2016

Collaborative Action Research for Middle Grades Improvement

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Title: **Collaborative Action Research for Middle Grades Improvement**

Submitted To: Educational Action Research (2016)

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Reference as published:

John M. Downes, Penny A. Bishop, Meredith Swallow, Mark Olofson & Susan Hennessey (2016) Collaborative action research for middle grades improvement, *Educational Action Research*, 24:2, 194-215, DOI: 10.1080/09650792.2015.1058169

Abstract

Technology's rapid evolution applies constant pressure to educational organizations (Johnson, Adams, & Cummins, 2012), suggesting a need to continually reenvision schools for the digital age. Yet educators often struggle to understand the growing chasm between students' out of school and in school technology lives (Buckingham, 2007). This gap is particularly noticeable during the middle grades years, when home technology use increases dramatically (Rideout, Foehr, & Roberts, 2010).

The purpose of this research was to examine the experiences of teachers and students engaged in collaborative action research for middle school improvement in technology-rich settings. We begin by outlining our theoretical framework, emphasizing Fletcher's (2005) Ladder of Student Involvement. We then describe our case study design and methods. Findings are organized by action research components and a discussion of key themes follows. Finally, we consider the implications of this study for action research as a means of student involvement and teacher learning.

Collaborative Action Research for Middle School Improvement

Technology's rapid evolution applies constant pressure to educational organizations, curricula and pedagogy (Johnson, Adams, & Cummins, 2012), suggesting a need to continually reenvision schools for the digital age. Yet many educators struggle to understand the growing chasm between the technology-rich lives students lead out of school and the limited technology most access within school (Buckingham, 2007). This gap is particularly noticeable during the middle grades years, when home technology use increases dramatically (Rideout, Foehr, & Roberts, 2010). What, then, might students teach educators about redefining schools in the 21st century? How might teachers and students work together to re-envision middle grades schools to meet young adolescents' needs and interests? And what processes and structures might promote this important collaboration?

This study explores how middle grades teachers employed two promising approaches to these dilemmas: teacher action research and involving students in school improvement. Drawing on the extensive literatures on action research and student involvement, we sought to critically examine the interplay of action research and student involvement in hopes of informing our ongoing work with hundreds of teachers struggling to develop technology-rich learning communities for young adolescents. The following research questions guided the study:

1. In what capacities are young adolescents involved in the action research process?
2. At which steps in the action research process do teachers seek or value student involvement?

In this paper we begin by outlining the theoretical framework that informed the study. We then describe our case study design and accompanying methods. Next the findings are presented: first in terms of the action research cycle, then regarding perceived outcomes. A

discussion of key themes follows. Finally, we consider the implications of this research, in particular, how a critical typology for student involvement may help teachers examine their action research as well as other efforts to involve student in school change.

Context

Our work with the teachers in this study is situated in ongoing partnerships between our university-based institute and teachers' respective middle schools. The institute, part of the university's department of education, provides intensive professional development (Wei, Darling-Hammond, Andree, Richardson & Orphanos, 2009) to middle schools faculties as they create technology-rich learning environments and opportunities responsive to the nature and needs of young adolescents (Association for Middle Level Education, 2010). These schools must already have in place key facets of effective middle schools, including small, interdisciplinary teaching teams of two to four teachers with whom students spend the bulk of their day. These teachers typically use daily common planning time to collaboratively manage their team, and to varying degrees, their curriculum.

We have found, as have others, that transitioning from low-tech to high-tech classrooms, such as providing each student with an Internet connected device, invites fresh questions and conversations about the purpose and process of schooling. With prompting, teachers frequently adopt new norms, routines and pedagogies for their classrooms. Many teachers quickly learn that their students often have key knowledge about technology and can play new and critical roles in helping technology-rich classrooms run more effectively. We make these conversations an integral part of the professional development and ground them in an understanding of young adolescents, including their needs and capacities for autonomy and democratic participation in their educational experience. To develop technology-rich skills, curriculum, and pedagogy, we

provide teachers with a variety of institute facilitated strategies including in-service days, individual and team level consultations, workshops, mentoring, and optional graduate level courses in which participants conduct action research.

Conceptual Framework

Two bodies of work particularly informed the implementation and analysis of this research. First, action research was the structure through which we guided teachers' inquiry, as they worked to integrate technology into their pedagogy. Second, the study was based on the premise that students can contribute in authentic ways to school improvement and teacher learning. Therefore the concept of student involvement undergirded the research.

Action Research

This study emerged through our work with educators conducting action research projects as they addressed challenges of technology integration in their classrooms. Action research was not the methodology of this study; rather, teachers were expected to conduct their own action research to receive graduate credit for their work with us. We believe action research helps teachers learn "in and from practice" (Ball & Cohen, 1999) with disciplined inquiry questions that emerge in their work with students (Darling-Hammond, 2008). Action research also provides a structure through which teachers can involve students in school change (Schensul & Berg, 2004; Vassilis, 2009**),** particularly important in a transition to technology-rich middle schools (Downes & Bishop, 2012). Accordingly, participating teachers applied a cycle of problem posing, designing action, taking action, collecting data, analyzing data, and reflecting and redefining (Herr & Anderson, 2005; Kemmis & McTaggart, 2007; Lewin, 1946) as they explored new instructional strategies and assessed pedagogical methods (see figure 1). We examined each stage of a participating teacher's action research cycles as a stage in their project

implementation, each with distinct purposes and strategies, and each with opportunities to meaningfully involve students.

Figure 1. Action research cycle. This figure illustrates the cycle of action research that guided this study's analysis.

