.

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Introduction

In many higher education courses teachers intend to stimulate peer learning (PL), i.e., they prepare an activity or activities (O'Donnell & King, 1999) where students can share their own knowledge, ideas, and experiences (Boud, 2002). PL has been reported to facilitate a fuller consideration of the studied problems (Cosh, 2000), deepen learning and understanding (Crouch & Mazur, 2001; Hodgson et al., 2014; Bozzi, et al., 2021); foster critical thinking and reflection (Boud et al., 1999). Published studies document that PL enhances students' cultural awareness (Keenan, 2014); makes students respect each other (Boud et al., 1999); improves integration of international students (Idris et al., 2018), fosters communication, collaboration, learning to learn (Boud et al., 1999) and ensures students view their classes as enjoyable (Hodgson et al., 2014).

Peer-learning studies describe various designs and examples of strategies, characterise their desired outcomes, and recommend how to plan courses and programmes to use PL effectively (Bedford et al., 2020; Boud et al., 2001, pp. 40-44; Crouch & Mazur, 2001; Hildson, 2014; James et al. 2022; Gamlath, 2022; Keenan, 2014; Khan & Watson, 2018; Narendran et al., 2018; Topping et al., 2017). Yet, none of the studies details what students and teachers are doing when they are supposedly engaged in PL. Thus, the nature of PL remains unclear, as in which interactions can be categorised as PL and which not.

Studies of PL can be categorised into two clusters. One cluster explores institutionally supported practice *outside the classroom* when more advanced students take on teacher's instructional role as the teacher is typically not present (such as peer-assisted learning schemes where more senior students help their junior peers or similar peer-assisted study sessions). Boud et al. (1999: 414) call this peer teaching. Another cluster looks at PL embedded *in the classroom*, enacted instruction. In this context, the underlying rationale for PL is that student-centred design enhances student learning. In our paper, we explore student learning *in the classroom* (not outside) because the existing literature has not yet empirically examined it.

Below, we first synthesise the literature: how PL is defined and why is it assumed to benefit student learning. Then we explain the context in which data for this study were collected and outline our methods. Finally, we present the findings, their significance, and implications for research and pedagogical practice. Our research questions are the following:

Q1. How do teachers plan class time to generate PL?

Q2. What type of and how much student interaction do different designs encourage?

Q3. What role do teachers play in the enactment of PL?

Q4. How do students perceive different PL strategies?

Q5. How can we recognise PL and its most effective variations in actual classroom interactions?

The answers to these questions will provide understanding about the possible variation in teacher-chosen strategies and student responses to them.

Literature

The broadness of the notion of PL is well illustrated by at least 11 synonyms used in the literature: peer(-led) instruction (Crouch & Mazur, 2001), peer-academic learning, peer-to-peer learning, peer-assisted learning (Keenan, 2014), peer mentoring/tutoring, learning communities or transition mentoring (Ody & Carey, 2013), cooperative learning or structured mutual peer interactions (Topping et al., 2017), peer support or the peer review activity (Bedford et al., 2020). Overall, researchers and practitioners concur in viewing PL as an educational practice or activity in which students learn by interacting with fellow learners, not formal teachers or experts – though in PL activities they may undertake such roles. PL requires students to be actively involved in learning (Crouch & Mazur, 2001) and talk to each other, so that they can test their ideas and embrace the ideas of others to create more complex understandings (Hodgson et al., 2014). Various elements of PL are emphasised in these definitions such as student interaction, move from independent to mutual learning, or students taking an ownership of academic discourse and practice (See Table 1), which contributes to the broadness of the concept.

Table 1

Definitions of PL

O'Donnell & King (1999), p. 3	"an educational practice in which students interact with other students to attain educational goals"
Boud et al. (1999) pp. 413-414, 420	"the use of teaching and learning strategies in which students learn with and from each other without the immediate intervention of a teacher" thus "moving beyond independent to interdependent or mutual learning"
Khan & Watson (2018), p. 9	"those who know teach others in the class, as well as students arriving at solutions by group discussions and co-operative learning. However, the instructor is still the only expert whose time is shared among the students and may not be adequate to meet demand"
Hildson (2014), pp. 5,9	allows students being "not shy about making mistakes or seeming ignorant", this way taking "ownership of academic discourse and practice"
Crowley-Cyr & Hevers (2021), p. 7	"students can engage with discipline learning via group participation with their peers"

Given these varied emphases, PL can encompass a range of activities, for instance, one-to-one learning partnerships, pair work, group projects and student-led sessions (Boud et al., 2001, pp. 40-44; Crouch & Mazur, 2001; Hodgson et al., 2014), including in online spaces (Crowley-Cyr & Hevers, 2021). Whereas some categorise PL activities as when the authority (i.e., teacher) is not present (Boud et al., 1999), we concur with others that the teacher's absence is not a necessary condition for PL (Bunting, 2020; Crouch & Mazur, 2001; Keenan, 2014; Topping et al., 2017). Another aspect in which researchers and practitioners often disagree is whether PL is bound to a

discipline. Keenan (2014) defines PL as a discipline-owned practice, and PL often is practiced in classes in a specific discipline (e.g., Crouch & Mazur, 2001). However, PL is typical, for example, for challenge-based learning (Nichols et al., 2016) when subject diverse student teams solve problems that often have a multidisciplinary character such as devising strategies for communities to recover from a disaster.

Despite reported benefits in most studies that discuss PL, the instructional design and the interactions were not examined (for an exception to this see Hodgson et al., 2014), nor the teachers' strategic thinking, i.e., choosing strategies to achieve specific learning outcomes. Also overlooked was moving from strategic to tactical thinking: thinking through the moment-by-moment ways in which the strategy will be enacted (McAlpine et al., 2006).

