NAVIGATING EXPERIENTIAL LEARNING: THE ROLE OF TEACHER DISCOURSE MOVES IN AMPLIFYING STUDENT EXPERTISE

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Experiential learning represents a shift in K-12 education that requires teachers to change the ways that they engage students. We created a professional development experience in which teachers learned about the entrepreneurial-based design challenges we developed (Authors, 2019) and practiced implementing teacher check-ins with students participating in our summer camp. In this paper, we conduct a case study to explore how three teachers used teacher discourse moves during their teacher check-ins. We found three types of teacher-student interactions: (a) positioning students as experts, (b) co-designing with students, and (c) pushing students towards an outcome. These findings suggest that teacher professional development for experiential learning should intentionally support teachers in learning how to employ the moves during teacher check-ins in ways that elevate student expertise and advance their thinking.

Keywords: Professional Development, Problem-Based Learning, Classroom Discourse

Experiential learning provides opportunities for K-12 students to work collaboratively and across disciplines to create innovative, actionable, and empathetic solutions (Hashim et al., 2019). Experiential learning represents a transformative approach to education (Slavich & Zimbardo, 2012; Yardley et al., 2012), challenging traditional pedagogical norms by prioritizing hands-on, inquiry-based learning experiences. There are many varieties of experiential learning approaches, ranging from problem-based learning to community-based learning (Haigler & Owens, 2018). Teachers play a pivotal part of experiential learning by adopting diverse roles, from facilitators to co-designers (Grossman et al., 2019; Haigler & Owens, 2018). As teachers navigate experiential learning environments, understanding the nuances of teacher-student interactions becomes imperative for optimizing instructional practices and fostering meaningful learning experiences.

The Design & Pitch (D&P) Challenges in STEM project (Confrey et al., 2019) is an experiential learning curriculum that draws on project-based learning (Krajcik & Blumenfeld, 2006), entrepreneurial-based learning (Lackeus, 2015), and design-based learning (Mehalik et al., 2008) to situate mathematics learning within entrepreneurial pitch competitions. In this paper we report how teacher discourse moves (TDMs; Herbel-Eisenmann et al., 2013) are leveraged when teachers practice facilitating experiential learning during a PD on D&P.

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Literature Review

Teacher Facilitation of Student Autonomy

Learning environments that employ these experiential pedagogies are built on a culture of student-centered practices (Haigler & Owens, 2018), where students are provided with autonomy to ideate and create, meaning that each group is often thinking about different topics (Lee & Hannafin, 2016; Wilson et al., 2015). A teacher in this situation needs to check-in with students regularly to assess, support, and facilitate their progress (Grossman et al., 2019; Lee & Hannafin, 2016). This requires teachers to have a deep understanding of the learning goals (Grossman et al., 2019), a willingness to allow students to assume autonomy and authority (Langer-Osuna, 2011), and the flexibility to facilitate student thinking relating to a wide variety of ideas and solutions (Haigler & Owens, 2018; Krajcik & Blumenfeld, 2006).

When managing student-centered classrooms with varying ideas and approaches, Herbel-Eisenmann et al. (2013) found that teachers could effectively facilitate student learning through what they refer to as TDMs. Strategies like these are often used to facilitate whole group discussions (Herbel-Eisenmann et al., 2013; Smith & Stein, 2011), but they can also provide a way for teachers to purposefully engage students in conversations during teacher check-ins in experiential learning environments.

Professional Development

One way that teachers learn to use new curricular resources, especially those based in novel pedagogies, is through professional development (PD; Dingman et al., 2021). For PDs centered on learning about a new curriculum, regardless of format, McDuffie and Mather (2009) suggest first engaging teachers in an experience where they are positioned as the student. Then it is important to shift teachers back to the teacher perspective after thinking as a student, so they can reflect on how their experience informs their approaches to teaching with the resource (Dingman et al., 2021; McDuffie & Mather, 2009). An experiential way to do this is by having teachers approximate the practice of facilitating aspects of the curriculum in conditions that are less complex than a real classroom (Schutz et al., 2018). Approximations of practice allow PD participants to engage with how a novel curriculum might look in a classroom (Schutz et al., 2018), since it may be quite different from their traditional teaching practice.

This study explored how teachers leveraged TDMs while checking in with students during a PD on a novel curricular framework. This research is guided by the following question: *How do teachers approximating the practice of a teacher check-in use TDMs to support, or hinder, amplifying student expertise?*

Methods

The data for this paper was part of a larger study that focused on the design and study of a high school mathematics entrepreneurial curriculum and its associated PD, henceforth referred to as D&P.

Context and Participants

The D&P PD, in which the data was collected, lasted one week, and was held at the same time as a D&P student summer camp. In the first 2.5 days participants acted as students to experience one of the D&P challenges alongside the summer camp students, and then the final 2.5 days the participants acted as teachers during the summer camp. During the D&P PD teachers engaged in teacher check-ins in multiple ways. To experience facilitation moves through the student perspective, teachers experienced multiple teacher check-ins as learners. Teachers

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also had a chance to debrief their experiences as learners with PD facilitators. Additionally, teachers were given a document that outlined questions to consider asking during teacher check-ins.

Five teachers attended the PD experience. Three were high school teachers, one science and two mathematics, and two were elementary teachers. The two mathematics teachers were new to teaching and the other three teachers were veterans. The two elementary teachers were not able to experience the entire PD therefore their data was excluded from this analysis.