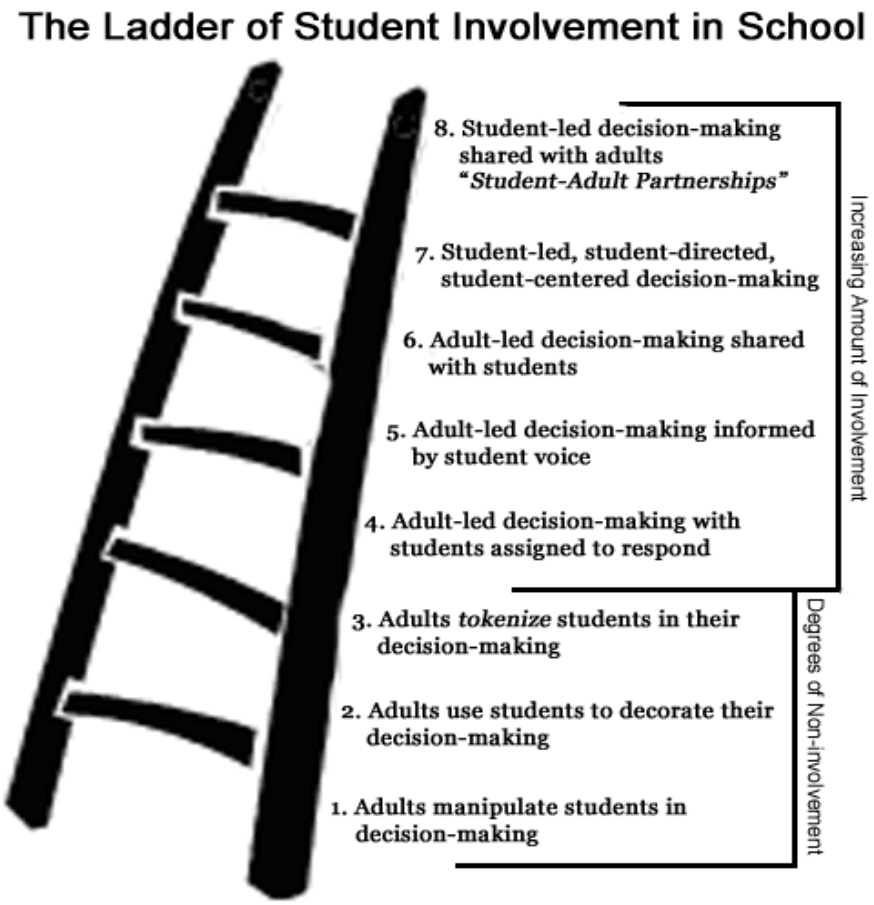
The Opportunity of Student Involvement

Our orientation to student involvement taps one of several bodies of research into student voice described by Thiessen (2007): "how students are actively involved in shaping their own learning opportunities and in the improvement of what happens in schools" (p. 7). For example, they can play central roles in curriculum design (Beane, 1993; Warwick, 2008), effective teaming (Boyer & Bishop, 2004), school governance (SooHoo, 1993), and teacher learning (Downes, Nagle, & Bishop, 2010). Students benefit affectively and academically from the sense of agency they derive from designing their schooling (Mitra, 2004). For teachers, student involvement can yield a more practical change agenda, enhanced student commitment to

learning, a transformed knowledge of students, and more positive teacher-student relationships (Rudduck, 2007). While student involvement reflects a commitment to creating more democratic spaces (Beane, 2005), it invites students and teachers into "liminal positions' beyond their traditional roles (Cook-Sather & Alter, 2011), which can strain teachers' identities and school relationships (Bragg, 2007).

Fletcher's (2005) Ladder of Student Involvement (See Figure 2) informed the implementation of this study and provided the primary perspective for the analysis. It also provided us with a succinct list of key distinguishing characteristics of student involvement that has proved useful in conversations with our partner educators. Based on Hart's (1992) analysis of children's participation in social change, the ladder's rungs provided a typology to assess students' levels of involvement in learning and decision-making. Whereas Lodge (2005), also drawing in part on Hart, outlined six levels of researching with students, we sought an evaluative framework of student involvement in teacher project work more generally, sometimes as co-researchers, but often assuming other roles. The ladder represents a range of ways students are—and can be—meaningfully involved in school change. It is not a ladder to be climbed as a sequential process. Nor should it be construed to mean that more student involvement is necessarily better or that forms of involvement at the higher rungs are appropriate in all circumstances. Rather, it "is meant to represent possibilities, not predictions, for growth" (Fletcher, 2005).

Figure 2. Fletcher's (2005) adaptation of Hart's (1992) Ladder of Student Involvement. This figure illustrates the framework used to characterize instances of student involvement in this study.



The top five rungs represent degrees of student involvement, ranging from adult-led decision making, with students acting primarily as respondents (Rung 4), to student-led decision making, with these decisions being shared with adults (Rung 8). The bottom three rungs represent degrees of non-involvement. Table 1 presents additional descriptors for each rung of the Ladder.

Table 1. Fletcher's (2005) Descriptors of Student Involvement

Rung	Characteristic	Descriptor
	Degrees of Involvement	
Rung 8	Student-led decision-making shared with adults	Students initiate projects, classes, or activities, and decision-making is shared among students and adults. These projects empower students while at the same time enabling them to access and learn from the life experience and expertise of adults.
Rung 7	Student-led, student-directed, student-centered decision-making	Students initiate and direct a project, class, or activity focused only on student concerns. Adults are involved only in a supportive role.
Rung 6	Adult-led decision-making shared with students	Adults initiate projects, classes, or activities, but the decision-making is shared with students involved.
Rung 5	Adult-led decision-making informed by student voice	Students give advice on projects, classes, or activities designed and run by adults. The students are informed about how their input will be used and the outcomes of the decisions made by adults.
Rung 4	Adult-led decision-making with students assigned to respond.	Students are assigned a specific role, told about how, and taught why they are being involved.
	Degrees of Non-Involvement	
Rung 3	Tokenism	Students appear to be given a voice, but in fact have little or no choice about what they do or how they participate.
Rung 2	Decoration	Students are used to help or bolster a cause in a relatively indirect way; adults do not pretend that the cause is inspired by students. Adults determine causes, and adults make all decisions.
Rung 1	Manipulation	Adults use students to support causes by pretending that those causes are inspired by students.