Method

The researchers

The first and second authors jointly designed the study. The first author was involved in the data collection, so had a grounded knowledge of the actual classroom settings, activities, and responses of the participants as we engaged in analysing the data. The second author's role was to stimulate reflexivity about collected data, including offering alternative interpretations based on her own beliefs, values, and perspectives (Lincoln & Guba, 1985) informed by different contexts in which she had previously conducted similar studies.

Context

The teachers and students in this study come from a research university (about 20,000 students) in an European Union (EU) member country. Between 2020 and 2022, teachers in this institution had the opportunity to take a two-year programme designed to help them teach in student-centred, reflective ways. This programme forms the precursor for our study of PL enactment. In Semester 1, the participants attended seven half-day workshops on class design, facilitation, and evaluation. Two workshops trained teachers to be effective in supporting learning online after all classes shifted online due to the COVID-19 pandemic. A central aspect of the programme was helping teachers to design and facilitate PL for their students. This is because literature recommends PL to compensate for the inherent focus on the individuality of a learner in a student-centred approach to teaching (O'Neill & McMahon, 1995). During the workshops, facilitators explained PL as a concept and demonstrated various ways to encourage and assess PL.

In Semester 2 participants designed a plan to innovate one (under)graduate they taught; they wrote session plans and designed research to assess outcomes of student learning. The courses varied from history, journalism, law, linguistics, medicine, museology, to psychology. In Semester 3 participants taught their courses following the plans and collected data. A peer observer attended at least one class session and met with the teacher to discuss the observation. In Semester 4, the participants wrote a report about the implementation and results of their research project.

Programme participants were supported throughout by coaches, mostly professional educational developers. Given the lack of empirical evidence, the coaches had a conceptual understanding of PL developed through reading, teaching, and discussion, but no empirical examples to draw

on when supporting programme participants. For more about the programme, which was accredited by the UK Staff and Educational Development Association, and its results, see Pleschová & Simon (2022).

Design

In this pilot qualitative study, we chose to analytically integrate two distinct data collection methods: a) videos of classroom in-the-moment teacher and student interactions; and b) student perspectives collected through interviews. In our view, the class observations are central forms of evidence as they document what really happened and are the foundation of the validity and robustness of the study, whereas the interviews are retrospective reports about the class and the course more generally.

Data

Prior to commencing data collection, the study received approval from the Research Ethics committee of the project partner university, No. EKV-2020-093. All research subjects, students and the 23 teachers who had completed the programme, gave prior written consent and their participation was voluntary. Out of the 23, three did not have any international students on their course because the COVID-19 pandemic drastically reduced the number of incoming Erasmus+ and exchange students. We decided to exclude them from the sample as we wanted to specifically explore learning in groups that included international students. Two participants only taught in the Spring semester and due to technical issues, we could not video record course sessions of three participants from the partner university.

All class sessions took 90 minutes and were held in normal workhours. For each teacher, one class session was video-recorded either using a camera installed in the room or software like Google Meet (one case) or Microsoft Teams (institutionally supported software for which use teachers were trained). Recording took place between 26 October and 15 December 2021, usually capturing a class when the teacher and students had already met several times so had experienced opportunities to get to know each other. Two of these classes were the last sessions of the course.

The final sample therefore included 15 class sessions (nine online, six face-to-face, one hybrid) taught by 15 different teachers who had all completed the programme from the case university described above. Students in these classes were typically 19-25 years old, with about 10-25 students in a class. Students used computers to join the online class and from how they contributed it was evident they had access to stable internet. Teachers used several learning activities in each online class session based on peer learning and sometimes slowed down the pace to compensate for potential fatigue. All classes were taught in English because they included international students, though English was usually not the students' first language. Two teachers reported using PL before the programme, presumably based on a tacit understanding of PL, and how to make it productive. Data included a) 15 video-recorded class sessions (roughly 225 students) from 15 courses; b) the first author's observation notes, c) notes from discussions with each of the teachers; and d) 18 post-class student interviews.

During video-recorded face-to-face and hybrid classes, the first author created a description of the class while recording and observing the class: the course outcomes as communicated by the class teacher to the students; activities to achieve the outcomes; when these activities took place during the class session; and how students engaged in activities. After the observed/video recorded session ended, the researcher discussed with the teacher for about 10 minutes their reflections on student learning, teacher performance in that class and overall views on the course/class. These notes became another data source. The class sessions offered online were either synchronously observed by the first author, or the teacher provided the researchers with the video recording from the class. For one such video-recorded class sessions, no post-class discussion with the teacher took place.

When we (the authors) watched the class recordings, we excluded four classes as they contained no student interaction: teachers spent almost the entire class lecturing. We further left out two other class recordings as they were conducted in a language that neither of us spoke fluently. This reduced the sample to nine.

For the interviews, students were purposefully selected to include those actively engaged in a PL exercise and at least one international student per observed class. International students were visiting students from other European and non-European countries through an exchange programme; in the case of medicine, they were attending the degree programme in English offered by the university exclusively for international students. With four exceptions, we arranged group interviews of two or three students. Overall, the interviews analysed in this study included 15 international and three home students.

The first author identified a section of each video that included one student saying something and then reaction from peer(s) and re-played this conversation to students at the beginning of the interview to ground them specifically in that class. All but three interviews occurred within 8 days after the class, so what had happened in that class was recent – with the additional memory prompt offered by the video clip. Students were asked if they knew each other before the class session (most did). They appeared comfortable sharing their views: for example, they freely added to each other's comments and did not hesitate to offer a perspective that was different from their classmates' opinions. They were asked how they experienced the learning atmosphere in the class; what concerns they had; the extent to which they felt engaged; what they had learnt, especially from their classmates; and finally, how the peer-learning activity from the video clip compared with the rest of the class/ course or other courses.

The face-to-face interviews were recorded by MS Teams and online interviews were completed also via MS Teams. The recordings generated automatic transcripts that were verified by the first author or an assistant. Then, we imported all data for each class into MaxQDA (VERBI GmbH, Germany), software designed for computer-assisted qualitative data analysis.

