PERSONALIZED LEARNING IN THE MIDDLE GRADES A Case Study of One Team's Successes and Challenges

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Although the idea of responding to learners' individual needs is far from new in the middle grades movement, there have been renewed efforts in recent years for schools to tailor programs and practices to students' unique interests and needs through "personalized learning" (Bingham, Pane, Steiner, & Hamilton, 2016). To date, little research has examined how teachers experience the enactment of this increasingly popular approach. The purpose of this qualitative case study was to explore the successes and challenges of 1 middle school teaching team during its first year enacting a teamwide personalized learning class called E-Time. Findings indicated that teachers perceived the primary success of E-Time to be its contribution to stronger relationships with and among their students. The main challenge teachers experienced was structuring the learning environment, including transferring control of learning objectives to students, establishing deadlines, and developing clear expectations for the quality and outcomes of student work. The aspects of the class that contributed to these challenges included relinquishing control over key classroom activities, the multiplicity of student projects, and a misalignment between teachers' core classroom practices and those required in E-Time. Overall, findings suggest that personalized learning may represent a substantial shift in practice for many middle grades teachers given the heavy reliance on direct instruction in many middle schools (McEwin & Greene, 2011). Findings are used to identify potential areas for professional development to support middle grades educators in the transition to personalized learning, including scaffolding student-directed learning, facilitating and managing diverse student projects, and individualizing student assessment.

INTRODUCTION

For educators in the middle grades, the idea of responding to learners' individual needs is far from new. Tomlinson (2015) identified the vast diversity of the age group as a critical rationale for attending to individuals:

> The combination of substantial intellectual, social, emotional, moral and physical vari-

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> ability within and among young adolescents along with the variability in readiness to learn, race, culture, language, gender, economics and home support suggests that any attempt to successfully teach middle grades students without attending to their particularities will most certainly fall short of desired outcomes. (p. 220)

The middle grades concept has regularly underscored the importance of basing curriculum on students' interests. Pate (2015) asserted that curriculum for young adolescents should be about "empowering students to make decisions about their learning … allowing students to pursue answers to questions they have about themselves, content, and the world" (p. 167). Stevenson and Bishop (2012) further observed the importance of teachers who "were not only open to the possibility of authentic student choice but who understood and valued the power of learning driven by strong personal interests" (p. 35).

In recent years, there have been renewed calls for schools to respond to students' individual interests and needs through "personalized learning" (Bingham, Pane, Steiner, & Hamilton, 2016). The U.S. Department of Education incentivized the personalized learning movement through its Race to the Top— District competition, identifying schools' transition to personalized learning environments as its first "Absolute Priority." This initiative awarded local education agencies more than $500 million in grants (District Reform Support Network, 2015) to "personalize education for all students in their schools" by creating "opportunities for students to identify and pursue areas of personal academic interests" and customizing "strategies, tools, and supports [to] students and educators" (U.S. Department of Education, 2013, pp. 2, 6).

At the state level, education systems are placing a similar emphasis on personalized learning, with Iowa, Maine, New Hampshire, Oregon, and Vermont all currently transitioning to more personalized approaches (Center for Digital Education, 2013; Iowa Department of Education, 2013; Silvernail, Stump, Duina, & Gunn, 2013). Major U.S. cities, such as Dallas, TX; New Orleans, LA; and Washington, DC, are piloting similar initiatives, with Denver Public Schools aiming to have 100% of its students in "personalized learning schools" by the 2024–25 school year (Education Cities, 2014, p. 13). Although states, cities, and districts are approaching personalization in various ways, their efforts share a vision for education that responds to students' individual skills, interests, and needs as learners.

Despite the growing interest in personalization, little is known about how middle grades teachers experience the enactment[1] of this approach. Personalized learning may represent a relatively significant shift in practice for teachers as research suggests many middle schools have "failed to fully and authentically implement developmentally responsive programs and practices" (McEwin & Greene, 2011, p. 60; see also DiCicco, Cook, & Faulkner, 2016). Given the potential novelty of this approach, gaining additional insight into the successes and challenges of personalized learning may help support teachers as they grapple with the new roles and responsibilities necessary in personalized settings. Such efforts will be increasingly important as schools, districts, and entire states continue to move toward personalization.