Depending on the purposes pursued and the roles students are offered, student involvement can promote quality control, compliance, useful information or active community dialog (Lodge 2005). Just because students are involved in designing their schooling does not mean their voices are being heard or that their status within the school is changed (Fielding, 2001; Rudduck, 2007). Fielding (2006) observed that students' participation could contribute to efficient and effective learning organizations that nonetheless marginalize students as persons.

Alternatively, their involvement can inform communities that respond to their affective needs without producing an organization that serves their needs as learners. Instead, we seek with our teachers what Fielding called a person-centered learning community, one in which broad student engagement serves moral, interpersonal, and instrumental ends, in which the "functional is used for the sake of the personal" (Fielding, 2006). As Bahou (2012) suggested, attention to the power relationships among teachers and students within such a community is a critical compliment to using Hart's ladder of youth participation; we concur with regard to Fletcher's ladder as well. Accordingly, the teachers we worked with in this study employed important scaffolding for meaningful student involvement: small learning communities focused on caring relationships; and curriculum, authentic learning opportunities, and pedagogy designed to be responsive to students' needs and interests (Fielding, 2006; Smyth 2007).

With our participating teachers working in such promising contexts, we saw an opportunity to tease out how they involved students in their project work. The action research cycle provided a temporal as well as functional framework; the Ladder of Student Involvement helped characterize the roles and behaviors of students that teachers involved in the work. Integrated as a matrix, we examined student involvement in various stages of project development and implementation. We aimed for an analytic framework of sufficient critical value to serve researchers as well as teachers as they engage students day-to-day in learning communities and school change. In so doing, we sought to advance the cause of bringing the potential benefits of student involvement from the periphery into the heart of pedagogical practice (Thompson, 2012; Frost & Roberts 2011) as teachers grapple with technological imperatives for change.

Methods

Participants

We employed a multi-site, collective case study design (Yin, 2009; Stake, 1995). Working with 90 teachers from 10 schools across Vermont, we facilitated 44 action research projects among young adolescents and their teachers to foster teacher learning about student-centered pedagogy and technology integration. Applying purposeful, intensity sampling, we identified six of these projects to study. Intensity sampling enables researchers to select "information-rich cases' that "manifest the phenomenon of interest intensely (but not extremely)" (Patton, 1990, p.171). Because our institute work supports effective teaching practices through technology integration, innovation, and student-centered learning, we focused our research on technology-rich classrooms in order to better understand learning partnerships between and among students enabled through technology integration. Twelve teachers and 241 students participated in these six projects. Of these, nine teachers and 22 students from five schools participated in interviews or focus groups. These schools varied in demographics (See Table 2). Numbers have been rounded to preserve confidentiality.

Table 2. *School and Case Level Data*

Case Title	School Config-uration	% FRL	% IEP	% ELL	# Students in School	Student Participants	Adult Participants
Flipped Classroom Project	K-6	50	14	*	120	40 5th-6th graders	1 Teacher
Investigating Outcomes Project	6-8	25	11	*	450	60 6th-8th graders	3 Team Teachers
iPad Project	5-8	50	15	*	300	4 7th-8th graders	4 Student Services Professionals
Personal Devices Project	5-8	50	15	*	300	40 5th-8th graders	1 Teacher
Leadership Council Project	6-8	80	18	20	150	12 6th-8th graders	2 Team Teachers
Twitter Project	7-8	30	**	*	150	85 8th graders	1 Teacher

Note. * = <1% ** = data not available

Action Research Projects

- **Flipped Classroom Project.** One science teacher on this multi-aged team of 40 fifth and sixth graders flipped her science classroom so that students acquired knowledge through web-based videos viewed at home in order to provide more class time for inquiry-based learning.

- **Investigating Outcomes Project.** The teachers and students used a participatory action research model to investigate the outcomes of their student-centered, technology rich learning environment. Teachers and students focused their action research on how increased technology impacted all learners and how 1:1 computing impacted differentiated instruction.
- **iPad Project**. A special educator and colleagues explored using iPad tablets to increase communication across special education services and examined the iPads' potential for increasing student engagement.
- **Personal Devices Project.** A small group of middle schoolers in a daily leadership class identified the use of personal handheld devices, such as smart phones and iPods, as a source of tension between teachers and students. They conducted action research on this issue, resulting in a change in school policy.
- **Leadership Council Project.** This multiage team was created for students who were disengaged from learning when placed on other teams in their middle school. The teachers wanted the team's 12 students to become more involved in their schooling experience and constructed a student leadership council as a component of their action research.
- **Twitter Project.** This 8th grade science teacher was interested in using social media in the classroom. He and his students explored how Twitter could increase exposure to science-related ideas and experts, encourage peer-to-peer sharing, and promote connections between science and students' lives.

Data Collection

As a research team, we conducted seven focus groups and five individual interviews with

teachers and students. All were commonly structured but open-ended, as "in collective or multiple case studies, data collection needs to be flexible enough to allow a detailed description of each individual case to be developed" (Crowe, Cresswell, Robertson, Huby, Avery & Sheikh, 2011). All recordings were transcribed verbatim, totaling 11.5 hours of interviews yielding 212 pages of transcripts. We also gathered web-based resources and documents from participants' action research, including action research planning websites, research instruments, and data. These artifacts verified or called into question emerging findings; however the primary focus of subsequent analysis centered on interview and focus group transcripts.