We used thematic analysis, involving first deductive, a priori, coding based on the literature, and then inductive, emergent, coding through successive reading and discussion of the data. We first created contextualised transcripts for all classes drawing on the video and observer notes – initially working together and then independently, with exchanges for verification. These time- and speaker-focused transcripts characterised the environment: which students presented or contributed to the activity; what the reaction was from peers; and teacher and how the teacher

began and concluded the class. This meant the transcripts distinguished the parts of the classes with individual presentation (teacher or student) and those with evident interaction.

As a next step, potentially salient episodes of PL were identified by reviewing a couple of transcripts together. This discussion enabled us to define clearly how we recognised an episode. To ensure consistency, we had initially planned to identify these salient moments by watching each recording together. However, after the first couple of recordings, we noted we were bracketing the same parts of the transcripts quite consistently. So, for the remainder of the transcripts, the first author who had observed the classes bracketed the episodes with these decisions reviewed by the second author to resolve any uncertainties; for instance, in some cases we decided to change the episode start/end or merge several episodes into one.

Each episode captured a coherent interaction involving students, for example, when discussing a teacher-assigned task, and might include some teacher talk. Each of us then separately coded the identified episodes. The other researcher then checked the assigned codes, and we resolved disagreements. The entire coding process was iterative. We sometimes found ourselves returning to the recordings to make the transcript richer by including more details, for instance, exactly which of the students contributed, what they said, when and for how long they spoke, if this was a reaction to another student's contribution, etc.

We then read what students told us in the interview, coding it in relation to their specific class experiences of PL and other learning methods (Q4). Finally, we linked class goals and strategies in teacher interviews with actual classroom interaction.

We found this richness of data sources essential for understanding teachers' intentions, the class activities and student responses. Moreover, we used it to make a thick description of the cases to achieve transferability of our findings (Lincoln & Guba, 1985). To establish credibility and confirmability, we triangulated data, and to establish dependability, we asked two course participants to review our article. With coding complete, we then generated a series of data displays using both MaxQDA relationships maps as well as figures representing the time distribution in each class.

Results

Categories of interaction

We begin by reporting on the type and volume of student interaction different designs of PL led to (Q1, Q2). We found two categories of interaction: a) only between students, or b) between teacher and individual students or class. We also categorised interaction as a) solicited by teacher, or b) activated by student(s). Teacher-activated interactions are easy to recognise as they commence with the teacher saying something: a) asking the class a question; b) asking a particular student or group a question; c) assigning a task and giving instructions about it; d) giving a (mini) lecture as part of the PL strategy; and e) making synthesis/elaboration of student contributions.

The second category, student-activated, is still usually part of the teacher's design (e.g., the teacher leaves a pause for students to think and contribute, teacher asks if anyone has any questions), but could be done independently of the teacher's plan. Student-activated interactions

include: a) making a comment or asking class a question; b) referring to a previous student's interaction in his/her statement to class; c) commenting or asking specific student a question; d) acting as a teacher, i.e., giving a presentation, assigning class a task and moderating student contributions or synthesising what other students said. Now we explore variations on this theme:

- class variation in enacting the same strategies;
- variation in the potential opportunity for student interaction;
- variation in the effectiveness of the same strategy due to teachers' use of tactical fine-tuning;
- the importance of teacher involvement in situ to implement the plan; and
- students' affective response and learning from these experiences.

Class comparisons

To ground the results, we compare classes where the teachers used a similar strategy, specifically, case study, student presentation, and teacher mini-lecture (as stimulus for student interaction). For each pairing, the results of the same strategy were different.

The planned outcome of the online *Essentials of Nutrition* class was to help students to explain factors that lead to obesity and suggest how obesity can be treated for different patients. The class started by students briefly presenting homework: perceptions of obesity in their own countries. After the teacher's mini-lecture (12 minutes), two students delivered presentations on a pre-assigned topic and answered questions from peers and teacher on their presentations. Then students solved assigned cases in groups and presented the results in plenary. There was a lot of interaction, including in plenary when it was mainly between the teacher and individual students, whom the teacher called by name, apparently to engage everyone in speaking. Students interacted among themselves when they solved case studies bringing in various factors related to obesity that may have been culturally determined such as eating nuts or vegetarian food.

We contrast the *Essentials of Nutrition* class with the online *Memory and History* class where students also learnt through case studies: they were asked to select a case study that highlights historical themes that people in Central Europe continued to remember. Before the class, students signed up for the case studies, studied them and then delivered a presentation in class, which was followed by questions from peers and teacher. In this class, there was markedly less interaction than in the *Nutrition* class. The teacher explained this by referring to the low motivation to take the class by a sub-set of students from one degree programme who were academically weaker than the other students.

In the face-to-face *Moral Psychology* class, three student groups were asked to deliver interactive presentations (25-30 minutes each), such as explaining the concept of socially-constructed gender. The teacher chose topics of presentations to include concepts relevant to moral psychology. Groups were encouraged to use software that recorded anonymous input of other students and compared student responses with findings from the literature about the concept. The presenting group members then commented on their peers' input and the students were encouraged to ask presenters and each other questions. In this class, one presenting group was

able to incite a lot of interaction among several students. At the end of the session, the teacher debriefed the class by elaborating and making links with what the students had said.

In the online *English for Engineers* class, students were expected to expand their terminology in topics related to construction and energy. The teacher also used student presentations as a learning method, but differently than in the *Moral Psychology* class. Here, four students were assigned to independently prepare and deliver a presentation on a topic, for example, alternative sources of energy. After the presentation, the presenter asked peers questions to check if the students understood the content of the presentation and could use the vocabulary. Presentations were shorter than in *Moral Psychology* (around 16 minutes on average) and only in one case did a student ask the presenter a question during the presentation. Further, a meaningful interaction post-presentation resulted only from one presentation when the interaction lasted nearly twice as long as the presentation; in all other instances, it was no longer than a couple of minutes.