The purpose of the present study was to illuminate middle school teachers' experiences enacting a teamwide personalized learning class. We begin by defining personalized learning, examining its suitability in a middle grades context, and considering what might be learned from research on the implementation of similar student-centered pedagogies. Next, we describe the qualitative, case study methods of our research. We then discuss our findings on participants' perceived successes and challenges associated with personalized learning. Finally, we present recommendations for teacher training, areas for future research, and the limitations of the study.

LITERATURE REVIEW

Defining Personalized Learning

As with many concepts in the field of education, personalized learning is defined in various ways. Some definitions are more teacher-centered, with educators maintaining most of the responsibility for tailoring learning experiences to students' individual interests, needs, and preferences (Office of Educational Technology, 2016; Sykes, Decker, Verbrugge, & Ryan, 2014). Other definitions assert that students must be given increased responsibility for and ownership of their learning for it to be considered personalized (Clarke, 2013). Still others recognize different "stages" of personalized learning with varying levels of student and teacher control and direction in each (Bray & McClaskey, 2015). Despite these differences, most definitions of personalized learning share the premise that it involves tailoring curricula, instruction, and assessment to match the interests, learning preferences, and needs of each individual student.

For the purposes of the present study, personalized learning aligns with and builds on the work of Bray and McClaskey (2015) and Clarke (2013). In this manner, personalized learning is an approach through which students work collaboratively with their teachers to design educational experiences that are responsive to their unique learning interests, needs, and aspirations. Within this model, students take increased control of their learning by developing academic goals with their teachers' support, monitoring their progress, and driving the inquiry process. The approach offers students choice in what they learn, how they acquire new knowledge and skills, and how they demonstrate their learning. A fully personalized learning environment is the antithesis of the traditional "one size fits all" model of schooling in that each student pursues a unique educational pathway that fosters his or her passions, interests, curiosities, and strengths while simultaneously addressing areas for personal and academic growth.

Teaching in Personalized Settings

In personalized settings, teachers serve primarily as facilitators, guides, and consultants (Keefe, 2007), transferring "control over learning toward the students themselves" by facilitating "inquiry, problem solving, and creative expression" (DiMartino & Clarke, 2008, p. 74). Teachers largely forgo whole group instruction and spend more time mentoring individual students or providing feedback on their progression toward project goals and learning standards (Bray & McClaskey, 2015). When investigating the early implementation of personalized learning by Race to the Top—District grantees, Sykes et al. (2014) identified several challenges, including aligning personalized learning practices with academic standards, changing teachers' mindsets about the nature of learning, and managing students' increased access to technology. Beyond the Sykes et al. (2014) study, the majority of literature on personalized learning is descriptive in nature (e.g., Clarke, 2013; DiMartino & Wolk, 2010; Pane, Steiner, Baird, & Hamilton, 2015), with little emphasis on the teacher experience of this pedagogy.

Personalized Learning in the Middle Grades Context

Personalized learning holds particular promise in the middle grades due to the developmental nature of early adolescence and the design of the contemporary middle school. If the school environment during the adolescent years does not fit with the developmental needs of the adolescent, a middle schooler's motivation, behavior, and performance may be negatively affected (Eccles et al., 1993; Wigfield & Eccles, 1994). Typical mismatches between young adolescent needs and the school environment include an increase in ability grouping, discipline, and teacher control; and a decrease in challenging assignments, positive relationships, and opportunities for decision-making (Eccles et al., 1993). Personalized learning has the poten-

tial to address that mismatch by decreasing teacher control and increasing decision-making opportunities for young adolescents. Personalized learning also offers students opportunities to demonstrate responsibility and competence, two components of personal efficacy identified by Stevenson (2002) as critical for the age group.