Data Analysis

Our two frameworks—the Ladder of Student Involvement and the Action Research Cycle—provided the focused, dual coding structure for analysis. Using HyperRESEARCH, a qualitative analysis software (ResearchWare Inc., 2013), three researchers on our team first analyzed the data independently by applying focused coding to all transcripts. We coded interview transcripts for each of the six projects to identify on which rung of the Ladder of Student Involvement teachers and students were operating at each stage of their action research projects. We adopted the term "teacher-driven" to describe activities at rungs 1-3, in which teachers neither involved students nor claimed to try to involve students. Within the context of the professional development, teachers were provided with the Ladder of Student Involvement framework as a suggestion for understanding different ways students could be involved in class or school decision making processes. There was no requirement to use the Ladder within the projects; teachers independently chose whether or not to structure their projects using the framework. In order to maintain robustness of data, we gathered to ascertain how consistently we were applying the pre-determined codes. Our research team chose interpretive convergence, by

way of merging data, group discussion, and consensus, as the agreement goal (Harry, Sturges, & Klingner, 2005). Our team met repeatedly throughout the coding process to hone our application of key codes, particularly those associated with the Ladder of Student Involvement. Throughout these conversations we shared extensive context about individual cases, enhancing our understanding of context subtleties within and between cases. As analysis and writing proceeded, the researcher most familiar with each case checked the validity of interpretations.

Limitations

Several limitations of this study should be noted. First, while a qualitative approach was well suited to the descriptive and analytical purposes of this research, the findings cannot be generalized to other settings or populations. Second, the six cases took place in the predominantly White state of Vermont and the sample reflected a relatively low level of racial/ethnic diversity. The site with the highest degree of cultural and linguistic diversity in the sample was approximately 50% White and was comprised of 20% English Language Learners. Third, focused coding served this study's purpose well but did not allow for the more emergent findings that might arise from other forms of coding, such as open and/or axial (Patton, 1990). Fourth, in most sites we did not conduct observations, which has potential to be a helpful form of triangulation. Finally, while our ongoing relationships with the participating teachers provided a unique opportunity to support daily classroom activities and provided helpful insider knowledge, they also may have complicated teacher response and data interpretation. To combat potential bias in the data, two researchers who were not involved with the teachers' professional development posed continuous questions about the coding, provided external analysis of the data, and reported on findings.

Findings

Posing a Problem. In this stage of the research cycle, participating teachers tended to take the lead while minimizing the types of and places for student involvement. Teachers purposefully identified issues to be addressed, absent of student involvement. For example, in the Flipped Classroom Project, the teacher identified the goal "of the kids being able to access content at home and then be better able in the classroom to do inquiry and to do projects and also to differentiate." She established the goals of differentiation and inquiry without consulting students.

Similarly, another teacher described creating the Student Leadership Council to get students more involved in decision making about curriculum, pedagogy and team governance "to develop learning experiences for my students that they truly could engage in and felt more connected to." Here again problem identification happened independent of student involvement. As one teacher explained, students "don't say 'I want to be part of team governance.'" She reached the conclusion based on her interpretation of student behavior. Regarding that behavior, one student reported, "Teachers kind of thought it was a problem. I don't know if other students really noticed it, though." Even though the council created an avenue for student involvement, teachers identified the problems it was designed to address.

Not all problems were posed solely by teachers. Students helped identify project themes in The Investigating Outcomes Project. One student explained, "We make posters that basically advertise ideas to all our other classmates as project themes. And then we all vote on the project themes, like which ones do we want to have as a project theme." However, the student indicated that this process was still "directed by the teachers. I mean, we can't just go and do something

random." Adults mediated student-driven decision making by creating, implementing and monitoring a process through which students ultimately determined project themes.

An exception to the adult-driven posing of problems occurred in the Personal Devices Project, where the teacher and the student leadership class shared in the process. Their decision to create a new policy for personal electronic devices was raised "kind of jointly," the teacher explained, continuing, "some of the kids in student leadership had been talking about it and I brought it up and said, 'okay, do you want to work on this?' And they did."

Designing action. In the next stage of the research cycle, student involvement was more prominent. Although some projects still indicated a teacher-driven model, many cases showed it was more common for students to play a bigger role in designing the action. Often students were able to contribute to designing action in spaces created by teachers. For example, students involved in the Leadership Council project were able to contribute to action design within the teacher-created space of the council. Similarly, the special educator in the iPad Project explained,

> My very first task with them was to let them explore the iPad and then come back with apps that they wanted to try…. So I had made like a little inquiry for them that said, 'What topic do I want to research? What do I want an app to look like?'

Students in other projects designed various policy action plans for their respective schools. Students in the Personal Devices Project described building on the work of students from a prior leadership class that had developed a zoned approach to where personal devices could be used in the school:

> They're the ones who kind of put it together and we're the ones who put the finishing touches and worked all the kinks out…we've been working on being able to do this for a couple of years now. They gave us the outline. But it was like – we kind of trashed the

> entire outline. We didn't agree with it…. We added two more zones because we felt like that wasn't enough. So we gave a more structured, learning-based zone and a more structured green zone. And changed the red zone.

On the Leadership Council Project, students worked to create a new technology policy. They indicated that the new approach to using cell phones in school materialized through teacher-student collaboration. When asked if the new rule had been determined exclusively by students, one student responded, "Kinda both, teachers and students." This level of joint participation demonstrated a shared decision-making process.

Still, there were examples of lower student involvement in this stage as well. The teacher in the Flipped Classroom project decided on that action by a teacher-directed path: "I went to a presentation by some science teachers who had flipped a classroom. And I thought it was an interesting pedagogical thing so I thought I'd give it a whirl." Additionally, although students in the Investigating Outcomes Project voted on student-identified project themes, one student noted that, "Once we've voted on a project theme, the teachers take the project theme and by themselves make a list of various project choices." This description illustrated that student-posed problems could feed into teacher-directed project design that was informed by student voice.

