

Student voice in Professional Learning Communities: The question of student agency

M.E.C. Lubbers, C.L. Poortman, and K. Schildkamp

Abstract Actively involving students in improving education can positively impact its quality and student agency. This can be achieved when students voice their opinions, collaborate with adults, and/or take leadership roles (*student voice*), for example in Professional Learning Communities (PLCs). However, little is known about how students can be involved in school improvement through PLCs. We therefore qualitatively explored in what ways students were involved in the work of seven PLCs. In addition, we zoomed in on the case of one PLC in which students participated together with teachers as PLC members. Using social network analysis supplemented with qualitative data, we explored the positions and roles of these students. We concluded that students were only involved to a limited extent in most PLCs: mainly as passive data sources and sometimes as active respondents. Even when students were involved as PLC members, they initially seemed to have only limited agency. On the other hand, students can play an important key role in making connections between education professionals in the PLC and the student population outside.

Keywords *student agency*, student voice, Professional Learning Communities, data teams

Artikelgeschiedenis

Ontvangen: 7 november 2024

Ontvangen in gereviseerde vorm:
24 september 2025

Geaccepteerd: 5 december 2025

Online: 24 april 2026

Contactpersoon

Myrthe Lubbers,
m.e.c.lubbers@utwente.nl

Copyright

© Author(s); licensed under
Creative Commons Attribution
4.0. This allows for unrestricted
use, as long as the author(s) and
source are credited.

Financiering onderzoek

-

Belangen

-

1

PEDAGOGISCHE
STUDIËN

103 (2026)

10.59302/bvsgy794

1 Introduction

The capacity and willingness of students to act upon issues that affect them are important for the purposes of learning, personal development, and human betterment (Schoots-Snijder et al., 2025). An important way to provide room for such student agency is by encouraging students' voices – for example by allowing students to share their opinions about school problems, to collaborate with adults to improve school conditions, or to take leadership roles in change efforts (Mitra & Gross, 2009; Mitra et al., 2012).

Student voice can enhance students' academic, social, democratic, and relational development (Mager & Nowak, 2012). Furthermore, by making space for student voice, teachers can also improve their authority, their relationships with colleagues and students, and their professional development (Fielding, 2001; Mager & Nowak, 2012; Rollet et al., 2021). Students, with their unique insider perspective, can foster novel insights, creativity, and ingenuity (Fielding, 2004; Fielding & Bragg, 2003), because “students see different issues and see issues differently” (Fielding, 2001, p. 130). In addition, student voice is associated with improved school development (e.g., facilities, policies, procedures) and school ethos (e.g., attitudes, attendance, acceptance of rules, school climate; Mager & Nowak, 2012).

Professional Learning Communities (PLCs) may provide an opportunity for student voice. The term PLC is used for a large variety of collaborative forms of professional learning in schools. We follow Doğan and Adams's (2018, p. 636) definition, which is based on those of many others (e.g., Dufour, 2004; Stoll et al., 2006): A Professional Learning Community is a group of professionals (e.g., teachers, leaders, experts) working collaboratively towards a shared purpose of improving instruction and student learning through dialogue, identifying particular improvement strategies, evaluation, and reflection.

PLCs have proven to be effective in fostering educational development. Various reviews have reported their positive impact on teacher practices and school culture (Doğan & Adams, 2018; Vescio et al., 2008). However, studies on related student outcomes are few in number. Nonetheless, education is ultimately intended for students, and involving them in educational development, as is commonly focused on in PLCs, invites students to act upon educational issues that affect them.

In sum, Professional Learning Communities and student voice are two approaches that have proven to be effective in fostering educational development. However, their combination, student voice in PLCs, is relatively new and little is known about it. Inspired by Fielding's (2018) partnership patterns, we therefore explored qualitatively how students were involved in PLCs. In addition, we followed one PLC case in-depth. In this PLC, two

2

PEDAGOGISCHE
STUDIEN

103 (2026)

10.59302/bvsgy794

students from secondary school were included as PLC members together with teachers, and we explored that social network. Understanding student voice in PLCs may contribute to student agency.

2 Theoretical framework

In the literature on agency there has been a debate about whether agency is behaviour with transformative influences (i.e., making intentional choices, initiating actions, exercising control) versus a capacity and willingness that lead to such behaviour (e.g., Eteläpelto, 2017; Goller & Paloniemi, 2022). In contrast, this discussion is not that prominently present in literature on student agency where the concept most often refers to “the will and skill” (e.g., Schoots-Snijder et al., 2014). We agree with Gollar and Paloniemi (2022) that these variations are not necessarily contradictory but rather aspects of the same phenomena. Therefore, in our paper we understand student agency as: a complex dynamic system (Mercer, 2011) that encompasses the capacity and willingness of students to act upon issues that affect them (Holdsworth, 2000), arising from a belief that their behaviour can make a difference to their learning in a particular setting and resulting in action-taking by the learner (Mercer, 2012).

In this paper, we focus on student voice as an opportunity for stimulating agency. Student voice is about the ways in which students participate in and/or influence educational decisions (Mitra, 2018). Student voice thus invites students to act upon issues that affect them (i.e., contributing to student agency). For example, when students share their opinions on school problems (Mitra & Gross, 2009; Mitra et al., 2012) and turn to school staff to act for them, they use what Bandura (2001) calls “agency by proxy”. When students and adults collaborate with the shared goal to improve school conditions (Mitra & Gross, 2009; Mitra et al., 2012), possibly by taking leadership roles, this constitutes collective agency (Bandura, 2001) because of a belief in collective power to produce desired results.

Various models put forward an ascending scale for how much students are involved in issues that affect them (e.g., Fielding, 2018; Hart, 1992; Shier, 2001). These models are similar to each other. However, the levels in Hart’s and Shier’s models are less observable. Fielding’s model has been presented as a differentiating tool and forms a synthesis of his extensive work (≈ 20 years) on student voice; his model is well-known and often-used in research (Jones & Hall, 2022).

Fielding (2001, 2018) laid out six *patterns of partnership* for how students and educational professionals can work together in terms of the degree of reciprocity present, from least to greatest reciprocity: 1) students as data source, in which staff utilise information about student progress and well-being and in

3

PEDAGOGISCHE
STUDIËN

103 (2026)

10.59302/bvsgy794

which students are acknowledged and function as recipients of adult decisions; 2) students as active respondents, in which staff invite student dialogue and discussion to deepen learning or professional decisions and in which students are heard and function as discussants; 3) students as co-enquirers, in which staff take a lead role with active student support; 4) students as knowledge creators, in which students take lead roles with active staff support; 5) students as joint authors, in which students and staff decide on a joint course of action together; 6) intergenerational learning as lived democracy, in which there is a shared commitment to the common good.

The partnership patterns with higher reciprocity tend to offer more opportunities for student agency, for example when students are involved as both critics and creators of educational practice alongside qualified educators (Cook-Sather, 2020). Students can work together with teachers and researchers to analyse classroom practice, to participate in research, and through authorship (i.e., “to name what they know and present it to a wider audience,” Cook-Sather, 2020, p. 183). This type of student voice has been described and implemented by, for example, Fielding (2001, 2004, 2015, 2018), Yonezawa and Jones (2007a, 2007b, 2009) and Yonezawa et al. (2009), who focused on participatory action research and students as (co-)researchers teams in which students received guidance from university researchers to identify and analyse issues that were relevant to their learning, such as school-related issues (Fielding & Bragg, 2003; Yonezawa, 2015). In these teams, students seemed to be involved as knowledge creators (Pattern 4).

In Professional Learning Communities, educational insights are developed and acted upon to improve education or the educational institution, but this is usually done in a team of around 6-8 educational professionals who meet regularly to share and develop knowledge and experience in a structured manner around a relevant theme (Bruns & Bruggink, 2016). Students are usually not involved as fellow members. However, it could be suitable for PLCs to involve students as members or through other types of partnerships.

Beyond these partnership patterns, students can adopt specific positions within a PLC, and the dynamics may vary accordingly. For example, certain members - including students - can be more or less central in the network, and relationships can be reciprocal or not (Hanneman & Riddle, 2005). In addition to varying network positions, how someone functions between the community and others outside of it can also differ. Some members can play a key role in effectively communicating between two communities, thereby brokering the knowledge that is developed (Hubers et al., 2018; Poortman & Brown, 2023; Van den Boom-Muilenburg et al., 2022). Hubers et al. (2018) described *inward brokerage* as the situation in which members pass on input from others to the team, whereas *outward brokerage* refers to diffusing team knowledge (output) to others outside the team. In the case of students who are involved

as members in a PLC, these students can pass on input from others to the PLC, and/or diffuse knowledge gained in the PLC to others (e.g., their peers or school staff).

As little is known about student voice in PLCs, we aimed to answer the research question: *What partnership patterns of student voice are present in PLCs?* We describe how seven PLCs embedded student voice, and zoom in on the case of one PLC consisting of both teacher and student members.