Finally, we compare *Multilingual Communication* and *Introduction to the Study of Language* classes. In the hybrid *Multilingual Communication* class, students were to learn the concept of language mediation through communicating meaning to others who did not understand the language of communication. The teacher asked the students to answer questions via an app and later assigned a group work task. Beyond group work, most class interaction consisted of the teacher making links, elaborating, or asking the class as a whole as student groups reported the results of their work. The students also spent a lot of time asking each other questions and commenting; this included interaction between students in the physical class and online. At the class end, the teacher had enough time for debriefing: stressing the central concept studied in the class and repeating what students were supposed to learn in that class.

In the online *Introduction to the Study of Language* class, where students were to appreciate how languages change in time, interaction between students and teacher and among individual students was much more limited. The teacher started the class by presenting information about the exam and then asked students questions related to the class topic. Then, the teacher spent a major part of the class lecturing (61 minutes), including screening a video and commenting on it. Only in the final part of the class (13 minutes) did the teacher elicit interaction among the students. The teacher had to improvise as the breakout room function was not available for the online class that day and so she asked students a question (to explain the etymology of ‘Christmas’ in their own language). Some students answered the question orally and some wrote their responses in the chat; the teacher then read all students’ contributions aloud and asked those students to expand on their answers. Later the teacher commented on the roots of different words used for Christmas.

By comparing these pairs of classes and comparing them with the other three classes in our sample (Legal Aid Studies, Pathophysiology and History of Private Law) as well as the student responses, we generated four key findings elaborated below, which relate to the type and quantity of student interaction encouraged by different designs of PL (Q1, Q2), teacher’s role in the enactment of PL (Q3), and student perceptions of PL (Q4).

PL strategies varied in the potential opportunity for student oral interaction

While there was not much variation in the number of peer-learning episodes per 90-minute class, there was considerable variation in how the teachers designed and implemented peer-learning strategies. Notably, peer-learning strategies nearly always included some form of plenary class discussion, and one or more from these:

a) Assigning students case studies to solve in groups and presenting the outcomes in plenary.
b) Students taking turns doing interactive presentations using specialised software and then building upon student input in plenary discussion.
c) Inviting students to use the chat function to enter their comments and raise questions in response to the question she gave them, which were then discussed in plenary.
d) Group work to encourage students to draw from their diverse knowledge and experience when answering the teacher-assigned questions in plenary.

How this variation played out is demonstrated in this comparison. In both the *Nutrition and Memory* and *History* classes, the teacher had designed strategies (case studies) to engender interaction; in the case of *Nutrition* lasting 65 minutes; in the case of *Memory and History*, 22 minutes. While each class had the same length and number of episodes, the contrast between the two in terms of students' interaction with each other and the teacher is stark, varying from over 2/3 of the time in *Nutrition* to 1/5 of the time for *Memory and History* (see Figures 1 and 2 below). This emphasises that the choice of learning strategy only partly influences the extent to which students interact – as we highlight in the next point using different examples.

Figure 1

Nutrition class chronology: Each episode = lecture and interaction

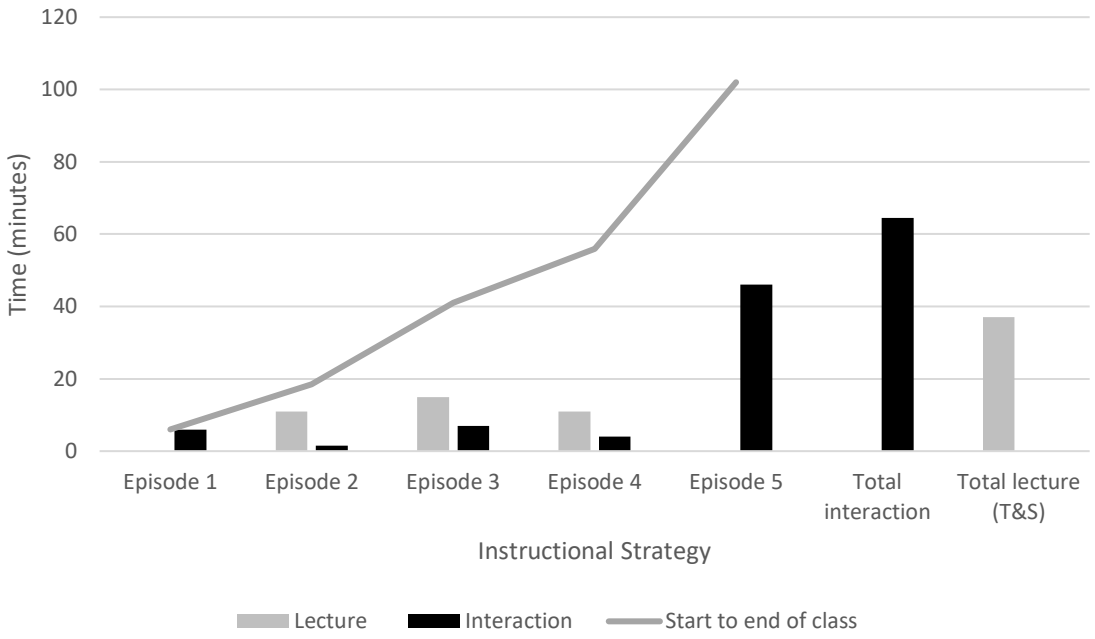
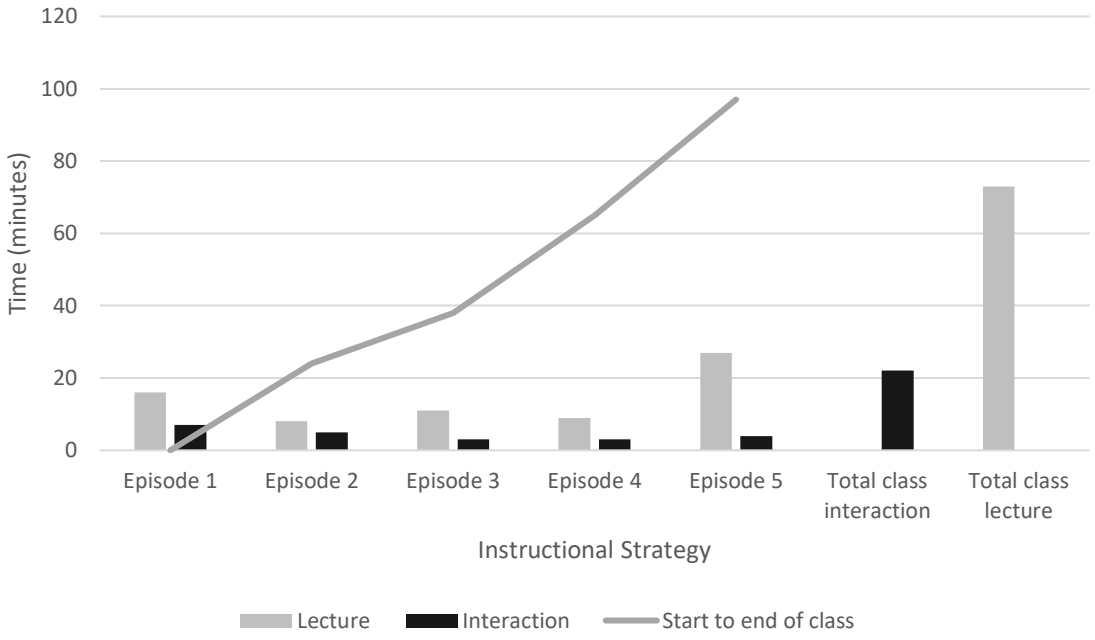