Taking action. In the taking action stage, we found that in many cases, although students were involved in decision-making, their involvement was often constructed and assigned by the teacher. For example, one teacher described the explicit expectations she gave her students: "I [said], 'This is the expectation. You're going to be watching videos at home. Here's how I want you to go about looking at it. Here's vocabulary. Here's the note taking.'" Student dependency on this high level of teacher driven decision-making became apparent during the student interviews. Students relied on the videos for instruction and did not identify a role they might

play in addressing any difficulties they might encounter with the material. “I think (the teacher) does a really good job of trying to make sure that every word in that video, that every difficult word, it has an explanation so we can get more of an idea of what we’re doing.” Similarly, in the iPad project, the teacher initially structured the ways in which students contributed to software purchasing decisions.

However, some projects indicated a high level of student involvement in decision-making at this stage. In the Investigating Outcomes Project, one student described his teachers in a supporting role during the grant writing process to acquire netbooks and other support to launch 1:1 computing on the team:

> So there was 21 paragraphs and it was going – every person [student] had to go through and read it and edit and that took a long time… She [the teacher] just stood by and made sure we were doing everything right…she just made sure all our writing was grammared [sic] right.

Students in the Personal Devices Project also played a prominent role in taking action, as they piloted their zoned use policy, explained the new policy in student-led presentations to each classroom and marked the zones with posters they created and placed throughout the building.

Collecting data. Student involvement at this stage was generally rather low; students primarily served as sources of data. Teachers usually designed the definition and collection of data, although students did help design the content and collection of data in some projects.

The teacher-centered data collection occurred with varied levels of transparency. For example, in an effort to track one student’s independent learning time in the iPad Project, the teacher noted that she and her colleagues “had to keep track of [the student’s] independence time and her non-independence time.” This adult-driven approach left the student unaware of and

apart from the design and implementation of data collection. In contrast, the Flipped Classroom Project teacher openly assigned her students the role of respondents to her online survey and feedback forum, explaining to her students, "This is what we're doing. I'm happy to have any thoughts. What's your thinking on this?" Although she stated that, "They really didn't know what I was talking about," students nonetheless recalled in their interview the scale she used in her survey as well as the timing of the pre- and post surveys. In the Twitter Project, the teacher elicited feedback from his students by using a T chart to ask, "What's working and [what] do you enjoy? ... What have you found challenging or unexpected about using Twitter?" By asking students for advice on this adult-driven project, the teacher found, "Kids give you what they're thinking. I hope they felt like…the only thing we wanted was honesty…and they gave us a lot of good feedback about what was working and what wasn't."

In contrast, students in the Personal Devices project designed and distributed a survey of their own. They collected data not only from other students but also from teachers and used the information to make decisions. Using the survey instruments expanded student—and teacher—input into the project. Additionally, administration regularly provided these students with summaries of school-wide discipline data. These data, while designed and collected by adults, allowed the students to more fully understand the effects of the project on discipline referrals.

Analyzing data. For most projects, student involvement in analyzing the data generally mirrored their degree of involvement in the data collection stage. For example, the teacher completing the iPad Project revealed that, "I never even told them that I was doing a project…I just presented them the technology and we worked through it." When conducting student interviews she discovered, "The two kids that recognized that there were connections certainly clued into the fact that, oh, there was something going on," but she did not consider partnering

with them to analyze these connections. Likewise, in the Flipped Classroom Project, the teacher found positive survey results in her evaluation, stating, “One of the things that I was very pleased with both the parents and the kids was that it was thoughtful.” However, she did not share the results or involve students in analysis.

In the Personal Devices Project, as they had with data collection, the students adopted an active role in data analysis, with teachers playing more of a supportive role. The data on discipline referrals made available to students by school administrators provided rich fodder for analysis. One student recalled, ‘so we looked at the data on that and actually, during the week of the pilot, our data went down. Like it went from 30 [discipline referrals] a week and then it went down to 15.” Additionally, due to the student and teacher surveys, students were able to analyze “a lot of data from a lot of different sources. And it showed us that we had some places that needed improvement.”

The Twitter project provided an exception to the mirroring trend, as the teacher “did share the data with the kids,” informing them of the results and eliciting advice. He first explicitly shared his objectives for using Twitter in his science classroom with his students, and then shared the feedback.

> Then we had discussions around why and how is that working… to try to have those conversations with kids and talk about...[what] the implications are when you join a community of several hundred million people and it involves people from all throughout the world and it tries to validate and recognize free speech. How do you make sense of all of this? So we tried to get their feedback and have discussions to make them comfortable and ourselves honestly feel comfortable in using it.

Drawn from his data and these conversations, he concluded, “85 to 95 percent said they either

agreed or strongly agreed that Twitter enabled them to realize those objectives. And so that led me to believe that it was successful." Including student input at this stage allowed for a different type of analysis, and affected the decision-making around the project.

Reflecting and redefining. Although many students we interviewed reflected thoughtfully on these projects, student involvement in this stage of action research was minimal in most of the six cases. .Reflecting upon her Flipped Classroom Project, the teacher concluded, "I think I'll continue to use the videos but as a support rather than completely flipping the classroom," since "it's good to have the resource of the videos for the kids because it's just a different way to access the information." She summarized:

> The level of understanding…that they came with wasn't where I wanted it to be so I ended up continuing to do instruction [on the video content]…but the idea of then freeing up time in the classroom to do more scientific inquiry or to differentiate (was not met).