3 Methods

3.1 Background

To explore student voice in PLCs, data from two larger projects were used. In both projects it was actively encouraged that schools focused on higher participation levels to support student agency, which made them suitable for our research. In one project, three PLCs worked on data-informed school improvement (i.e., as *data teams*; D1, D2, D3), while in the other project there were four PLCs working on topics related to summative and formative assessment as part of a professional development program on assessment (A4, A5, A6, A7). In both projects, PLCs were intended to follow a structured way of working collaboratively towards a shared purpose of improvement, using a manual. They were recommended to have meetings every 3-4 weeks, and were coached by a coach from the university or external consultants. Both projects and the corresponding research were approved by the ethical committee, and all data were collected with active informed consent.

At the end of the 2022-2023 school year, the researchers were present at the kick-off events for these two projects. The researchers gave a presentation on PLCs, on the benefits of student agency in PLCs, and on their research and planned data collection. We encouraged higher participation levels to support student agency by giving practical tips: students can become PLC members via their secondary school research projects (Dutch: *profielwerkstuk*), or to build a portfolio when they are interested in a follow-up study related to education; students from a student council may be interested in becoming PLC members; but we also indicated the importance of having student PLC members who are not part of students councils. The researchers explained potential benefits by elaborating on (paraphrased) quotes retrieved from literature, such as: "From objects of investigation to agents of their own transformation," (Fielding, 2004, p. 306). After having received this information, schools were free to decide whether or not and how to involve students as participants in their PLC.

In February or March 2024, time was reserved to give advice on student voice. This was done either by the researcher during the coach feedback

sessions (project on professional development on assessment) or by the coach during a PLC session (project on data-informed school improvement). In addition, each PLC received a document with personalized PLC advice and general suggestions about involving students.

3.2 Participants

In total, 42 people participated in the two projects used for this study. The PLCs consisted of teachers (*n* = 26), guidance counsellors (Dutch: *intern begeleiders*) (*n* = 6), principals (*n* = 2), interns (*n* = 2), other school staff (*n* = 4), and students (*n* = 2). Some teachers had double functions: six were also member of an exam committee and four were coordinators. Table 1 gives an overview of the participating PLCs.

PLC D1 had two student members, who were 15 and 16 years old at the start of their participation (i.e., from the second PLC meeting onwards). At the beginning of the school year, the principal at the school in question (who did not herself participate in this study) asked a group of students if they were interested in participating in the PLC at the school. One of these students was interested and she then asked a friend to participate as well. Others chose not to participate, as they were reluctant to take on additional work and because of unclarity about the benefits or expectations.

Table 1

Overview of participating PLCs

PLC name	School type	Number of PLC members	Number of PLC sessions	Project on data-informed school improvement	Project on professional development on assessment
D1	Secondary	7*	7	x	
D2	Primary	5	10	x	
D3	Primary	5	10	x	
A4	Secondary	6	7**		x
A5	Secondary	8	4		x
A6	Secondary	5	7		x
A7	Secondary	6	8		x

* D1 had two students included as fellow members.

** Three members of A4 had additional weekly meetings.

3.3 Procedure

All seven PLCs started at the beginning of the 2023-2024 school year, and most of them had 7-10 meetings of around 90 minutes each. All PLCs had their own coach. The three PLCs in the project on data-informed school improvement had coaches from an educational consultancy firm who were

trained in the data team method, which is used by a type of PLC that works in a data-informed manner and supports using any type of data appropriate to their goals (Schildkamp et al., 2016). These coaches guided each PLC session. The four PLCs in the project on professional development on assessment had coaches who were university teachers. These coaches had two feedback sessions with each PLC (except for PLC A6, who had only one feedback session due to mismatching agendas), prepared the six meetings for the PD program, and they were available on request the rest of the time.

We requested the PLCs to share the notes that they made for every PLC session, in order to follow their actual process. In addition, the main researcher observed two or three PLC sessions of each PLC (for exemptions, see Table 2). In the case of the PLCs in the project on professional development on assessment, these were the coach feedback sessions. For background information, we asked for PLC homework and assignments. To understand the context and details regarding the PLC process, the main researcher was also present during a final reflection group interview that each PLC had. The PLCs in the project on data-informed school improvement had this reflection group interview as part of their PLC session, while the PLCs in the project on professional development on assessment had a separate reflection group interview. The PLCs in the project on data-informed school improvement had an additional closing symposium one year after the project started, in which the three data teams presented their progress and results.

In the case of D1, which had two student PLC members, we used part of a larger questionnaire to collect social network information from all PLC members. This was done after the two students had their first PLC session, and once again after the final PLC session. The two student members got additional questions about their role as knowledge brokers in the contact they had with others outside the PLC, using the same questionnaire. Finally, at the end of the school year, the two students who joined as PLC members were interviewed separately by the main researcher.

Table 2

Data collection in the 2023-2024 school year

PLC	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Oct.
D1	/	n, o	n, o*	n, o*, q	n, o*	o*	n	/	/	n, o, q, r	/ si	/ cs
D2	n, o	n	n	n	n	n	n, o*	n	n	/	n, o, r	/ cs
D3	n, o	n	n	n	n	n	/	n, o*	n, o	n	n	/ cs
A4	n	n	n	n	n	n, o	n	n	o	n, r	/	/
A5	/	/	n	n	/	n, o	/	/	o	/ r	/	/
A6	/	n	n	n	-	-	o	-	/	/ r	/	/
A7	/	n	n	-	-	n, o	-	n	o	/ r	/	/

Note: cs = closing symposium, n = notes available, o = observation, q = questionnaire, r = reflection group interview, si = student interviews, * = audio-recorded observation, / = no PLC session took place, - = no data available.

Assignments as a data source are missing in this overview, since they were not associated with a specific date.

3.4 Instruments

To answer our research question, *What partnership patterns of student voice are present in PLCs?*, we aimed to follow the actual PLC process in detail. Therefore, we used PLC notes and open-ended observations combined with a semi-structured observation format that was based on Fielding’s (2018) partnership patterns (see Appendix A). Furthermore, we used two data sources for a final check on student voice. The reflection group interviews that were carried out for the larger PD on assessment project included one question about student voice. Respondents were asked to what extent students had been involved in the PLC process, and in what way. In the case of the data-informed school improvement project, we used similar information from the closing PLC symposium to do a final check on student voice. The student interviews also contained valuable information about partnership patterns, and these data were used in a complementary way.

To zoom in on the two students who were included as PLC members in D1, we made additional observations using audio-recordings, and transcribed relevant parts. Furthermore, we collected social network data from all D1 members by means of one question from a larger questionnaire, using Qualtrics (2024). This was done twice, once in December during the third PLC session (in the students’ case, this was the second), and once in June after the final PLC session (see Table 2). The larger questionnaire had been developed for multiple studies, and was created with feedback from a data science expert from our university and a teacher from our network (not part of the respondent group) in order to improve reliability and validity. The question relevant for the current study was about amount of contact with other PLC members: *How often do you talk to data team members about working on the data team problem? Indicate how often per person.* The names of all fellow PLC members were given. During

the first measurement in December, the scale ranged from monthly to several times a week, as this PLC had monthly meetings. Thereafter, not every PLC member was able to come to the monthly meetings due to other duties or sickness; some of the sessions also got cancelled because of busyness of the exam period. Therefore, during the second measurement in June, the scale was adjusted, and ranged from hardly ever/never to several times a week.

To explore the students' contact with others outside the PLC (i.e., their role as knowledge broker), we used one part from the same larger questionnaire described previously: *Do you talk to others who are not data team members about working data-informed on the data team problem? Indicate how often and indicate who that person is.* This question was followed by options in which they could type names: *with other data team participants in this same project, namely with:* and *with adults within my school, namely with:* and *with others outside my school, namely with:*, and a scale ranging from *hardly ever/never* to *several times a week*. After that were two open-ended questions: *What benefits do you notice for you in talking to others about working data-informed on the data team problem?*, and: *Are you facing any challenges when talking to others about working data-informed on the data team problem?*

In addition, the main researcher interviewed the two students individually at their school at the end of the school year. These student interviews were structured in accordance with the definition of student agency (see Appendix B). We also asked about their self-perceived outcomes. These student interviews were audio-recorded and transcribed.

For background information about the PLC process and context, we consulted assignments that were completed in the PLCs. We also retrieved relevant background information from the final symposium in which the PLCs in the data-informed school improvement project presented their progress and results. Information from the reflection group interviews were also primarily used for background information. In the case of the project on data-informed school improvement, the reflection group interview took place in parallel with the final PLC session. Two persons who were linked to this project within their municipality, a policy officer for education and quality and a management assistant, came to the final sessions of D1 and D2 to ask the PLC participants about their experience, for example, what went well and what could be improved. As the policy officer herself participated in D3, there was no reflection session for that PLC. The PLCs participating in the project on professional development on assessment had a separate reflection group interview. University members from this PD program conducted, audio-recorded, and transcribed these interviews. They used an interview guide to ask participants to evaluate the PD program and to collect data for multiple research projects. The transcripts of these also provided relevant background information for the current study (e.g., PLC composition, PLC problem).

3.5 Data analysis

To explore partnership patterns of student voice in PLCs, we conducted qualitative analysis using a codebook (see Appendix C) and Atlas.ti (2024). The codes were based on Fielding's (2018) partnership patterns. The first part of the codebook provided an explanation of the structure of the codebook and a step-by-step plan with explanations of how to code. The second part of the format was the codebook itself.