The contemporary middle school is organized in ways that can facilitate personalized learning within its existing structures. Flexible scheduling and grouping have been considered key components of the middle grades since the start of the middle school movement (McEwin & Greene, 2011; Van Til, Vars, & Lounsbury, 1961). The malleable time offered by flexible schedules, especially when coupled with grouping that is adaptable to various aptitudes and goals, is helpful in enacting personalized learning. Further, programs such as teacher advisory, a longstanding cornerstone of the middle school concept (National Middle School Association, 2010), have a clear focus on relationship-building that can be leveraged for insight into young adolescents' needs and interests.

Intersections With Problem- and Project-Based Learning Research

Although there is a notable dearth of research on how teachers experience the enactment of personalized learning, research has been conducted on similar student-centered approaches, including project-based learning (PjBL) and problem-based learning (PBL). PjBL and PBL involve students developing new knowledge and skills by attempting to solve authentic real world problems that lack definitive answers or solutions (Hung, 2011; Mergendoller, Markham, Ravitz, & Larmer, 2006). These approaches, like personalized learning, "share basic foundations and assumptions regarding the centrality of the individual student in assigning the meaning and relevance of learning" (Hannafin, Hill, Land, & Lee, 2014, p. 641). The approaches also require students to take more responsibility for directing their learning and teachers to take on roles as facilitators rather than deliverers of content (Ertmer & Simons, 2006). The literature on PjBL and PBL enactment therefore is useful for its insight into the potential successes and challenges teachers may experience when they first enact more student-driven and open-ended pedagogical approaches.

Successes and Challenges of PBL and PjBL Enactment. Although there is debate about the impact of PBL and PjBL on student achievement (Hung, 2011), studies have suggested that teachers experience a variety of successes with their enactment. Ertmer et al. (2009) found that teachers reported using more interdisciplinary approaches to instruction, addressing multiple academic standards, and more fully engaging students through their enactment of technology-enhanced PBL units. Teachers in Pedersen and Liu's (2003) study of a computer-based PBL unit reported greater intrinsic motivation among students, and Peters' (2010) research suggested students took more responsibility for their own learning as they gained experience with inquiry-based science. More recently, Dole, Bloom, and Kowalske (2016) found that teachers who enacted PBL and PjBL units after a 4-week online course were able to create more positive classroom environments and develop closer relationships with their students.

Teachers also encounter numerous challenges with PjBL and PBL. Teachers often struggle assuming the role of facilitator rather than content deliverer or classroom director (Grant & Hill, 2006; Ladewski, Krajcik, & Harvey, 1994). Even when teachers understand the new roles, their actions sometimes remain more directive (Pedersen & Liu, 2003) as many teachers find it difficult to give up control in the classroom (Ladewski et al., 1994; Pecore, 2013). They also experience challenges in scaffolding students' learning experiences (Marx, Blumenfeld, Krajcik, & Soloway, 1997), providing formative feedback and holding students accountable for their work (Brush & Saye, 2000), and integrating technology (Grant & Hill, 2006) during early

attempts to enact PBL and other student-centered pedagogies.

Limitations of PBL and PjBL Enactment Literature. Although this literature on PjBL and PBL enactment is useful in illuminating some of the successes and challenges teachers may confront in the transition to personalized learning, a few complexities introduced by personalized learning remain unaddressed. In these studies of PBL and PjBL, students worked on the same projects, and the problems were teacher generated. In fully personalized settings, however, students pursue projects of their own choosing, calling on teachers to facilitate a wider range of unique learning experiences. This key feature of personalized learning raises questions about how teachers respond when they must support students on 15–20 unique projects, about which they may have limited content knowledge, in a single class. Although some of the PjBL and PBL literature is informative, the unique aspects of personalized learning require additional research.

METHODOLOGY

Research Questions

Given the lack of empirical research on how teachers experience the enactment of personalized learning, we used an exploratory case study design (Yin, 2014) to illuminate middle school teachers' experiences enacting a team-wide personalized learning class. We posed one primary research question: What successes and challenges do middle grades teachers experience during their early enactment of personalized learning?