Although she stated, "Whenever I've done anything with students, just talking with them, their thoughts, you get a lot out of them," she did not include them in this reflective stage of action research. The students, however, were nonetheless thoughtful in their reflections about flipping and differentiation. One observed,

> It's good because then when we get to class, we can just start right up. We don't have to worry about watching it altogether and stopping and take notes. Because sometimes people are slower at taking notes. So then you can do it at your own speed at home…you can just keep on learning and they don't have to be like, okay, so this is what you do here.

In the Twitter Project, the teacher identified explicit goals during the action research cycle. He wanted to "have embedded digital literacy and digital citizenship opportunities that are authentic in the classroom as we use this tool." In addition, he hoped that "modeling [Twitter] as

a way to learn about and communicate science might make some kids realize it's more versatile than they initially thought. And in doing so, maybe their parents or maybe other teachers would be influenced." This teacher, absent of student involvement in redefining the next steps, determined he would use Twitter the following year, stating, "I've just scratched the surface a little of what this project could become and the different ways it could be used." In contrast, students in the Personal Device Project were fully involved at this final stage. They observed that "some teachers were like, 'we need more structure; there needs to be like different levels of technology zones.'" And so we took that into account and we really changed it all." This shared decision-making model led to a clarification and redefinition of the technology zones, which, after further trial through the remainder of the school year, became official policy on personal "Use of Electronic Devices" in the school's Student Parent Handbook.

Discussion

Upon analysis and reflection, we identified three themes regarding the nexus of action research, student involvement and teacher learning: 1) the same project often exhibited different levels of student involvement at different stages of the research cycle; 2) teacher facilitation was critical to cultivating student involvement; and 3) instances of low student involvement were frequently accompanied by missed opportunities to improve the action research.

Different Rungs at Different Stages

Projects often exhibited different degrees of student involvement at different stages of action research, even within the same project. Teachers drove the initiation of most projects. For example, teachers in the Leadership Council Project and the Personal Devices Project decided to establish student leadership opportunities through the leadership council and the leadership class. Thereafter, however, both projects assumed a consistently student-directed path, with the

ongoing support and facilitation from adults. The Twitter, Flipped Classroom and iPad projects were also initiated by teachers but then pursued markedly varied paths: the Twitter Project made effective use of a pilot group of students; in the iPad Project, students played a role in app selection and evaluation but otherwise it remained largely adult-driven; and in the Flipped Classroom Project student involvement was limited to responses to surveys, forum prompts, and informal interviews conducted by the teacher.

We were encouraged that student involvement in action research is not an all or nothing proposition but noticed that collaborative structures may be important for student involvement at any stage. Two projects, for instance, were hatched during a summer institute when teachers had, on the one hand, creative time in a facilitated environment that emphasized action research and student involvement.On the other hand, although the institute encourages teachers to bring their own students—and some do—the teachers in these two projects did not have access to their own students as potential co-developers during the week. The Flipped Classroom project emphasized techniques for soliciting student feedback but not broader student involvement in the flipping experiment or in future projects. In the other, teachers designed a student leadership council that placed students at the heart of the team's ongoing problem posing, implementations and evaluations for the long term. The Twitter Project's pilot team was an example of a temporary structure that enabled different levels of student involvement at various stages of action research. The teachers and students involved in the Investigating Outcomes Project used longstanding practices to negotiate curriculum, modeling a sustained commitment to student involvement readily applied to action research.

It was in the context of these structures that we heard teachers and students describe well-established routines for student involvement such as one teacher's mention of a "standing

practice …, if [students] feel there's something that they want to bring up that would make the school better for them that they should feel free to do that."

Facilitation and the Rungs

With appropriate structures in place, the effectiveness of student involvement may hinge on effective facilitation. The special educator facilitated student involvement in the selection of iPad apps by designing "a little inquiry for them that said, "What topic do I want to research? What do I want an app to look like?'" Another teacher described a routine whereby students regularly had access to school behavior data: "And the students design sometimes a behavioral challenge for the school that relates to what they see in the data." Routinely sharing school data with students likely facilitated higher-level problem solving, signaled respect for students' ability to grapple with real and complex data, and institutionalized data sharing with students to improve schooling.

Students at several sites portrayed their teachers' role as deferential to student-driven discourse and decision-making. Students in the Personal Device Project described their teacher as "like a facilitator." Another elaborated, "She's the one moving us along if we get stuck. She helps us along, but we're the ones who were mainly coming up with it." A student in the Student Leadership Council described the teachers' role similarly,

> Most of the time it's just like teachers come to the people who are on the leadership council and say, "Do you want to talk about this during it? Because I think it could be a good idea to talk about." Or … like asking what we think we should be talking about during that time.

However, teachers' deferential facilitation sometimes came with risks. As one teacher recalled, "[T]here were a couple of occasions where both [of the teachers] would try to steer

them in the direction of more [student-directed curriculum] and it always seemed to come back more to the team governance." The teachers' sincere interest in developing curriculum and pedagogy with their students—arguably a more substantial role than determining technology policies—was thwarted by students' overriding interest in team governance and policy making, through which they could focus primarily on their immediate quality of life concerns.

Despite their consensus that students should be leading decision making, both students and teachers in the Student Leadership Council also acknowledged ongoing tensions associated with their open and often contentious dialogue about policy issues. As one student described it,

> It was like back-and-forth arguing about like how does this – how do hats make it so we can't learn? How does hats make it so we can learn? Just a back-and-forth conversation that went on for I think three meetings and then she let us wear hats. And then soon came on music and then the same thing happened there. And then electronic devices. And just keep going.

Perhaps the "back-and-forth arguing" is the "back-and-forth conversation" of truly shared decision making, cultivated from the beginning of the year when, as one teacher described, "We modeled right away, the very first day of school, we established community agreements in our classroom and what if's, and had really good class-wide discussions, very similar to what we have in our leadership council."