One researcher coded everything, while a second researcher coded 10% of the data for reliability purposes. Initially, there was moderate agreement ($\kappa = .42$). The researchers mainly agreed about the partnership patterns and their status (i.e., whether the partnership pattern was carried out or whether there was an unfulfilled intention to do so), but disagreed on what group of students was involved when the partnership pattern was identified as students as *data source* (Pattern 1). This was because PLCs often retrieved student data from all students or made use of existing data, which made the specific group unclear. After discussing and making adjustments, the researchers substantially agreed ($\kappa = .66$).

Furthermore, we used data from D1, the only PLC that included students as fellow members, to zoom in on the student members' positions. We collected self-reported network data from all D1 members, allowing us to construct directed connections based on individual perceptions (i.e., incoming and outgoing nominations). We used the part of the questionnaire about the contact the PLC students had with fellow members to map out a directed social network for all members of the PLC, using R (R Core Team, 2024) and RStudio (RStudio Team, 2024) (see Appendix D). The R packages used were *igraph* (Csárdi et al., 2024) and *readxl* (Wickham & Bryan, 2023). We used a hybrid approach in which multiple self-perceived ego networks (i.e., person-oriented) (Nimmon & Atherley, 2021) were integrated into a small-scale sociometric analysis (i.e., system-oriented), to create a rich and nuanced view of how this PLC and the individuals inside it were functioning. Specifically, we explored D1 members' weighted in-degree (incoming connections of a node, i.e., others' engagement with you), weighted out-degree (outgoing connections of a node, i.e., your own engagement with the group), weighted degree centrality (sum of weighted incoming and outgoing connections of a node, i.e., brokerage), weighted reciprocity (the extent to which the weight of connections between nodes is similar, i.e., mutuality or shared recognition), and the z-scores of these measurements (how many standard deviations an individual score deviates from the mean, i.e., outlier identification). To illustrate, if person A says he speaks to person B monthly (= 4 on a 1-6 scale), while person B says he speaks to person A weekly (= 5), then the measurements for person A would be as follows: weighted in-degree = 5, weighted out-degree = 4, weighted degree centrality =

9, weighted reciprocity = 0.8 (i.e., 4/5). We were interested in these metrics, as they might impact students' involvement; for example, higher centrality might offer more possibilities for student agency while being isolated might not.

In addition, we conducted thematic analysis of the student interviews and descriptive analysis of students' answers to the question from the questionnaire about how much they talked about the PLC problem to others outside of the PLC. An overview of data analyses and associated instrument(s) can be found in Table 3.

Table 3

Instruments and data analysis

Data analysis	Instrument(s)
Qualitative analysis using a coding guideline based on Fielding's (2018) partnership patterns	Notes, observations, one question from the reflection group interviews, PLC presentations at the symposium, student interviews
Network analysis for weighted in-degree, weighted out-degree, weighted degree centrality, weighted reciprocity, and z-scores of these measurements	Question from questionnaire about the amount of contact the PLC members had with each other
Thematic and descriptive analysis	Student interviews, question from questionnaire about how much the students talked about the PLC problem with others outside the PLC and perceived barriers and benefits, observations

4 Results

To answer the research question, *What partnership patterns of student voice are present in PLCs?*, we display the results below per partnership pattern. In 4.3 *Students as co-enquirers (Pattern 3)*, we zoom in on the social network positions of the two student PLC members (contact with members inside the PLC) and their roles as knowledge broker (contact with others outside the PLC). All data were translated from Dutch to English.

4.1 Students as a data source (Pattern 1)

Every single PLC used data from students during their PLC process (see Table 4). Five PLCs used existing data, such as student grades or test scores. This suggests that students were consulted as a data source without their involvement or awareness. Three PLCs gathered data themselves through a student questionnaire, and thus involved students as a data source. In addition, PLC members at one school set up an experiment within their classes. They first checked whether the classes initially differed from each other, and then applied an intervention, followed by a post-measurement. An example is shown in these notes from PLC A4:

Data from the baseline measurement of four higher general secondary education Year 3 classes partly processed and averages calculated, we are still waiting for data from [name teacher]’s class, then with ANOVA we will see if there are differences between the classes. Two of the four classes will receive the intervention.

In this case also, students were involved as a data source.

The student members in D1 also involved other students as data sources. The two students created a survey and planned to gather data from fellow students by requesting them to fill out this survey. Other than that, the two students did not involve other students as data sources.

4.2 Students as active respondents (Pattern 2)

Four PLCs had conversations with students about the PLC problem (see Table 4). Two of these PLCs interviewed the members of the student council. They noted, for example, that this provided a line of thought on possible interventions. One PLC had conversations with students in their target group, for example, about what students thought of a new way of assessment.

Only D1 included students as members of their PLC. Using the audio recordings, we observed that these students were silent most of the time in the PLC meetings. They answered when they were asked a question and sometimes asked for clarification when they did not understand a specific word. Sometimes, but not in every PLC session, the coach asked the students for their opinion, for example (observation): “Do you recognise this?” “How did you find the transition from Grade 3 to Grade 4?” “Do you remember difficult math tests [...]?” “When are you satisfied with a test?” The fellow PLC members asked the students for their opinion only once throughout all PLC sessions: when the students answered the coach’s question about a difficult math test, the fellow PLC members asked the students why they found this specific test so difficult. Usually once in almost every PLC session the students (often Student 1) supplemented the discussion, for example (observation): “I think students also do not dare to ask further questions. I recently had a friend who thought the teacher was unclear, but she did not dare to say so.” Mostly, the fellow PLC members reacted positively or gave compliments to the students for their contribution.

One PLC had the intention to talk to students, but in the end they did not find it of added value for their problem. That was because they had two separate locations for lower and upper grades, which made students feel less connected to the school: “Before they [lower grade students] know how things work at school, they are almost gone again [to the upper grade]” (PLC A5, reflection group interview).

The two PLCs in primary education (D2 and D3) did not intend to talk to students, because they thought that it would be too challenging to involve young children. PLC A4 started with the assumption that students would not

react seriously, but in the end, they were pleasantly surprised by students' motivation and commitment when having a dialogue together. For this reason and because they noticed that translation from adults to students was needed, PLC A4 became enthusiastic about involving students in more active ways (see 4.5). In contrast, in the case of PLC A7, having a disappointing experience with student dialogues resulted in not wanting to involve students further: "Students are not interested in this topic, they just want to make their exam," (observation). Not knowing how to take a step further also restrained PLC members from continuing to involve students, as seen in the case of PLC A6: "Students from the student council are motivated and outspoken in a constructive way [...], but then you do not know what other students think," (observation).

4.3 Students as co-enquirers (Pattern 3)

This form of involvement was only found in PLC D1 (see Table 4), in which two students participated as members. Already in her first PLC meeting, Student 1 asked (observation): "Do you also want to conduct surveys among students?" Two meetings later, the coach suggested that the students develop a survey to gather data from their fellow students (observation). During that meeting, the other PLC members suggested questions that the students could use in their survey. Thus, although this idea came from Student 1, the adults seemed to be more in charge and took a lead role, with active student support.

However, this does not mean that the students had no input at all in the research that their PLC was conducting. For example, Student 2 explained how they contributed to the methods used in the PLC (interview):

One of the teachers who participated had said that we could do a survey with all the students. We had also said that it might not be the best idea to make it mandatory, because people would then very often give a fake answer and that would be of no use at all. [...] We are now going to do a survey that people can fill out voluntarily.

In addition, the two students thought differently about who was more in the foreground. Student 2 thought that the teachers were mainly in the lead and that they as students had a complementary role. However, Student 1 said (interview): "[...] usually it was me and [Student 2] saying something ourselves." This difference between the two students was also visible in the network analyses (Table 5, and Figure 1). In general, all network metrics dropped during Measurement 2, while the variance increased.

The network statistics for Student 2 however did not deviate, while Student 1 was more engaged with others than average. On both measurement occasions, Student 1 found that she talked more to others (blue lines) while others did not indicate that they talked more to her (red lines) than to fellow members (grey lines). This also made her reciprocity score (0.94) lower than average during

Measurement 1. At Measurement 2, there was only 51% similarity between the weights she attributed to her connections and the weights that others attributed to their connections with her. However, this was not below-average compared to the reciprocity scores of others, but was still the second-lowest. Student 2 had an above-average in-degree at Measurement 1 (red lines) because of the weight that Student 1 gave to this connection. At Measurement 2, the in-degree of Student 2 was average. Her out-degrees (blue lines), centrality scores and reciprocity scores were also all average during both measurements.

Concerning contact outside the PLC (brokerage), Student 1 indicated in the questionnaire that she talked to her mentor and parents. On the second measurement occasion, she indicated that she only talked to her parents. Student 2 said she talked to the principal and to her parents at Measurement 1, and to her mentor and grandfather at Measurement 2. Reasons for these contacts were that the students wanted to test their knowledge or because they liked to talk about school. With regard to inward brokerage, the student members in D1 involved other students as data sources. Other than that, the two students did not involve other students, and said that most other students (except some friends) were not aware of their participation in the PLC.