Data Collection and Analysis

All aspects of the summer camp and PD were video recorded. For this paper the videos of interest were the periods in which the teachers were checking-in with student groups. Thus, the video data was reduced to these 20 to 30 minute clips for data analysis. The check-in videos were memoed by the first author, from which a content log with brief summaries of each video was created. Considering each video's memo and the content log, the research team selected one video per teacher participant that was representative of their understanding of teacher check-ins. After reducing the data to three videos, transcripts were created and were coded using a TDMs framework (Herbel-Eisenmann et al., 2013). Additionally, the transcripts were analyzed for the breakdown of teacher talk time versus student talk time (Hennesey et al., 2023).

Results

Preliminary analysis of three teacher check-in videos surfaced three types of teacher-student interaction: (a) positioning students as experts, (b) co-designing with students, and (c) pushing students towards an outcome.

Positioning Students as Experts

When the teacher check-ins began, each teacher spent time orienting themselves to the students' ideas in relation to the D&P challenge. Teachers typically did this through the TDMs of assessing student thinking and revoicing (Herbel-Eisenmann et al, 2013). While all of the teachers had periods of positioning students as experts of their ideas, Teacher B exemplified this interaction type. She employed the TDM of waiting (Herbel-Eisenmann et al, 2013) throughout the interaction, as indicated by the short listening cues she provided to students such as "Yeah," "Okay," and "Nice." The students engaging with Teacher B also had the highest amount of talk time, sharing their ideas and work for almost 60% of the time, in contrast to the 25% of time that students talked during the interaction with Teacher A and almost 50% of the time that they talked with Teacher C.

Teacher C also used the TDMs of inviting participation and orienting to student work (Herbel-Eisenmann et al, 2013) to position students as experts. One instance of this was when she said, "Student S is taking what y'all have mapped out and she is tracing over it in color on the map to show the two routes? What are you doing?," which shows both moves. She first elevated what Student S was currently working on (orienting the other students in the group to that work) and then she invited another student in the group to share what they were working on. These two moves together grounded group interactions in student ideas while facilitating collaboration amongst group members.

Co-Designing with Students

As teachers used the TDM of advancing student thinking (Herbel-Eisenmann et al, 2013) towards the challenge goal, they would sometimes become co-designers with the students, acting as a group member during teacher check-ins. During these co-designing periods, teachers worked

to advance student thinking through grounding conversations in student ideas. Teacher A did this when creating a map prototype by directing the students to pull up the technology tool for mapping on one computer and then having everyone (including the teacher) gather around that screen to work together. The co-designing interaction is exemplified in this set of quotes:

> Student: Uh, you could just uh add the whatever it's called, the bottom left corner there, no farther down, yep, like then you can like add them along the route, just like plan it out and then you can hit how long to measure it.
>
> Teacher A: So I guess drop a pin where that thing is. And then you have to find [High School Name]. Or whatever, maybe the movie theater.

Both the student and the teacher are figuring out the technology and which decisions to make together to advance towards the goal of prototyping a mapping app.

Pushing Students Toward an Outcome

The other way the teachers attempted to advance student thinking (Herbel-Eisenmann et al., 2013) was to push students in a specific direction based on their understanding of the student ideas in relation to the challenge goals. This tended to frustrate and constrain students, rather than advance them. For instance, Teacher C was trying to advance the students' thinking to be broader:

> What do you think would happen for your users if instead of giving them a very narrow trip from Dominos to the [location of the camp],...what if you expanded it, say from [close-by town] to the [location of the camp]?

The students became frustrated with her pushes because they felt she was disregarding the work they had already done as well as suggesting that they were not doing the correct task.

Discussion and Conclusion

Within a PD focused on supporting teachers to adopt an experiential learning curriculum, teacher participants had multiple opportunities to engage in teacher check-ins–a critical component of experiential learning (Lee & Hannafin, 2016; Grossman et al., 2019; Wilson et al., 2015). When teacher participants had the opportunity to approximate the practice (Schutz et al., 2018) of teacher check-ins three teacher-student interactions emerged. As they engaged as teachers during the second half of the PD, the teachers naturally employed many TDMs (Herbel-Eisenmann et al., 2013) during teacher check-ins, which led to two beneficial teacher-student interactions (positioning students as experts and co-designing with students) and one concerning teacher-student interaction (pushing students towards an outcome). Our analysis highlights an area of focus for experiential learning PD, the importance of how to facilitate moving towards the goal of the activity while staying grounded in the student ideas. While the literature shows the importance of the teacher engaging with groups during experiential learning to move them towards a learning goal (Grossman et al., 2019), our findings show negative student reactions during these moments. Thus, during these teacher check-ins while teachers are engaging with students around their ideas (a beneficial interaction), teachers must employ TDMs that both support the advancement towards the learning goal while continuing to position students as experts. If teachers push too hard to advance towards the learning goal, as shown above, students will begin to become complacent and lose connection to their idea, thus diminishing their expertise.

Therefore, based on our preliminary analysis, we suggest that experiential learning PD should intentionally support teachers in learning how to leverage TDMs (Herbel-Eisenmann et al., 2011) to engage students as experts while advancing them towards learning goals. This intentionality can be built into debrief sessions that support engaging in the curriculum as a learner (Dingman et al., 2021; McDuffie & Mather, 2009), or side-by-side coaching (Munson, 2018) during teacher check-in approximations of practice.

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