Missed Opportunities

The frustrations of projects with low student involvement may have been alleviated had students played more central roles in the action research. The teacher in the Flipped Classroom Project shared her frustration that the project failed to free up more time for inquiry learning in class.

> But they're still learning about what inquiry really looks like. So that still really needs to be taught… but the level of understanding that they came with wasn't where I wanted it to be so I ended up continuing to do instruction.

The teacher could have posed the challenge to her students by asking, "How can we get everyone up to speed with basic content and concept knowledge so more class time can be dedicated to inquiry?" Students had definite ideas about this. In interviews, they spoke in compelling terms about the need for differentiation, for instance, "Because like sometimes, say in science, like sometimes other kids like science more than others, so they like know more about it. And then like you're getting taught something that you already know." Another student observed,

> I think there should be at least two teachers in there for science so that you can have separate groups for like the ones that don't understand it as well and then the ones that do understand it as well so we can get all on the same track.

Students also suggested what they would do with the project's survey data if they had the chance. One explained:

> I would look at all the answers first and see what people think in common and what people have to say and get together with some of the teachers and say, "okay, this is what most of the students think, how can we fix this?" and find a way to fix it.

Another student elaborated, "Like you look at the questions and then you look at the answers. And sometimes like it'll have a percentage of people … then you can kind of get an idea of what most people think." Yet another added, "If I was a teacher, I'd take all the suggestions into consideration, then go over it with other teachers to see what they think. Then whatever one had the most suggestions, … I'd most likely go with that."

The teacher voiced considerable doubt about students' ability to participate in action research, stating, "I would love to see that done successfully at this grade level. Because I don't know how it would work and I don't know if it's just developmental." She noted that she was working with a behaviorally challenging class of students. She yearned "to see how it could be set up to get them to be more thoughtful about the whole process." Her students' comments suggested that they have key abilities for constructive involvement in their teacher's pedagogical innovations. Indeed, it seems plausible that teachers' innovations may prove more challenging when students are marginalized from the problem posing, analyzing, and reflecting stages of the research.

Conclusion and Implications

The findings from this study have several implications for our ongoing work and for others pursuing technology integration, designing teacher learning opportunities, and advocating for greater student involvement in the improvement of the middle grades.

Action Research for Teachers' Professional Growth

Teachers' past experiences with action research varied greatly. One teacher shared, "This summer was my first time doing action research and I was, like, lost," whereas another reported having just finished "a pretty heavy duty action research project for a graduate program." Two participants who trained at the doctoral level reported being particularly comfortable framing questions, managing data collection and analysis, and looking for themes. One asserted that her "doctoral program… helped me be more patient about sort of looking for opportunities that related to more of a democratic approach whenever possible [and] helped me recognize those better."

Despite the varied backgrounds and experiences with action research, teachers were universally enthusiastic about action research as a strategy for growing professionally and changing practice. They noted especially the role action research can play as teachers take on the challenges of technology integration. As one teacher said,

> So I think that the action research really framed – reframed how I use technology with kids…it's the perfect vehicle for integrating technology because it gets you away from just being stagnant with, here's what I know…it's about new learning…I don't need to have the answer for you...the fact that the learning is going back and forth between me and kids is huge.

Another teacher added that action research "forces you to do the reflection and not just do the work."

One teacher pointed out how using action research as a structure for faculty-wide growth, particularly when focused on technology integration, made the questioning of teacher practice more palatable and provided safer entry points into tougher conversations about personal practice. "[T]echnology is not the point, of course," another teacher explained, "but it's something that we can talk about instead of the point sometimes. And so in doing that, you can reduce the anxiety." Collaboration with colleagues who were also engaged in action research helped, "Because the excitement from them kept me going," and "we felt that we were collaborating and moving forward together as a group."

While enthusiastic about action research, teachers noted an array of obstacles including a lack of time to collaborate, the pressure of standardized assessments, competing school agendas, and struggles with the stages of action research, such as developing a question and collecting and analyzing data. But teachers were also quick to offer suggestions. They recommended routine

follow up emails and meetings with professors or mentors to promote ongoing progress and troubleshooting of the process. And the teachers pointed to participation in summer institutes as important for providing the time and setting the stage for their research. In spite of the challenges, teachers generally preferred action research to traditional professional development models, leading one to state, "[The] action research model could be just the system that's in place for professional development. Period. … Maybe it's just really embracing action research more as a model for improving a whole school…."

The results of this study reinforce our belief as professional development providers that action research can offer a helpful structure for embedded teacher learning. Each stage of the action research cycle became a chance to engage teachers in critical examinations of their work and provide feedback and resources to meet the unique demands of each stage. The action research cycle also presented us, as researchers, with distinct contexts for investigating student involvement in classroom change, such as asking questions about the classroom, imagining and implementing improvements, and critically evaluating the outcomes. As we discovered, student involvement differed substantially from stage to stage within most of the projects, indicating that examining each stage separately provided an illuminating framework in this study.

Student Involvement in Action Research

Teachers' enthusiasm for action research extended to involving students. "[T]o me it's a no brainer to have the students be part of that," one teacher argued. Another teacher added, "I think we need to be more transparent about the work that we're doing, what we're curious about and then have [the students] help us answer those questions." Students and teachers we interviewed pointed to examples of student involvement in all stages of the action research cycle, manifesting all rungs of the Ladder of Involvement. The examples suggest that examining the

stages of action research with the Ladder of Involvement can shed critical light on the ways in which teachers are pursuing their commitment to involving students in classroom change. They demonstrate how meaningful and ambitious student involvement can help teachers navigate the novel and rapidly shifting landscape of technology integration.