Sample Selection and Description

The unit of analysis (Miles & Huberman, 1994) for the study was Team Explorer, a middle grades teaching team at a small school in the Northeast. Team Explorer was comprised of eight teachers including five core content teachers (math, science, math/science, and two humanities teachers), a special educator, an English as a second language teacher, and a student teacher. Table 1 provides further demographic information for the teachers on Team Explorer, which was one of two teaching teams at Riverside Middle School.[2] During the time of the present study, there were 155 students enrolled at Riverside Middle School with approximately 70% qualifying for free or reduced-price lunch. Fifty percent of these students identified as White, 20% as Asian, 20% as Black, and 5% as multiracial. Approximately 30% of students at Riverside Middle School were classified as English language learners.

We selected Team Explorer because it was in its first year enacting a class (E-Time) that

TABLE 1
Team Explorer Teacher Demographics

Teacher (pseudonym)	*Years of Experience*	*Racial Identity*	*Gender*	*Subject(s) Taught*
Cal	5	White	Man	Humanities
Amanda	10	White	Woman	Science
Monica	9	White	Woman	Math
Christina	1st year (student teacher)	White	Woman	Humanities
Allison	16	White	Woman	Humanities
Gwen	11	White	Woman	ESL
Ted	1	White	Man	Special education
Denise	33	White	Woman	Math/science

operationalized the present study's definition of personalized learning when data collection for this project began. All 80 students on Team Explorer were required to participate in E-Time, which was held each afternoon for 55 minutes in students' Teacher Advisory (TA) groups. During E-Time, students engaged in a long-term project on a topic about which they self-identified as curious, interested, or passionate. Students had extensive choice in the subjects of their projects and in how they learned about their topics, spent their time during class, and demonstrated their learning. Teachers served primarily as facilitators during E-Time, collaborating with individual students to help them plan and execute their projects. On any given day, 12 to 18 ELL students, particularly those newest to the United States, spent E-Time with the English as a second language teacher outside of their TAs to receive extra support on their personalized projects.

Data Collection

To examine Team Explorer teachers' experience during E-Time, we collected three types of data: (a) interviews and focus groups with teachers on Team Explorer, (b) observations of E-Time classes and Team Explorer teacher meetings, and (c) documents associated with E-Time. The latter two data sources were collected primarily for the purpose of triangulation.

Interviews and Focus Groups. Our primary data sources were teacher interviews and focus groups. Our lead researcher conducted one semistructured interview (Appendix A) with each of the eight teachers on Team Explorer, all of whom served as facilitators for students' E-Time projects. Interviews lasted 26–70 minutes and were audio recorded and transcribed. At the end of the school year, the lead researcher also conducted a focus group with teachers to obtain a teamwide reflection on the first year of E-Time enactment. The focus group protocol (Appendix B) was based on questions that emerged from observations of E-Time classes and team meetings, informal conversations with teachers, and individual interviews with team members. The focus group helped triangulate data gathered through interviews and observations. This focus group lasted 23 minutes and was audio recorded and transcribed.

Observations. Our lead researcher conducted 11 classroom observations of E-Time, observing each of the five team TAs twice and the E-Time ELL pullout once. He kept detailed field notes on classroom activities with a particular focus on how teachers worked with students to help them achieve their project objectives. Whenever possible, he captured teachers' conversations with students verbatim. After some observations, he spoke informally with teachers about their perspectives on that particular class or E-Time more generally. He recorded these discussions in field notes along with his initial impressions of the comments. He also observed a team meeting at the end of the school year during which Explorer teachers reflected on their experiences with E-Time and outlined goals for the following year. To the extent possible, he captured teachers' comments verbatim in his field notes, along with his reflections.

Documents. Additionally, we collected a variety of documents related to E-Time, including the team's E-Time learning plan, research organizers, project rubrics, and formative assessment forms. We included these documents to gain insight into the teaching tools that guided students through the process of planning, carrying out, and reflecting on their independent projects. We also reviewed minutes from E-Time reflection and planning meetings throughout the school year. These helped illuminate E-Time's evolution and the team's ideas about how to overcome the challenges they encountered.