The student members in PLC D1 described how they perceived their will and skill for transformation (i.e., agency). Regarding their willingness, the students gave the same three reasons why they wanted to participate. First of all, they both indicated that they had participated out of personal interest and were therefore intrinsically motivated; for example, Student 1 said (interview): "I like to participate in such extra things for school." There also seemed to be an extrinsic motivator for both, namely, that their participation offered the opportunity to largely complete their secondary school research project in Year 4 instead of Year 6. A third reason was more related to helping other students; for example, Student 1 said (observation): "[...] I would also like to add something, because of course there are problems, I think also those that only students know about, that are not really told or that anything is done about." Furthermore, both students indicated that the PLC problem did not affect them directly, but more in an indirect way, as their friends and classmates were affected by it. Both students indicated that the PLC mainly impacted them because they found it a useful preparation for follow-up study at (applied) university.

Concerning their skills, both students indicated that they had mainly grown, especially in the skills needed to investigate a problem using the data team method. In particular, Student 2 said (interview): "For example, how to formulate a hypothesis and how to work with data analysis, for example, how to collect data." The students also described their perception of the actual transformation. By the end of the school year, when our data collection ended, the PLC had not yet reached the step in which an appropriate intervention is set up. Because of that,

the students indicated that they did not yet know whether they would be able to bring about a change for their fellow students. Student 1 did notice a change in awareness of the PLC problem and goal within the school. Since this PLC had not yet completed its work when our research concluded, it is also possible that the partnership pattern of these participating students will evolve into other forms. For example, during the closing PLC symposium the students said that they planned to conduct analysis by themselves, which can be carried out by means of other partnership forms.

4.4 Students as knowledge creators (Pattern 4)

This partnership pattern was not observed (see Table 4). Various PLCs did not want to involve students through this type of partnership due to time constraints and the assumption that it would take a lot of work. There were also several PLCs who thought that students would prefer or need guidance.

4.5 Students as joint authors (Pattern 5)

One of the PLCs had the intention to involve students from the student council as joint authors (see Table 4). One member of PLC A4 remarked (observation):

Together we will look at what the input of students can be: which task appeals to them? The intention is that these students will question other students and involve them in the process. By doing so, the input and perspective of other students will also be included.

However, in the end this intention was not fulfilled. A member of PLC A4 explained: "We invited them twice, but they cancelled. The first time they were in a test week and the second time they had a different reason. [...] They were enthusiastic, but in the end, it did not work out," (observation).

4.6 Lived democracy (Pattern 6)

This partnership pattern was not observed (see Table 4). Student 2 in PLC D1 said the following about their school culture:

I found it a bit difficult to contribute, because they are all adults and at school it is really stressed that you do not just say something. However, here that is the intention, but because we are students we are used to not just saying something. [...] Yes, if they ask then I contributed something.

Table 4

Overview of partnership patterns of student voice per PLC

PLC	Data source	Active respondents	Co-enquirers	Knowledge creators	Joint authors	Lived democracy
D1	e	e	e			
D2	e					
D3	e					
A4	e	e			i	
A5	e	i				
A6	e	e				
A7	e	e				

Note. e = enacted, i = intended.

Table 5

Social network statistics for PLC D1

	In-degree		Out-degree		Centrality		Reciprocity	
	M1	M2	M1	M2	M1	M2	M1	M2
Student 1	25	13	27*	25*	52*	38*	0.94**	0.51
Student 2	26*	14	25	13	51	27	0.97	0.74
Teacher 1	25	19*	24	17	49	36	0.97	0.92*
Teacher 2	25	19*	24	9	49	28	0.97	0.53
Teacher 3	25	14	24	10	49	24	0.97	0.64
Teacher 4	24**	11**	26	22*	50	33	0.93**	0.43**
Teacher 5	24**	12	24	6**	48**	18**	1.00*	0.75
M (SD)	24.86 (0.69)	14.57 (3.21)	24.86 (1.22)	14.57 (7.04)	49.71 (1.38)	29.14 (7.03)	0.96 (0.02)	0.65 (0.17)

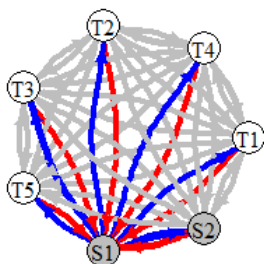
Note. M1 = Measurement 1 in December, M2 = Measurement 2 in June, In-degree = weighted incoming connections, Out-degree = weighted outgoing connections, Centrality = sum of weighted incoming and outgoing connections, Reciprocity = the extent to which the weight of connections between nodes is similar.

* z-scores bigger than 1, ** z-scores smaller than -1.

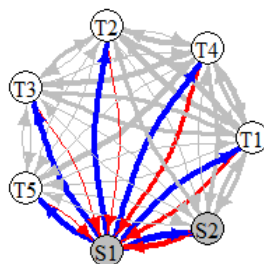
Figure 1

Ego networks of Student 1 and Student 2 in PLC D1 at both measurements

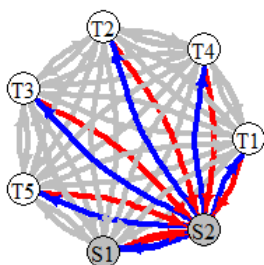
Student 1 at Measurement 1



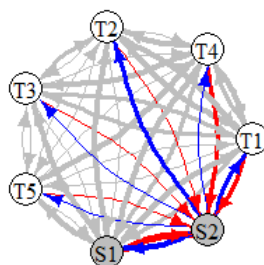
Student 1 at Measurement 2



Student 2 at Measurement 1



Student 2 at Measurement 2



Note. S = student, T = teacher. The thickness of the lines represents the weighted incoming connections in red (in-degree) or weighted outgoing (out-degree) connections in blue.

5 Conclusions and discussion

As little is known about student voice in PLCs, we aimed to answer the research question: *What partnership patterns of student voice are present in PLCs?* We explored how seven PLCs embedded student voice, and zoomed in on one case of a PLC consisting of student and teacher members.

5.1 Students are mostly involved as data sources or active respondents

In general, we found that student voice, and therefore also student agency, was limited in the PLCs we studied. Students were mostly involved as data sources (all seven PLCs), and sometimes as active respondents (four out of seven PLCs).

Student voice in Professional Learning Communities: The question of student agency

M.E.C. Lubbers, C.L. Poortman, and K. Schildkamp

Students actively participated as PLC members in only one out of the seven PLCs: in PLC D1, two students were involved as active respondents and co-enquirers.

5.2 Enablers of and barriers to student voice

Experiences of success, having a clear idea for how to involve students, and having a need to involve students were enablers for student voice. Barriers were mainly related to preconceptions, such as assuming that students prefer guidance without asking them, thinking that it would take a lot of work, or presuming that students are too young to be involved. Such preconceptions have been refuted in previous studies (e.g., Forfang et al., 2025; Gonzales et al., 2016). Some PLCs appeared to use circular reasoning, such as not talking to students because students did not feel connected with the school. Not knowing where to start or how to take a step further restrained PLC members from involving students. School culture, inadequate facilitation (e.g., involving students during their exam week or after school time), and time constraints were barriers as well.

When comparing these factors to the elements student voice practices consist of (Holquist et al., 2023), we argue that limited student agency was due to shortcomings in especially the structural elements of student voice. The *setting* consisted of PLCs predominantly composed of adults. They determined the *focus* by identifying the PLC problem they themselves considered as relevant. They then expected that a high *degree of change* effort was needed to transform the problem with the help of students. The *intended beneficiaries* appeared to be primarily focused on instrumentally using student voice to obtain information for the PLCs, rather than related to benefits of student agency. Because of this structure, the adults as gatekeepers assigned limited partnership *roles* to students. Overall, the adults rather than students were the central agents from the start, and they found student voice something that may be nice to have in some cases, but more often not a ‘need to have’. Consequently, student agency did not gain momentum.

5.3 Data source as a partnership pattern can be split into multiple categories

Students were often used as a data source. *Data* here refers to qualitative or quantitative information that is systematically collected and organized to represent some aspect of schooling (Schildkamp & Lai, 2013, p. 10). For example, we found that information gathered through student dialogue was used by the PLCs to gain a better understanding of the PLC problem or to decide which follow-up step to take. In this sense, we argue that student dialogue (associated with the pattern of *students as active respondents*) can also function as a source of data. This corresponds to new research that stresses the importance

of including student dialogue in data use (Schildkamp et al., 2024). We therefore suggest to update Fielding's (2018) division between *students as data source* (staff utilise information about student progress and well-being) and *students as active respondents* (staff invite student dialogue and discussion to deepen learning/professional decisions). Another argument why we think that Fielding's (2018) current categorisations can be expanded, is because five of the seven PLCs used existing data (no student voice) and four PLCs (additionally) gathered student data themselves (passive student voice). Also here, *data source* as a partnership pattern showed more variety than initially described.