Figure 2

Memory and History class chronology: Each episode = lecture + interaction



The same strategy differed in its effectiveness due to teachers' tactical fine-tuning

Recall that in *Moral Psychology*, three student groups were asked to deliver presentations using software that recorded the students' input and contrast it with the literature. Presenters then discussed findings and student opinion with all students in that class. Teacher involvement was limited to a short debriefing. In the episode that included the last of the three student-led presentations, most of the time (nearly 4/5) involved interaction.

The *Moral Psychology* teacher said he put effort into creating a class atmosphere in which no one felt afraid to contribute. For instance, he introduced the 'Stop' rule: if anyone, for good reasons, feels uncomfortable to express themselves on that topic, they can reference the rule and remain silent. The teacher, who was teaching this class in English for the first time, wondered if the lack of contribution among some home students resulted from lack of fluency. On the other hand, the teacher said he had been pleased to see that groups of students often continued discussing the class topic outside the classroom. We note one caveat: because students were almost fully in charge of leading the class, the time left for the teacher's debriefing was extremely short (five minutes), which was not enough for clarifying misunderstandings or summarizing the key 'take-aways.' The teacher reported this often happened because student presentations took a lot of time.

In *English for Engineers*, the teacher also used student presentations as a learning method but with much less success than in the *Moral Psychology* class. The teacher (with limited teaching experience) had not specified the length of the presentations nor the structure they were to take.

When most presentations were long (i.e., 20 minutes), interaction was short. When the presentation was short (three minutes) and the presenter provided students with questions beforehand, students interacted twice as much as the presentation. Still, interviewed students praised the teacher for creating a climate in which they were motivated to speak up and not be afraid of making mistakes. Students valued learning from peers of different ethnic backgrounds because it helped them to understand English better when pronounced by diverse speakers. Students similarly appreciated other student presentations as a method to expand engineering terminology in English.

Finally, whereas in *Multilingual Communication*, the entire class was designed as a series of exercises that students were to complete, in *Introduction to the Study of Language*, the teacher dominated the class: lecturing, screening the video and commenting on it. Interaction occurred only at the very beginning, when a student asked a question that stimulated some interaction, and at the class end, when the teacher engaged students in an activity.

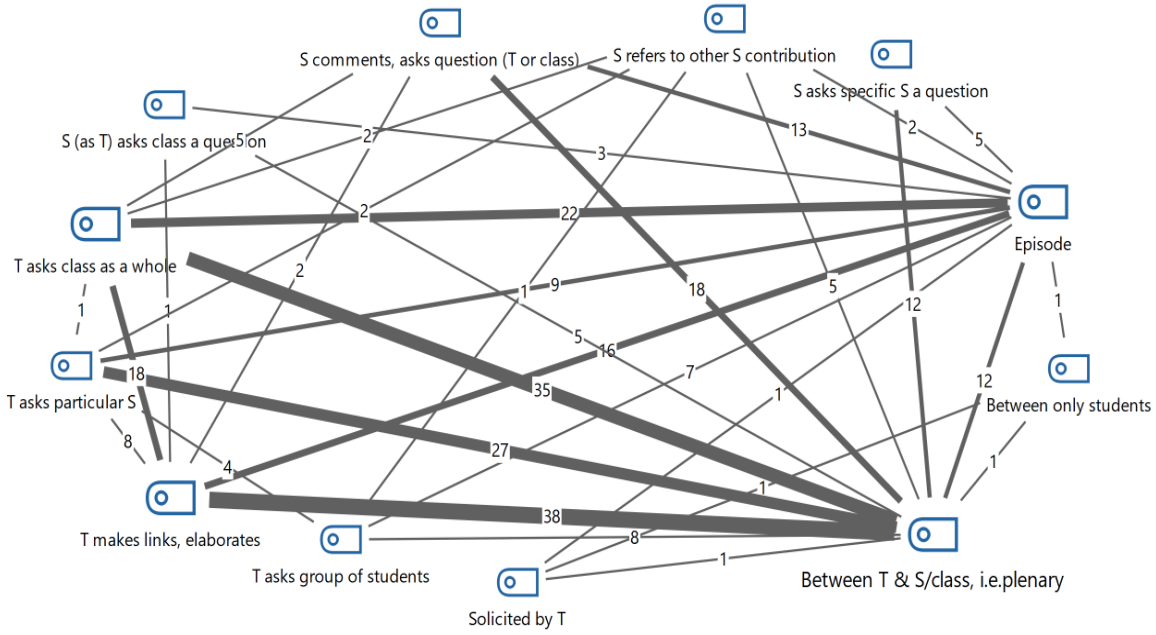
All the teachers in our sample had the freedom to design learning activities for their students and during the programme facilitators demonstrated a range of PL activities. Four teachers chose individual student presentations as a learning strategy to encourage PL – maybe given it is a traditional regional pedagogy. The data revealed that with student presentations, teachers had the most potential to influence student interaction through their tactical thinking when designing the class, i.e., how presenters were to engage others. Once the class had begun, it was much more difficult to influence interaction. As a result, some presentations encouraged interaction whereas others for whatever reasons (e.g., less advanced knowledge and abilities, less effort in preparing, the lack of teacher intervention), led to relatively passive listeners.