Data Analysis

Our lead researcher began the analysis process after each data collection task by writing reflexive memos to record initial impressions

of observations, interviews, and focus groups. These memos served as preliminary attempts to make sense of the data (Patton, 2002). Once all focus groups and interviews had been conducted and transcribed, he applied first and second cycle coding methods (Saldaña, 2016) to analyze the data. Using HyperResearch software, he coded interview and focus group transcripts and observation field notes. To develop the codebook, he used an inductive analytical approach (Miles & Huberman, 1994) by identifying descriptive codes (Saldaña, 2016) within the data. This first pass through the data yielded 42 unique descriptive codes. He then generated pattern codes (Saldaña, 2016) by identifying similarities and differences between descriptive codes. For example, the descriptive codes of "scaffolding," "deadlines," and "expectations" were identified as similar to one another and distinct from all other codes and thus combined into a pattern code called "structure." This comparison and reduction process yielded 11 pattern codes. He then recoded all data using these 11 pattern codes in the codebook. After this second cycle coding, he arrayed the pattern codes by individual teachers to identify themes related to E-Time successes and challenges that were common across participants. This analysis indicated two overarching themes and a series of secondary themes, which we explicate in the findings below.

Trustworthiness. To establish the trustworthiness of the analysis, we used peer review and member checking (Creswell, 2009). During the peer review process, both researchers discussed the 11 category codes that were used in the lead researcher's second pass through the data, thus bringing a fresh set of eyes to the findings. We then read through sections of text that were coded as "structure" and "relationships," the two major themes that emerged from the data and considered other pattern codes that might fall within the "structure" theme. We made note of potential overlaps and explored them within the data after the peer examination process. We also created a brief summary of our findings, shared this document with teachers on Team Explorer for review, and met with the team in person to discuss the findings. All teachers were invited to provide feedback on the extent to which the findings represented their experiences. The team confirmed the findings and provided additional commentary that we used to further triangulate the data. Teacher responses during the member checking session indicated our analysis of the data was representative of the team's experiences during its first year of E-Time enactment.

FINDINGS

Success of E-Time: Strengthening Relationships

Although the teachers reported a variety of positive outcomes of E-Time, the only theme related to the successes of this class that was common to all teachers was that it contributed to stronger relationships between teachers and students and among students themselves. Data suggested that E-Time helped foster stronger relationships on Team Explorer because it afforded more time within TA groups, which

TABLE 2
Summary of Themes and Subthemes

Themes	*Success of E-Time: Strengthening Relationships*	*Challenge of E-Time: Structuring Student Learning*
Subthemes	1. Increased time in TA and getting to know students well 2. Relieving curriculum coverage pressures 3. Creating norms for positive interaction	1. Relinquishing control of learning objectives 2. Balancing control of deadlines 3. Defining expectations for diverse projects

allowed teachers to get to know students and learn about their personal interests. It also relieved some of the pressures associated with curriculum coverage and pacing in more traditional classrooms and provided students more opportunities to develop shared norms about how to interact and relate with one another. In this section, we elaborate on each of these aspects of relationship building in E-Time.

Increased TA Time and Getting to Know Students Well. Many teachers reported that their favorite part of E-Time was having increased time with their TAs because it allowed them to get to know a group of students exceptionally well, contributing to stronger relationships with those students. In speaking about her team's TA model and how E-Time was helping to "redefine" it, the team's math teacher asserted, "It's not just a check-in. It's not just a homeroom. It's … really a place where I've gotten to know 17 students incredibly well and to follow their learning." The fact that the young adolescents chose the topics they studied, which were often based on their personal interests, helped teachers better understand the people, hobbies, and issues that were important to students. By working with young adolescents on projects related to their interests, teachers felt they were able to develop stronger connections with their students.

Relieving Curriculum Coverage Pressures. The fact that teachers were not necessarily tied to a specific curricular agenda during E-Time reduced some of the pressures associated with content coverage and pacing in more traditional classrooms, which can sometimes place stress on student-teacher relationships. One of the team's humanities teachers put it this way:

> I think some of the pressure is taken away from the teacher/student relationship when teachers don't feel they have to get a point across or they have to get curriculum across. It becomes more about the student and helping the student explore and helping them build the skills to have an inquiry.