This study suggests, however, that even teachers committed to promoting student voice may not translate their disposition into effective students involvement in action research. Facilitation skills matter. As students contrasted the facilitation skills of their regular teacher and the occasional substitute teachers of their leadership class, one student stated plainly, “We kind of need [the regular teacher] to help guide us through.” Indeed, our interviews suggest that facilitation may play a key role in the effectiveness, and perhaps the degree, of student involvement in action research, and that teachers as well as students may need help in developing their facilitation skills. Committing to action research as a norm in school improvement, as suggested by one participant, may help develop the confidence and skills teachers need to effectively involve students in the work of technology integration. As Fletcher (2005) suggested in his description of shared decision-making, students can flourish in an empowering context that nonetheless provides ample opportunity for adults to model the nuts and bolts of democratic life, including deep facilitation skills. User-friendly resources are available to help teachers—and students—develop these skills (e.g., Fletcher 2011). Action research may provide a coherent and supportive framework for facilitation to be applied and practiced.

Teachers who successfully involved students also relied on structures such as a student leadership council, leadership class, collaborative curriculum process, or participatory action research. And these structures were supported by norms and routines, such as monthly sharing of school behavior data, transparent note taking, and standard practices for collaborative decision-

making. Together, these structures and routines reflect and reinforce practices to promote student involvement. Several of the projects in our sample took place in multiage or looping classrooms, in which the lead teachers had two- or three-year relationships with students, a reasonable timeline for developing robust structures, routines and facilitation skills in collaboration with students. And particularly in multi-age contexts, older students can play leading roles in the transmission and continuing evolution of student involvement in action research. Our findings reflect Fielding's (2001) observation that structures to support student involvement, and the routines that sustain them, are fundamental to meaningful student involvement in change initiatives, perhaps essential building blocks of Fielding's person-centered learning community.

As facilitators of professional development, we are convinced that action research is a powerful model of teacher learning and classroom change, particularly in light of the rapid evolution of educational technology and its impact on classrooms and pedagogy. We are also committed to promoting meaningful student involvement in the design and workings of school, for its functional utility and to honor young adolescents as persons in a democratic society. Yet the considerable variability, and in some cases paucity, of student involvement at critical stages of our teachers' projects gives us pause. It highlights once again that student involvement—or non-involvement—in school change can be highly nuanced. As we suspected, we need accessible and critical tools to scaffold our conversations with teachers about the quality of student involvement in their work. Our teachers have appreciated the clarity and relative simplicity of Fletcher's Ladder of Student Involvement, and here it helped us characterize student involvement across a range of projects and at critical stages of action research. In contrast to typologies of students as researchers in educational action research specifically (e.g., Lodge, 2005), Fletcher's ladder may be applied to other opportunities for involvement as well,

perhaps presenting teachers with a typology of student involvement applicable across their practice. While not a comprehensive tool for critically examining student involvement, we hope it can help teachers' learn from their efforts to meaningfully engage with students in day-to-day learning communities and in school change. We see Fletcher's typology, like Hart's, not as a roadmap to democratic participation as much as a lever to dislodge prevailing classroom practices and steer teachers toward opportunities for student involvement that honors young adolescents.

However, we are wary of, as Fielding (2001) cautioned, "developing increasingly sophisticated ways of involving students that, often unwittingly, end up betraying their interests, accommodating them to the status quo, and in a whole variety of ways reinforcing assumptions and approaches that are destructive of anything that could be considered remotely empowering" (p. 124). Cook-Sather (2006) added that "enacting the most radical, transformative versions of [rights, respect, and listening] takes more than awareness and commitment; it takes understanding and hard work, consideration and reconsideration, calling into question, and, most important, changing" (p. 381). As Cook-Sather and Youens (2007) noted, "In combination, constructivism and critical reflection, like social justice and repositioning of students …, keep the focus of learning and teaching on learners as complex, social beings enmeshed in relationships of power and ongoing processes of self-construction" (p. 65). We hope that using a relatively simple typology such as Fletcher's Ladder stimulates new teacher-student dynamics and leads teachers and professional developers to apply additional frameworks better suited to examining, for instance, the attitudes, systems, culture, spaces and skills within learning communities that engender more democratic dialogue (Fielding, 2001). Moreover, we hope such deliberate steps to scaffold student involvement in shaping teacher practices helps to move

student voice and involvement from peripheral school dynamics (Thompson, 2012; Frost & Roberts 2011) to the heart of young adolescent experience with teachers and learning.

Implications for Future Research

This work raises several new questions regarding teacher learning, student involvement, and action research in the context of technology integration in the middle grades. For example, we would like to examine the efficacy of various methods of preparing middle grades teachers for involving young adolescents in action research, particularly given the challenges of implementing 21st century classrooms. We wonder how a typology of student behavior, such as Fletcher's Ladder, could be complemented by tools to help teachers critically reflect upon the dialogue between teachers and students as they engage each other in school change (Cruddas, 2007). Further, the teachers in this study operated in technological contexts unheard of through much of the recent period of interest in student voice and involvement. Many others we work with are struggling to design learning environments that extend well beyond the classroom and operate around the clock and every day of the week. To serve them well, we hope for more research that links the promise and perils of student involvement to contemporary challenges of hi-tech learning with young adolescents.

We hope that continuing research will bring to life the vision we share with one teacher, who described, "The best part would be a couple years down the road when the students are generating engagement strategies that they find helpful." Another observed, "We have kids being responsible for themselves individually, charting their growth on their learning or even their personal growth, but we don't necessarily ask them to chart the growth of the school…. There could be a deeper feedback loop." These comments take on added significance as teachers and students adopt rapidly changing technologies, constantly evolve their approach to teaching

and learning, and work to close the gap between students' in-school and out-of-school technology lives. This study reinforces our belief that students and teachers engaged together in action research holds promise amid these challenges. Indeed, it may be our best response to the reality one teacher framed so succinctly: "I need their help figuring it out."

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