Teacher involvement in situ was important to implement the plan

When we looked across the nine courses, we saw the importance of the teacher in furthering peer interaction during the learning activity. The Figure 3 highlights three teacher functions: a) making links and elaborating in relation to student contributions, b) asking the class to respond, and c) asking a particular student to contribute. The map visualises the centrality of teacher in-situ involvement in PL with, in the best cases, students rarely left completely on their own to navigate the tasks given.

Figure 3

Intersection/ co-occurrence of PL codes for all nine classes (S is student and T is teacher).



Students enjoyed and learned from these activities, with some caveats

In post-class interviews for *Moral Psychology*, two students said in their course everyone knew they would be learning from their peers, not just the teacher. One viewed the class/course as a 'quite open and friendly environment to speak freely' and had no major concerns speaking in class. They enjoyed being asked questions and contributing to class discussion. The other said that the student-led presentation and follow-up discussion made him understand the concept (gender as a social construct) and recognise that young people in four countries, where he has lived recently, are very similar in viewing gender issues, despite having different cultural backgrounds and lifestyles. The student added that they learnt from their peers how one should stand up for their opinions, even if others have different views.

The two students interviewed from *Multilingual Communication* praised the learning environment, which they found encouraging for PL. One said: 'The teacher makes such a good atmosphere in class that everybody seems welcome, and all the other classmates follow that atmosphere, and so you just do not feel you are in class'. Students characterised learning in the class/course as 'fun' because they did various interactive games. One commented: 'because through fun you are learning … about other cultures, even things about your own culture that you didn't know. So it sticks with you a lot better than just: ... "Here is a book. And so learn"'. PL made one student acknowledge the need to cherish every language, and that knowing of various languages helps when learning another language. The other realised that in group work one speaks more freely without being afraid of making a mistake in front of a teacher.

In *Introduction to the Study of Language,* one student wished to have more PL activities. 'I personally think that these discussions are more interesting than the class itself to be honest … I find myself more interested in people than in the topic or subject …when you combine these two ... [teacher] talking about the phenomena and... asking the students, I think it's the most effective'.

The interviews with students (as well as the observation notes) in *English for Engineers* revealed that students did not pay attention when their peers were presenting simply because the presentations were long (20 minutes) with no interaction occurring during them. This led to a student asking for the video to be replayed, as he had not been following.

In *Essentials of Nutrition*, where the teacher called on named students, those interviewed reported that they found this practice challenging since even if they had been following, they might have nothing to say or ask. Implementing the 'Stop rule' (noted in the *Moral Psychology* class) might help address such concerns. Overall, while students could distinguish the kinds of learning they enjoyed, believed they gained insight into the subject studied and cultural differences among their peers, they made clear that not all PL was considered helpful in learning.

Finally, students generally reported enhanced communication skills and cultural awareness, but only in one case achieving a specific learning outcome (notably learning a course concept) through learning from peers. This was consistent with the class observations by the first author – perhaps an indication that the PL observed was not designed to teach concepts but to enhance relationships.

Discussion

Design of PL

The data and analysis clearly show that the most successful examples of PL were the activities designed with an explicit intention that they must be completed through meaningful interaction.

These included students:

- drawing from their region-specific knowledge of nutrition habits when solving a case study of an obese patient (*Essentials of Nutrition* class*);*
- making use of various languages they speak when explaining a meaning to a person who does not understand the language of communication (*Multilingual Communication);*
- engaging students in voting about their perceptions related to a concept of socially-constructed gender and contrasting them with what literature says (*Moral Psychology*); and
- comparing etymology of 'Christmas' in a range of languages including Bahasa Indonesia, Hungarian, Slovak and Ukrainian (*Introduction to the Study of Language*).

As a result of the analysis, we now characterize PL that is *prepared by the teacher to occur in the classroom* as follows*:* an instructional activity designed by teacher to achieve learning outcomes with the explicit intention that it can only be completed through meaningful interaction (spoken, written, both of which require active listening) between students. This interaction involves sharing their knowledge, ideas and experiences and may include the teacher, too.

The assumption underlying the promotion of PL is that such exchanges may enhance respect for diverse students (Boud et al., 1999), raise cultural awareness (Keenan, 2014), as well as better engage culturally diverse students (Leask & Carroll, 2011, p. 655). The contribution of this study into PL enactment *in the classroom* and its link to teacher plans and student perceptions is an empirically-based robust definition of PL – one that suggests that PL can support the above assumptions. We describe below three specific aspects of effective enactment of PL in the classroom: safe atmosphere, risk-taking and tactical thinking.

This study revealed that for PL to happen, creating a class atmosphere where students feel comfortable to speak and are ready to learn from their peers appeared essential, a different perspective from Keenan (2014, p. 9) who posits that PL creates a safe environment where students are encouraged to ask questions, etc. Our results highlight the teachers' role in intentionally fostering a safe atmosphere, so that students are willing to interact. This resonates with findings from Bedford et al. (2020) for whom making a community of learners who feel a sense of belonging and need to contribute is a pre-condition for PL.