5.4 Active respondents sometimes have more agency than co-enquirers

The third, fourth, and fifth partnership patterns are all about students and school staff taking action together (Fielding, 2018). These particular patterns seemed to be the primary ones in which student agency could function through student dialogue, as students would be more actively involved than in Patterns 1 and 2, for example. However, in the case of PLC D1, the students as co-enquirers (Pattern 3) were more or less told to do something, whereas as active respondents (Pattern 2) they were more able to give input from their side. More specifically, to gather information from their fellow students, it was suggested to them to develop a questionnaire (co-enquirers), but during the PLC sessions they were more often asked for their opinion and had more opportunities to share their student perspective and experiences (active respondents). We also found that positive experiences with students as active respondents can be followed up by the desire to let students conduct PLC research (D1 and A4).

Student agency still appeared limited. The actions that the students described they had taken as PLC members were mainly related to working within the data team, such as formulating a research question and a hypothesis, collecting data and attending the PLC meetings. This did not appear to arise from their initiative to act upon educational issues, although they partly had the will and also grew in their transformation skills.

5.5 Students have the potential to play a key role in inward brokerage

When the two student PLC members talked to their family members, mentor or principal, this was done with the intention to test their own knowledge, rather than diffusing team knowledge to others outside the PLC. Because of that, we doubt whether we can really speak of outward *brokerage*. In contrast, the two student PLC members were planning to collect data from fellow students, so they would then play a key role in retrieving and passing on input from others to the PLC (inward brokerage). PLC A4 also saw potential in students as inward brokers, so that the input and perspective of other students would be included more easily.

5.6 Implications, limitations, and recommendations

The enthusiastic reception of the PLC project by the participating students suggested several (self-reported) benefits, including the development of an investigative attitude, a deeper understanding of education “behind the scenes”, and preparation for (applied) university. Moreover, the participating students offered insightful suggestions on how to engage a wider range of students in educational development. For example, student PLC members could involve other students as data sources or active respondents, which may create a potential bridge between educational professionals inside the PLC and the broader student body outside. These self-reported advantages demonstrated the perceived value of involving students in educational development, not only for their own development, but also as a way to enrich the educational environment as a whole.

However, we as researchers, as well as the students themselves and the educational professionals, all observed how hard it can be to involve a broader range of students in more collaborative ways. Therefore, it might also be of interest to explore various other forms of PLCs, such as integrating student PLCs within regular classroom settings for more active and inclusive participation (Forfang et al., 2025). This integration offers students time, facilitation, and a certain degree of structure, which might likely eliminate many of the barriers mentioned in 5.2. At the same time, the Forfang et al. (2025) paper shows how more intensive support for PLC(-teacher)s might be needed both from school leaders and external facilitators (as well as materials) to achieve higher levels of student voice.

This approach might also help in getting a bigger sample size. Seven PLCs participated in our study and only two students were included as PLC members, which was a voluntary decision for all PLCs involved. This prevented us from studying more extensive forms of student voice (and thus higher potentials for student agency), but also highlights that scarceness as an important finding. We used various data sources to gain an in-depth and as complete picture as possible. Despite that, our small sample size should be borne in mind when considering some of our conclusions.

Furthermore, data from this study were retrieved from two research projects. In one project, three PLCs worked on data-informed school improvement (and therefore were called *data teams*; D1, D2, D3), while in the other project there were four PLCs working on a professional development program on assessment (A4, A5, A6, A7). We used a similar data-collection method, but there were some minor differences. For example, depending on the project, observations could be carried out at different times. The project on professional development on assessment allowed us to observe the real-time online coaching sessions. In contrast, in the project on data-informed school improvement, the researcher was physically present only during the first and (pen)ultimate PLC-session, due

to additional data-collection related to the larger project. This was compensated for by additional audio-recordings of other meetings. Furthermore, we noticed a difference between the two projects in the way feedback was provided about student voice. In addition, the reflection group interviews for the project on professional development on assessment included a relevant follow-up question, which was not the case in the project on data-informed school improvement. Therefore, we supplemented this by using additional information retrieved from a symposium in which the data teams participated. Future research may consider one larger project with more participants included in order to avoid minor differences and accompanying efforts.

Finally, our two projects allowed us to follow PLCs for only one school year, which restricted us from studying (long-term) effects and the evolution of partnership patterns over time. We recommend following a variety of PLCs for a longer time in order to study changes in these pattern. By continuing to study these dynamics, we may better understand the conditions under which student agency through student voice supports educational growth.

Acknowledgements

Special thanks go to Dr. Dorien Hopster-den Otter for assisting with the coding process to ensure interrater reliability, and we gratefully acknowledge the support of the network science community from the BDSi. We would also like to thank Emily Fox for her support in refining the English language in this paper. Most importantly, we would like to express our gratitude to everyone who participated in this study.

Disclosure statement

The project on data-informed school improvement was funded by the municipality in which the corresponding schools were located. The project on professional development on assessment was funded by the school community these corresponding schools belong to. Researchers and authors of this paper did not coach the Professional Learning Communities.

Statement data and analysis codes

The analysis codes can be found in Attachment C and Attachment D. Output can be found in Table 4, Table 5, and Figure 1. Data are not freely accessible.

References

- ATLAS.ti Scientific Software Development GmbH. (2024). ATLAS.ti Windows (version 24.1.1.30813) [Qualitative data analysis software]. <https://atlasti.com>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1-26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bruns, M., & Bruggink, M. (2016). Starten met een Professionele LeerGemeenschap: PLG-teams in het onderwijs [Starting with a Professional Learning Community: PLC teams in education]. Bazalt.
- Cook-Sather, A. (2020). Student voice across contexts: Fostering student agency in today's schools. *Theory Into Practice*, 59(2), 182-191. <https://doi.org/10.1080/00405841.2019.1705091>
- Csárdi, G., Nepusz, T., Traag, V., Horvát, S., Zanini, F., Noom, D., & Müller, K. (2024). igraph: Network Analysis and Visualization in R. <https://CRAN.R-project.org/package=igraph>. <https://doi.org/10.5281/zenodo.7682609>,
- Doğan, S., & Adams, A. (2018). Effect of professional learning communities on teachers and students: Reporting updated results and raising questions about research design. *School Effectiveness and School Improvement*, 29(4), 634-659. <https://doi.org/10.1080/09243453.2018.1500921>
- Dufour, R. (2004). What is a "Professional Learning Community? *Educational Leadership*, 61(8), 6-11. <https://www.ascd.org/el/articles/what-is-a-professional-learning-community>
- Eteläpelto, A. (2017). Emerging conceptualisations on professional agency and learning. In M. Goller, & S. Paloniemi (Eds.), *Agency at Work : An Agentic Perspective on Professional Learning and Development* (pp. 183-201). Springer. Professional and Practice-based Learning, 20. https://doi.org/10.1007/978-3-319-60943-0_10
- Fielding, M. (2001). Students as radical agents of change. *Journal of Educational Change*, 2, 123-141. <https://doi.org/10.1023/A:1017949213447>
- Fielding, M. (2004). Transformative approaches to student voice: Theoretical underpinnings, recalcitrant realities. *British Educational Research Journal*, 30(2), 295-311. <https://doi.org/10.1080/0141192042000195236>
- Fielding, M. (2018). Radical democracy and student voice in secondary schools. In J. Feu & O. Prieto-Flores (Eds.), *Democracy and education in the 21st century: The articulation of new democratic discourses and practices* (pp. 69–86). Peter Lang.
- Fielding, M., & Bragg, S. (2003). *Student as researchers: Making a difference*. Pearson.
- Forfang, H., Poortman, C. L., Jenssen, M. M., & Schildkamp, K. (2025). Leadership for student participation in data-use Professional Learning Communities. *Education Sciences*, 15(5), 548. <https://doi.org/10.3390/educsci15050548>
- Goller, M. & Paloniemi, S. (2022). Agency: Taking stock of workplace learning research. In C. Harteis, D. Gijbels, & E. Kyndt (Eds.), *Research approaches on workplace learning. Insights from a growing field* (pp. 3-28). Springer. https://doi.org/10.1007/978-3-030-89582-2_1
- Gonzales, T. E., Hernandez-Saca, D. I., & Artiles, A. J. (2016). In search of voice: Theory and methods in K-12 student voice research in the US, 1990-2010. *Educational Review*,