Kugel (1993) found that teaching experience and confidence makes teachers more willing to take risks in teaching. Even though we asked teachers to integrate PL into their classes, four out of 15 teachers (as mentioned earlier) still relied on lecturing and another one used this method for a major part of the class. Besides, despite during the programme teachers experienced and commended various novel PL activities, many teachers later assigned students to give presentations, a traditional tool in their context. Initially, for the first author, who served as the programme coordinator, this felt disappointing. However, we conjecture that there may be a series of stepping stones for a teacher to become a confident designer and facilitator of PL. For instance, in *History of Private Law*, the teacher progressively used more PL activities with the final class containing no lecture at all.

The analysis demonstrated variation in the implementation of the same strategies and highlighted the importance of tactical thinking (McAlpine et al., 2006) underlying the chosen strategies in influencing the degree of student interaction. The literature did not consider this fine-tuning: breaking down the strategy into a series of timed micro-steps. Such thinking guides and facilitates oversight during the implementation to remain on track. Teachers, thus, have an important role in furthering PL, not only aligning strategies with their goals, but moreover doing the more detailed planning to implement their goals effectively. For instance, to use mini-lecture effectively as a stimulus for PL, the teacher has first to carefully consider where it fits within the class, how to embed questions in it, how students will build upon what they learn from the mini-lecture in their interaction, etc.

Teacher's role

Many peer-learning schemes use student-led PL where the role of the teacher is limited to designing learning activities for the students (Boud et al., 1999; Bunting, 2020, Crowley-Cyr & Hevers, 2021). The evidence we collected leads us to conclude that the teacher's presence is important for PL, in fact, may be critical in taking full advantage of peer-learning strategies. The frequency with which the teacher made links and elaborated speaks to his/ her intent to build on student contributions, to extend the cognitive linkages that less knowledgeable students might not make on their own. Further, that the teacher asked questions of the whole class demonstrates

an investment in keeping all students engaged. An alternative to this, described in the literature, is the teacher's involvement as a moderator in student discussion boards (James et al., 2022) and teacher designing classes in a way that students receive ongoing specific feedback or learn to identify and use strengths of individual group members (Narendran et al., 2018), as happened one time in the *Nutrition* class. Another skill required of the teacher is integrating and synthesising student contributions as students practice 'using the learning concepts/ ideas' through speaking and writing for others in the class (Fink, 2003).

Student perceptions of PL

This study confirmed findings from some previous research that showed what students appreciate in PL: they can use their own language, make mistakes, or decide not to say anything, this way making sense and ownership of academic discourse and practice (Hildson, 2014). Moreover, to fully engage in PL, students say they need to feel they belong to the class (Bedford et al., 2020).

Most effective variations of PL

Overall, the analysis demonstrated more and less effective ways to implement a specific strategy to support PL. Teachers had goals, such as deepening students' subject-learning and enhancing cultural awareness, and they chose strategies considering these. However, the extent to which they transformed this strategic thinking to tactical micro-level enactment (McAlpine et al., 2006) is unclear. For instance, in *Legal aid studies* (not included among the six presented courses), the teacher assigned the students homework, which was productive in class interaction. A fuller exploration of the transformation from strategic to tactical thinking would be the thinking that starts by choosing student presentations as a strategy and continues by addressing the following and similar questions.

- Should I (as the teacher) provide the themes or leave it to the student?
- Should the presenter be required to introduce some questions beforehand?
- What length should each presentation be not to strain listeners' attention?
- Should the presenter pre-record and post the presentation so that the peers watch it beforehand and bring questions to class to ask the presenter?
- What do I need to do before, during and after to take full advantage of the presentations in terms of the learning outcome?

Limitations

Given this was an exploratory study, we were learning as we went: in the future, we will know better what data and how to collect them to ensure more robust analysis and findings. For instance, we ended up with classes that were online, hybrid and face-to-face and this variation influenced how the class was structured. Further limitation of our study is that we could not analyse large classes with 30 or more students where PL could be an effective strategy given that teacher in the programme did not teach them.

Future research

We suggest in future inquiries interviewing the teacher ahead of time as to his/her goals, the chosen strategies, how these fit within the class/course and the degree to which tactical thinking

has played a role in the design. A debriefing would add fundamentally to our understanding when the teacher would report on his/her success in relation to the goals and plan, critique the enactment of the lesson, and by watching vignettes from the class, explain any interventions made in the student interaction. Another approach would be to focus on just one strategy, perhaps student presentations since these occurred frequently and document the multiple ways in which these can be enacted to understand what kinds of tactical thinking generate the most productive interactions.

We recommend that teachers new to PL have a solid class plan detailing all activities, their expected outcomes, and timings. After the session, the teacher can discuss the class conduct with an observer or watch a recording of the class to identify the aspects of the class that went well and that need modification. Finally, in line with some previous literature (Topping, 2005) we advise teachers prime students early in the semester what effective PL entails, what are its benefits and how to avoid some of its pitfalls. Because teachers were generally able to define what they did and why but without any reference to evidence to back them up, we propose that new teachers learn through case studies where they can see teachers and students reflecting on their learning.

Conclusion

While the necessity for PL to be carefully structured has been noted (Bunting, 2020), to the best of our knowledge, the specific nature of this structuring has not been documented. Our fine-grained analysis revealed how planning can vary widely for the same strategy; and how the use of careful tactical thinking can increase student interaction. Although students generally valued PL, variation in how teachers fine-tuned their choice of the same peer-learning strategies meant variation in how effective they were in supporting student interaction.

Conflict of Interest

The authors disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The authors have produced this manuscript without artificial intelligence support.

References

Bedford, S. B., Bissoonauth, A., James, K., & Stace, R. (2020). Developing a peer supported feedback model that enhances oral proficiency in French. *Journal of University Teaching & Learning Practice, 17*(5). https://doi.org/10.53761/1.17.5.13

Boud, D. (2002). Making the move to Peer learning. In D. Boud, R. Cohen, & J. Sampson (Eds.), *Peer Learning in Higher Education: Learning from and with each other*. London: Kogan Page and Sterling: Stylus. https://doi.org/10.4324/9781315042565

Boud, D., Cohen, R., & Sampson, J. (1999). Peer learning and assessment. *Assessment and Evaluation in Higher Education, 24*(4), 413–426. https://doi.org/10.1080/0260293990240405

Bozzi, M., Raffaghelli, J.E., & Zani, M. (2021). Peer learning as a key component of an integrated teaching method: Overcoming the complexities of physics teaching in large size classes. *Educational Sciences 11*, 67. https://doi.org/10.3390/educsci11020067

Bunting, B. D. (2020). The anatomy of high-impact peer learning experiences. *Journal of Peer Learning 13*, 1–4. Available at: https://ro.uow.edu.au/ajpl/vol13/iss1/1

Cosh, J. (2000). Supporting the learning of international students in large group setting. In Wisker, G. (Ed.), *Good practice working with international students.* Birmingham, UK: Staff & Educational Development Association, 29–34.

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. American Journal of Physics *69*(9), 970–977. https://doi.org/10.1119/1.1374249

Crowley-Cyr, L., & Hevers, J. (2021). Using Peer Assisted Learning to improve academic engagement and progression of first year online law students. Journal of University Teaching & Learning Practice, *18*(1). https://doi.org/10.53761/1.18.1.2

Fink, L. D. (2003). *Creating significant learning experiences.* New York: Jossey Bass.

Gamlath, S. (2022). Peer learning and the undergraduate journey: a framework for student success. *Higher Education Research & Development, 41*(3), 699–713. https://doi.org/10.1080/07294360.2021.1877625

Hildson, J. (2014). Peer learning for change in Higher Education. Innovations in Education and Teaching International, *51*(3), 244–254. https://doi.org/10.1080/14703297.2013.796709

Hodgson, Y., Brack, C., & Benson, R. (2014). Introducing case-based peer-assisted learning in a professional course. *Journal of University Teaching & Learning Practice, 11*(2). https://doi.org/10.53761/1.11.2.4

Idris, A., Ion, G., & Seery, A. (2018). Peer learning in international Higher Education: The experience of international students in an Irish university. *Irish Educational Studies 38*(1), 1–24. https://doi.org/10.1080/03323315.2018.1489299

James, A. J., Douglas, T. A., Earwaker, L. A., & Mather, C. A. (2022). Student experiences of facilitated asynchronous online discussion boards: Lessons learned and implications for teaching practice. *Journal of University Teaching & Learning Practice, 19*(5). https://ro.uow.edu.au/jutlp/vol19/iss5/10

Keenan, C. (2014). *Mapping student-led Peer Learning in the UK*. The Higher Education Academy. https://www.advance-he.ac.uk/knowledge-hub/mapping-student-led-peer-learning-uk

Khan, R. N., & Watson, R. (2018). The flipped classroom with tutor support: an experience in a level one statistics unit. *Journal of University Teaching & Learning Practice, 15*(3). https://doi.org/10.53761/1.15.3.3

Kugel, P. (1993). How professors develop as teachers. *Studies in Higher Education, 18*(3), 315-328. https://doi.org/10.1080/03075079312331382241

Leask, B., & Carrol, C. (2011). Moving beyond 'wishing and hoping': internationalisation and student experiences of inclusion and engagement. *Higher Education Research & Development 30*(5), 647–659. https://doi.org/10.1080/07294360.2011.598454

Lincoln, Y. S., & Guba, E.G. (1985). *Naturalistic Inquiry.* Newbury Park, CA: Sage Publications.

McAlpine, L., Weston, C., Berthiaume, D., & Fairbank-Roch, G. (2006). How do instructors explain their thinking when planning and teaching? *Higher Education, 51*, 125–155. https://doi.org/10.1007/s10734-004-6381-x

Narendran, R., Almeida, S., Coombes, R., Hardie, G., Quintana-Smark, E., Zaher, N., Wang, H., Chowdhury, A., & Stevenson, B. (2018). The role of self-determination theory in developing curriculum for flipped classroom learning: A case study of first-year business undergraduate course. *Journal of University Teaching & Learning Practice, 15*(5). https://doi.org/10.53761/1.15.5.6

Nichols, M., Cator, K., & Torres, M. (2016). *Challenge based learner user guide*. Redwood City, CA: Digital Promise.

O'Donnell, A. M., & King, A. (1999). *Cognitive perspectives on peer learning.* Lawrence Erlbaum. https://doi.org/10.4324/9781410603715

O'Neill, G., & McMahon, T. (2005) Student-centred learning. What does it mean for students and lecturers. In G. O'Neill, S. Moore, & B. McMullin, B. (Eds.) *Emerging issues in the practice of university learning and teaching* (pp. 27–36). Dublin: AISHE.

Ody, M., & Carey, W. (2013). Peer education. In E. Dunne, E., & D. Owen (Eds.), *The student engagement handbook: Practice in higher education* (pp. 291–312). Bingley: Emerald Group Publishing Ltd.

Pleschová, G. & Simon, A. (2022) *Internationalising teaching in Higher Education. Supporting Peer Learning.* Delft University of Technology. https://impactportal.eu/wp-content/uploads/2023/03/Internationalising_teaching_in_higher_education_whole_book.pdf

Topping, K. J. (2005). Trends in peer learning. Educational Psychology, *25*, 631–645. https://doi.org/10.1080/01443410500345172

Topping, K., Buchs, C., Duran, D., & van Keer, H. (2017). *Effective peer learning. From principles to practical implementation.* Routledge. https://doi.org/10.4324/9781315695471