- 69(4), 1-23. <https://doi.org/10.1080/00131911.2016.1231661>
- Hanneman, R. A., & Riddle, M. (2005). Introduction to social network methods. University of California. <http://faculty.ucr.edu/~hanneman/>
- Hart, R. (1992). Children's participation: From tokenism to citizenship. UNICEF International Child Development Centre. <https://ideas.repec.org/p/ucf/inness/inness92-6.html>
- Holdsworth, R. (2000). Schools that create real roles of value for young people. Prospects, 3, 349-362. <https://doi.org/10.1007/bf02754058>
- Holquist, S. E., Mitra, D. L., Conner, J., & Wright, N. L. (2023). What is student voice anyway? The intersection of student voice practices and shared leadership. Educational Administration Quarterly, 59(4), 703-743. <https://doi.org/10.1177/0013161X231178023>
- Hubers, M. D., Moolenaar, N. M., Schildkamp, K., Daly, A. J., Handelzalts, A., & Pieters, J. M. (2018). Share and succeed: The development of knowledge sharing and brokerage in data teams' network structures. Research Papers in Education, 33(2), 216-238. <https://doi.org/10.1080/02671522.2017.1286682>
- Jones, M.-A., & Hall, V. (2022). Redefining student voice: Applying the lens of critical pragmatism. Oxford Review of Education, 48(5), 570-586. <https://doi.org/10.1080/03054985.2021.2003190>
- Mager, U., & Nowak, P. (2012). Effects of student participation in decision making at school. A systematic review and synthesis of empirical research. Educational Research Review, 7, 38-61. <https://doi.org/10.1016/j.edurev.2011.11.001>
- Mercer, S. (2011). Understanding learner agency as a complex dynamic system. System, 39, 427-436. <https://doi.org/10.1016/j.system.2011.08.001>
- Mercer, S. (2012). The complexity of learner agency. Apples – Journal of Applied Language Studies, 6(2), 41-59. <http://urn.fi/URN:NBN:fi:jyu-201302041153>
- Mitra, D. (2018). Student voice in secondary schools: The possibility for deeper change. Journal of Educational Administration, 56(5), 473-487. <https://doi.org/10.1108/JEA-01-2018-0007>
- Mitra, D., & Gross, S. J. (2009). Increasing student voice in high school reform: Building partnerships, improving outcomes. Educational Management, Administration & Leadership, 37(4), 522-543. <https://doi.org/10.1177/1741143209334577>
- Mitra, D., Serriere, S., & Stoicov, D. (2012). The role of leaders in enabling student voice. Management in Education, 26(3), 104-112. <https://doi.org/10.1177/0892020612445678>
- Nimmon, L., & Atherley, A. (2021). Qualitative ego networks in health professionals education: Capturing the self in relation to others. Medical Education, 56(1), 71-81. <https://doi.org/10.1111/medu.14663>
- Poortman, C. L., & Brown, C. (2023). The teacher's guide to successful Professional Learning Networks. Open University Press.
- Qualtrics. (2024). Qualtrics XM [Computer software]. Qualtrics. <https://www.qualtrics.com>
- R Core Team. (2024). R: A language and environment for statistical computing. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Rollet, W., Bijlsma, H., & Röhl, S. (2021). Student feedback on teaching in schools: Using student perceptions for the development of teaching and teachers. Springer. <https://doi.org/10.1007/978-3-030-75150-0>

- RStudio Team. (2024). RStudio: Integrated development environment for R. RStudio, PBC. <https://posit.co/download/rstudio-desktop/>
- Schildkamp, K., Fosnaes, A. R., Lindvig, Y., & Wærness, J. I. (2024). Student participation in data-informed decision making: From passive data source to active data users. *Journal of Professional Capital and Community*, 10(3), 337-351. <https://doi.org/10.1108/JPCC-06-2024-0100>
- Schildkamp, K., & Lai, M. K. (2013). Introduction. In K. Schildkamp, M. K. Lai, & L. Earl (Eds.), *Data-based decision making in education: Challenges and opportunities* (pp. 1-21). Springer. <https://doi.org/10.1007/978-94-007-4816-3>
- Schildkamp, K., Poortman, C. L., & Handelzalts, A. (2016). Data teams for school improvement. *School Effectiveness and School Improvement*, 27(2), 228-254. <https://doi.org/10.1080/09243453.2015.1056192>
- Schoots-Snijder, A. J. M., Tigelaar, E. H., & Admiraal, W. F. (2025). Curriculum guidelines for the development of student agency in secondary education: A systematic review. *The Curriculum Journal*, 1-33. <https://doi.org/10.1002/curj.318>
- Shier, H. (2001). Pathways to participation: Openings, opportunities and obligations. *Children & Society*, 15, 107-117. <https://doi.org/10.1002/CHI.617>
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, 7, 221-258. <https://doi.org/10.1007/s10833-006-0001-8>
- Van den Boom-Muilenburg, S. N., Poortman, C. L., Daly, A. J., Schildkamp, K., De Vries, S., Rodway, J., & Van Veen, K. (2022). Key actors leading knowledge brokerage for sustainable school improvement with PLCs: Who brokers what? *Teaching and Teacher Education*, 110, 103577. <https://doi.org/10.1016/j.tate.2021.103577>
- Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24, 80-91. <https://doi.org/10.1016/j.tate.2007.01.004>
- Wickham, H., & Bryan, J. (2023). readxl: Read Excel Files. <https://CRAN.R-project.org/package=readxl>
- Yonezawa, S. (2015). Student voice and the Common Core. *National Society for the Study of Education*, 114(1), 39-58. <https://doi.org/10.1177/016146811511701311>
- Yonezawa, S., & Jones, M. (2007a). Student co-researchers: How principals can recruit, train, and enlist the help of students to examine what works and does not work in their schools. *NASSP Bulletin*, 9(4), 322-342. <https://doi.org/10.1177/0192636507309810>
- Yonezawa, S., & Jones, M. (2007b). Using students' voices to inform and evaluate secondary school reform. In D. Thiessen & A. Cook-Sather (Eds.), *International handbook of student experience in elementary and secondary school*, (pp. 681-709). Springer.
- Yonezawa, S., & Jones, M. (2009). Student voices: Generating reform from the inside out. *Theory Into Practice*, 48(3), 205-212. <https://doi.org/10.1080/00405840902997386>
- Yonezawa, S., & Jones, M., & Joselowsky, F. (2009). Youth engagement in high schools: Developing a multidimensional, critical approach to improving engagement for all students. *Journal of Educational Change*, 10, 191-209. <https://doi.org/10.1007/s10833-009-9106-1>

Appendix A

Observation format

Aantekeningen van [naam school] bij de [f] bijeenkomst op [datum]: met [namen PLG-deelnemers]

Fase PLG: Starten met PLG / Scan / Idee / Actie / Evaluatie

[aantekeningen open observatie, markeer geel wat relevant is]

Partnerschapspatronen van *student voice*

Type	Welke leerlingen	Hoe vaak	Op welke manier/ waarover	Successen	Uitdagingen
Databron (passief)					
Gesprekpartners					
Medeonderzoekers waarbij docent leiding neemt					
Medeonderzoekers waarbij leerling leiding neemt					
Gezamenlijk					
Vanzelfsprekende democratie					

Appendix B

Student interview format

Kort interview/gesprek met deelnemende leerlingen PLG D1 (30–45 min. per leerling)

Globale introductietekst:

Aangezien je samen met [naam medeleerling] de eerste leerling bent die deelneemt aan een data team, zijn wij heel benieuwd hoe je dit ervaren hebt. Hier kunnen we veel van leren, bijvoorbeeld wat handig of minder handig voor jou was voor je deelname. Zo kunnen we de data teammethode verder verbeteren. Ook gaan we een wetenschappelijk artikel schrijven, want ook andere onderzoekers zijn geïnteresseerd hierin. Dat doen we anoniem. Dat betekent dat we geen namen noemen. Verder is het geen beoordeling, we zijn vooral geïnteresseerd in jouw ervaringen en wat er wel en niet goed ging naar jouw idee. Heb je nog vragen of zullen we beginnen?

Voorafgaand aan de deelname

1. Hoe ben je terechtgekomen in het data team?
 - 1.1 Waarom ben je mee gaan doen in het data team?
 - 1.2 Wat waren vooraf je verwachtingen?

Tijdens de deelname

2. Kun je iets vertellen over wat je gedaan hebt in het data team?
 - 2.1 Wat was jouw rol in het data team?
3. Kennisdelen/leren in het data team:
 - 3.1 Hoe heb je geleerd in het data team?
 - Hoe... hoe vaak informatie gekregen... van wie... wisselde dat doorheen de tijd?
 - 3.2 Hoe leerden anderen van jou?
 - Hoe... hoe vaak informatie delen... aan wie... wisselde dat doorheen de tijd?
 - Rollen: databron, gesprekspartner, initiatief bij docent/leerling/beide?
4. Op welke manier raakte het data teamprobleem jou? Maak je je bijvoorbeeld zorgen over lage wiskunderesultaten of heb je daar zelf ook last van of iemand anders om wie je geeft?

Terugblik na de deelname

5. Je noemde net de verwachtingen In hoeverre zijn die verwachtingen uitgekomen?
 - 5.1 Wat werkte goed in het data team?
 - ... waardoor je goed kon deelnemen?

26

PEDAGOGISCHE
STUDIËN
103 (2026)
10.59302/bvsgy794

5.2 Wat had beter gekund in het data team?

- ... waardoor je beter had kunnen deelnemen?

5.3 In hoeverre kon jij bijdragen aan verandering?

- Doorheen de tijd?

6. Wat heeft het data team jou persoonlijk opgeleverd? *Dit mag iets positiefs zijn, maar eventueel ook iets negatiefs.*

6.1 Bijv. het kunnen veranderen, het willen veranderen, kennis/vaardigheden.

7. Afsluitend: zou je dit opnieuw willen doen (en waarom wel/niet)?

7.1 Wat vond je het leukst/interessants? Wat vond je het minst leuk/moeilijkst?

8. Zou je andere leerlingen ook aanraden om deel te nemen aan een data team (en waarom wel/niet)?

Definition:

Student agency is a complex dynamic system (Mercer, 2011) that encompasses the capacity and willingness of students to act upon issues that affect them (Holdsworth, 2000), arising from a belief that their behaviour can make a difference to their learning in a particular setting (Mercer, 2012). This results in agentic behaviour in which a student chooses to exercise agency through (non-) participation or (non-)action (Mercer, 2012).

Part of the definition	Question
Capacity	Questions 2, 3, 5, 6
Willingness	Questions 1, 4, 6, 7
Acting upon issues that affect them	Question 4
Belief that their behaviour can make a difference to their learning in a particular setting	Questions 1, 5, 6, 7, 8
Agentic behaviour, that is, exercising agency through (non-)participation or (non-)action	Questions 2, 3, 5

Appendix C

Coding guideline

Welke partnerschapspatronen van *student voice* zijn zichtbaar in PLGs?

Achtergrondinformatie onderzoek

Definitie student agency

Student agency is een complex dynamisch systeem (Mercer, 2011) dat verwijst naar de capaciteit en bereidheid van leerlingen om actie te ondernemen op problemen die hen raken (Holdsworth, 2000). *Student agency* komt voort uit de overtuiging dat eigen gedrag een verschil kan maken in het leren (Mercer, 2012). Dit resulteert in agentisch gedrag, gekenmerkt door de beslissing van de leerling om (niet) deel te nemen of actie te ondernemen.

Definitie student voice

In ons artikel richten we ons op *student voice* als een mogelijkheid om *student agency* te stimuleren. *Student voice* gaat over de manieren waarop leerlingen hun mening geven over schoolproblemen, samenwerken met volwassenen om de schoolomstandigheden voor zichzelf en anderen te verbeteren, en/of een leidende rol spelen in veranderingsprocessen (Mitra & Gross, 2009; Mitra et al., 2012). *Student voice* stelt leerlingen dus in staat om actie te ondernemen op problemen die hen raken. *Student voice* draagt op die manier bij aan *student agency*.

Probleemstelling

Het actief betrekken van leerlingen bij onderwijsverbetering kan een positieve invloed hebben op de onderwijskwaliteit. Dit kan wanneer leerlingen hun mening geven, samenwerken met volwassenen en/of leiderschapsrollen vervullen (*student voice*). Er is echter weinig bekend over hoe leerlingen betrokken kunnen worden bij schoolverbetering middels Professionele Leergemeenschappen (PLGs). Dit leidt tot de onderzoeksvraag: Welke partnerschapspatronen van *student voice* zijn zichtbaar in PLGs?

Methode

We hebben kwalitatief geëxploreerd op welke manieren leerlingen betrokken waren bij zeven PLGs. Daarnaast hebben we ingezoomd op één PLG-case waaraan leerlingen samen met docenten deelnamen als PLG-leden. Door middel van sociale netwerk analyse aangevuld met kwalitatieve data exploreerden we de posities en rollen van deze leerlingen.

Doel en opbouw format

Het doel van dit format is het bieden van een codeerleidraad. Het eerste deel van het format beslaat een toelichting over de opbouw van het codeboek en een stappenplan met uitleg over hoe te coderen. Het tweede deel van het format is het codeboek zelf. Deze wordt bij de hand gehouden tijdens het coderen in Atlas.ti.

Opbouw codeboek

De naam van elke code is als volgt opgebouwd: partnerschapsvorm_doelgroep_status. Partnerschapsvorm verwijst naar de manier waarop leerlingen betrokken worden, namelijk als: databron, gesprekspartner, medeonderzoeker waarbij docenten de leiding nemen, medeonderzoeker waarbij leerlingen de leiding nemen, medeonderzoeker waarbij er gezamenlijk leiding wordt genomen of medeonderzoeker waarbij niet gespecificeerd wordt wie de leiding neemt. De doelgroep verwijst naar welk type leerling betrokken wordt: de eigen klas/groep, de leerlingenraad, leerlingen die het PLG-probleem ervaren of overige leerlingen. Status verwijst naar of de partnerschapsvorm uitgevoerd is of dat er een voornemen bestaat. Voorbeelden van codes zijn: databron_klas_uitgevoerd, gesprekspartner_leerlingenraad_voornemen, medeonderzoeker-samenleiding_groepanders_voornemen.

10 stappen om te coderen

1. Werk telkens per PLG en vervolgens per bijeenkomst van de betreffende PLG.
2. Open in Atlas.ti de betreffende notulen. Houd het codeboek ernaast.
3. Lees in het codeboek de codes met operationalisering en voorbeelden goed door.
4. Begin in Atlas.ti met het lezen van de notulen van de PLG-bijeenkomst. Als je een stukje leest waarin *student voice* aan bod komt, codeer dan dit stukje tekst.
5. Bepaal om welke partnerschapsvorm het gaat.
6. Bepaal om welk type leerlingen het gaat.
7. Bepaal of het gaat om een voornemen of dat leerlingen reeds betrokken zijn geweest. Let op: het kan voorkomen dat er in het begin van de observatie/notulen sprake is van een voornemen dat aan het einde verdwijnt. In dit geval moet je het tóch coderen als een voornemen.

- Kies de juiste code door in Atlas.ti het tekstgedeelte te selecteren. Dit kunnen enkele woorden of meerdere zinnen zijn.
- Ga op deze manier door de hele notulen.
- Controleer op het einde of alles volledig ingevuld is en je niets overgeslagen hebt.

Codeboek

Codegroep	Naam code-onderdeel	Beschrijving	Voorbeeld
Partnerschaps-vorm	databron	Leerlingen worden betrokken/gebruikt als databron. Er wordt data gebruikt van leerlingen door deze informatie op te vragen, zelf actief te verkrijgen of door deze te creëren.	Cijfers van leerlingen, openbare data (bijv. van CITO), via een vragenlijst over de voortgang of het welzijn, quasi-experimentele setting creëren.
	gesprekspartner	Leerlingen worden betrokken als gesprekspartner.	Leerlingen worden uitgenodigd om met de docent(en) in gesprek te gaan over bijvoorbeeld het leerproces of de professionele ontwikkeling. Dit gesprek kan informeel zijn ("we hebben leerlingen gesproken") of gestructureerd ("we hebben leerlingen geïnterviewd").
	medeonderzoeker-docentleiding	Leerlingen worden betrokken als medeonderzoekers waarbij de docent (of een andere volwassene) de leiding op zich neemt om het PLG-probleem te onderzoeken. Leerlingen vervullen daarbij een ondersteunende rol.	Leerlingen voeren voorstel uit van docent(en) met geen of beperkte inbreng gehad. De docent heeft overwicht.

medeonderzoeker- leerlingleiding	Leerlingen worden betrokken als medeonderzoekers waarbij zijzelf de leiding op zich nemen om het PLG-probleem te onderzoeken. Docenten en/of andere volwassenen vervullen daarbij een ondersteunende rol.	Leerlingen nemen het initiatief om informatie te verzamelen over het PLG-probleem. De docent faciliteert dit en heeft geen of beperkte inbreng hierin gehad. De leerling heeft overwicht.
medeonderzoeker- samenleiding	Leerlingen worden betrokken op een manier waarbij gezamenlijk beslissingen worden gemaakt. Docenten en leerlingen nemen gezamenlijk leiding.	Leerlingen en docenten overleggen samen hoe iets aangepakt kan worden en dit voeren zij samen uit of via een vooraf besproken taakverdeling. Zowel leerlingen als docenten hebben inbreng en stemmen af. Ze vragen beiden naar elkaars perspectief en nemen dit mee.
medeonderzoeker-ns	Leerlingen worden betrokken als medeonderzoekers, maar er wordt niet gespecificeerd wie hierin de leiding neemt.	"Leerlingen hebben een enquête ontwikkeld."
vanzelfsprekendede- mocratie	Er is sprake van intergenerationeel leren als vanzelfsprekende democratie, met gedeelde inzet voor het algemeen belang.	Uitspraken die betrekking hebben tot de schoolcultuur als geheel en waarbij dus sprake is van een terugkerend patroon of routine.
participatiens	Er wordt niet gespecificeerd op welke manier leerlingen worden betrokken.	"We hebben leerlingen betrokken", "Het voornemen is om een vorm van leerlingenbetrokkenheid toe te passen in de toekomst."

Doelgroep leerlingen	klas	De groep leerlingen die betrokken wordt, betreft leerlingen uit de eigen klas of groep van de docent.	“Eigen klas”, “klas 2” (wetende dat deze docent lesgeeft aan klas 2).
	leerlingenraad	De groep leerlingen die betrokken wordt, betreft leerlingen uit de leerlingenraad.	“Leerlingenraad”
	probleem	De groep leerlingen die betrokken wordt, betreft leerlingen bij wie het PLG-probleem speelt en/of de specifieke doelgroep die de PLG voor ogen heeft.	“De brugklas” (wetende dat dit de specifieke doelgroep is waar de PLG zich op richt), “leerlingen met lage wiskundecijfers” (wetende dat dit het probleem is dat de PLG onderzoekt), “leerlingen bij wie we formatief hebben getoetst” (wetende dat dit het thema is dat de PLG onderzoekt).
	anders	Andere leerlingen dan de hierboven genoemde subgroepen worden betrokken of een controlegroep of publieke data of het wordt niet gespecificeerd wie er betrokken worden.	Bijv. “klas 4” (wetende dat dit niet de specifieke doelgroep is waar de PLG zich op richt), “klas 3 ter vergelijking” (controlegroep), “data van CITO” (publieke data), enquête “onder leerlingen”, gesprekken “met leerlingen”
Status	uitgevoerd	Leerlingen zijn reeds betrokken geweest.	We hebben dit gedaan, we hebben dit gevonden, uit onze analyses bleek, we hebben gekeken naar, we hebben dit uitgezet/opgevraagd/verzameld, ...
	voornemen	Eén of meerdere PLG-leden uit(en) het voornemen om in de toekomst leerlingen te betrekken.	We denken na om, binnenkort gaan we, het voornemen is, een idee is, we willen graag, ...

Appendix D

R script for social network analysis

```
#### START ####

# Installeer de pakketten
install.packages("igraph")
install.packages("readxl")
install.packages("dplyr")

library(igraph)
library(readxl)
library(dplyr)

# Beide metingen ophalen
meting1_data <- read_excel("path1")
meting2_data <- read_excel("path2", sheet = "Blad1")

#### VISUALISATIE ####

# Combineer data om één universele layout te berekenen
alle_data <- bind_rows(meting1_data, meting2_data)
alle_knooppunten <- unique(c(alle_data$Source, alle_data$Target))

# Maak een tijdelijk totaalnetwerk voor layout
totaal_netwerk <- graph_from_data_frame(alle_data, directed = TRUE)
layout_vast <- layout_in_circle(totaal_netwerk)
rownames(layout_vast) <- V(totaal_netwerk)$name # Voor toewijzing per
knoop

# Functie voor subnets per focus node + meting
visualiseer_focusnetwerk <- function(data, focus_node, layout_vast,
metinglabel) {
  netwerk <- graph_from_data_frame(data, directed = TRUE)
  V(netwerk)$status <- c("Docent", "Docent", "Docent", "Docent", "Docent",
"Leerling", "Leerling")
  V(netwerk)$color <- ifelse(V(netwerk)$status == "Docent", "white", "grey")
  E(netwerk)$weight <- data$Weight

  # Subnetwerk: alleen focus node en directe burens
  buur_namen <- union(neighbors(netwerk, focus_node, mode = "in")$name,
neighbors(netwerk, focus_node, mode = "out")$name)
```

```

sub_nodes <- unique(c(focus_node, buur_namen))
sub_netwerk <- induced_subgraph(netwerk, vids = sub_nodes)

# Filter layout voor juiste knopen
sub_layout <- layout_vast[V(sub_netwerk)$name, , drop = FALSE]

# Kleur edges: rood = inkomend naar focus, blauw = uitgaand
edge_colors <- ifelse(ends(sub_netwerk, es=E(sub_netwerk))[,2] == focus_
node, "red",
                      ifelse(ends(sub_netwerk, es=E(sub_netwerk))[,1] == focus_
node, "blue", "grey"))

plot(sub_netwerk,
     layout = sub_layout,
     main = paste("Node", focus_node, "-", metinglabel),
     vertex.label = V(sub_netwerk)$name,
     vertex.label.color = "black",
     vertex.color = V(sub_netwerk)$color,
     vertex.size = 30,
     edge.width = E(sub_netwerk)$weight,
     edge.arrow.size = 1,
     edge.color = edge_colors,
     edge.curved = 0.2)
}

# Visualiseer
par(mfrow = c(1, 2)) # toont telkens twee netwerken naast elkaar

# Blok 1: S1 meting 1 en meting 2
par(mfrow = c(1, 2))
visualiseer_focusnetwerk(meting1_data, "S1", layout_vast, "Meting 1")
visualiseer_focusnetwerk(meting2_data, "S1", layout_vast, "Meting 2")

# Blok 2: S2 meting 1 en meting 2
par(mfrow = c(1, 2))
visualiseer_focusnetwerk(meting1_data, "S2", layout_vast, "Meting 1")
visualiseer_focusnetwerk(meting2_data, "S2", layout_vast, "Meting 2")

#### STATISTIEKEN ####

# Meting 1

```

```
meting1_data <- read_excel("path", sheet = "Blad1")
network1 <- graph_from_data_frame(meting1_data, directed = TRUE)
E(network1)$weight <- meting1_data$Weight
```

```
# Meting 2
```

```
meting2_data <- read_excel("path2", sheet = "Blad1")
network2 <- graph_from_data_frame(meting2_data, directed = TRUE)
E(network2)$weight <- meting2_data$Weight
```

```
# Functie om gewogen reciprociteit per knoop te berekenen
```

```
weighted_reciprocity_per_node <- function(g) {
  reciprocity_scores <- numeric(vcount(g))
```

```
  for (i in 1:vcount(g)) {
    node <- V(g)[i]
```

```
    out_edges <- E(g)[from(node)]
    reciprocity_sum <- 0
    reciprocal_count <- 0
```

```
    for (out_edge in out_edges) {
      target <- head_of(g, out_edge)
```

```
      # Check of er een wederkerige verbinding is
      if (are.connected(g, target, node)) {
        in_edge <- E(g)[from(target) & to(node)]
```

```
      # Haal de gewichten van de wederkerige verbindingen op
      weight_out <- E(g)[out_edge]$weight
      weight_in <- E(g)[in_edge]$weight
```

```
      # Bereken de reciprociteit als de verhouding tussen het kleinste en
      grootste gewicht
```

```
      reciprocity_sum <- reciprocity_sum + min(weight_out, weight_in) /
      max(weight_out, weight_in)
      reciprocal_count <- reciprocal_count + 1
    }
  }
}
```

```
# Bereken het gemiddelde van de reciprocity scores voor deze knoop
if (reciprocal_count > 0) {
  reciprocity_scores[i] <- reciprocity_sum / reciprocal_count
```

```

    } else {
      reciprocity_scores[i] <- NA
    }
  }

# Voeg de namen van de knopen toe aan de scores
names(reciprocity_scores) <- V(g)$name

return(reciprocity_scores)
}

analyse_netwerk_compleet <- function(network) {
  # Berekeningen
  in_deg <- strength(network, mode = "in", weights = E(network)$weight)
  out_deg <- strength(network, mode = "out", weights = E(network)$weight)
  central <- strength(network, mode = "all", weights = E(network)$weight)
  recip <- weighted_reciprocity_per_node(network)

  # Z-score helper
  z <- function(x) {(x - mean(x, na.rm = TRUE)) / sd(x, na.rm = TRUE)}

  # Combineer alles in een data frame
  df <- data.frame(
    Individu = V(network)$name,
    In_Degree = in_deg,
    Out_Degree = out_deg,
    Centraliteit = central,
    Wederkerigheid = recip,
    Z_In_Degree = z(in_deg),
    Z_Out_Degree = z(out_deg),
    Z_Centraliteit = z(central),
    Z_Wederkerigheid = z(recip)
  )

  return(df)
}

resultaat_meting1 <- analyse_netwerk_compleet(network1)
resultaat_meting2 <- analyse_netwerk_compleet(network2)

print(resultaat_meting1)
print(resultaat_meting2)

```

Auteurs

Myrthe E. C. Lubbers is promovendus bij de Universiteit Twente (ELAN, sectie docentontwikkeling) en onderzoeker en docent bij Saxion Hogeschool (lectoraat Employability Transition).

Cindy L. Poortman is universitair hoofddocent bij de Universiteit Twente (ELAN, sectie docentontwikkeling).

Kim Schildkamp is hoogleeraar bij de Universiteit Twente (ELAN, sectie docentontwikkeling).

Correspondentie: Myrthe E. C. Lubbers, Ravelijn, Hallenweg 17, 7522 NH Enschede.

E-mail: m.e.c.lubbers@utwente.nl

Nederlandstalige samenvatting

Betrokkenheid van leerlingen bij Professionele Leergemeenschappen (PLGs): de vraag naar student agency

Het actief betrekken van leerlingen bij onderwijsverbetering kan een positieve invloed hebben op hun agency en de onderwijskwaliteit. Dit kan wanneer leerlingen hun mening geven, samenwerken met volwassenen en/of leiderschapsrollen vervullen (*student voice*), bijvoorbeeld in Professionele Leergemeenschappen (PLGs). Er is echter weinig bekend over hoe leerlingen betrokken kunnen worden voor schoolverbetering middels PLGs. We hebben daarom kwalitatief geëxploreerd op welke manieren leerlingen betrokken waren bij zeven PLGs. Daarnaast hebben we ingezoomd op één PLG-case waaraan leerlingen samen met docenten deelnamen als PLG-leden. Door middel van sociale netwerk analyse aangevuld met kwalitatieve data exploreerden we de posities en rollen van deze leerlingen. We concluderen dat leerlingen slechts in beperkte mate betrokken waren bij de meeste PLGs: vooral als passieve databron en soms als actieve respondenten. Zelfs als leerlingen betrokken waren als PLG-leden, leken ze in eerste instantie slechts een beperkte agency te hebben. Daartegenover staat dat leerlingen een belangrijke schakel kunnen zijn tussen de onderwijsprofessionals in de PLG en de leerlingenpopulatie daarbuiten.

Kernwoorden *student agency*, *student voice*, professionele leergemeenschappen, data teams