E-Time allowed these teachers to direct their attention toward individual students and their needs as learners rather than covering content. By shifting the focus from content to learner-driven inquiry, teachers felt more able to connect with their middle schoolers on a personal level.

Creating Norms for Positive Interaction. Explorer teachers also perceived that increased time within TA groups during E-Time contributed to stronger connections among students and shared norms about how they should interact with one another. In speaking about the successes of E-Time, a humanities teacher explained:

> Well, I think relationshipwise, E-Time has been a good time for kids building relationships. They've worked in partners, they've worked with mentors and mentees, they've worked across TA. So I think the relationship building that has gone on in E-Time is really strong. It's built a very comfortable culture on our team about how students treat each other and how they interact with each other.

The team's science teacher likened her TA to a family because her students felt so comfortable together during E-Time and knew how to interact with one another. The team's English as a second language teacher also described how students created a culture of support during E-Time as they consistently helped each other with their projects and served as resources for one another.

Observations of E-Time classes supported these teacher reports of strong relationships within and across TA groups. Both teacher-student and student-student interactions appeared comfortable, warm, and congenial. Even when young adolescents became frustrated with certain aspects of their E-Time projects, teachers diffused the situations with minimal disturbance to the learning environment because they appeared to understand how these individuals best responded to feedback. One-on-one meetings about individual projects also provided teachers an opportunity to check in with students about their personal

lives. Collectively, observations suggested, as teachers reported, that stronger relationships were a positive outcome of E-Time.

Challenge of E-Time: Structuring Student Learning

Although teachers valued the positive relationships with their students that resulted from E-Time, they found it challenging to provide structure as students undertook their independent projects. Team Explorer had two main supports in place to help students plan and carry out these personalized projects. At the start of the project, all students were expected to compose an "E-Plan," in which they posed a driving question, generated a list of goals, identified requisite skills, and created a plan for completing the inquiry. During each class, students were also asked to complete the "E-Daily," which entailed setting a goal for their work during the day, mapping out a plan of action, documenting their learning, and reflecting on their progress. Despite these supports, most teachers felt they could have done more to structure students' work during E-Time. The team's special educator explained, "The number one thing that's come out [of team reflection] is really to provide a structure for them to work with." Indeed, structure was the most prominent theme across conversations with teachers as they discussed a need for more deadlines, expectations, and requirements for students' work. In the remainder of this section, we elaborate on the challenges related to structure: objectives, deadlines, and expectations for student work.

Relinquishing Control of Learning Objectives. One difficulty teachers faced was the shift in control of the learning objectives from teacher to student. The science teacher explained that in her core classes, she knew what the learning objectives were and how she would help students progress toward those goals at the outset of the lesson. In E-Time, however, she described helping students identify the skills they were developing within the context of their projects. For this teacher, each project required unique structures and scaffolds that would emerge as students progressed through their inquiry. Similarly, when asked if she felt E-Time required her to take on a new role in the classroom, a humanities teacher responded:

> I think so because of the nature of everyone choosing their topic. I feel that we've done lots and lots and lots of projects throughout my career with kids, and there's certainly been student voice and choice. But it's always been within some kind of umbrella theme or I've had an idea on what I wanted them to end up with, what the outcomes would be and they could get there in different ways.

In their core classes, teachers had a clear understanding what the learning objectives were and how they would help their students progress toward those goals. In E-Time, however, young adolescents took more responsibility for developing learning objectives and identifying steps they could take toward achieving their goals. Given that students had more ownership of objectives and the learning process, teachers found it difficult to know which structures would be most effective in helping students reach their objectives. The fact that a class was working on anywhere between 10–20 unique projects and learning goals at one time further multiplied the challenge of developing effective structures for student work because these projects required different types of structures and scaffolds.

Balancing Control of Deadlines. Another challenge teachers identified was the issue of deadlines for student work, both in terms of the diversity of projects and the desire for students to assume responsibility. Once students began their interest-driven projects, they faced few deadlines prior to the school's Share Out Week when they presented their work to peers, teachers, and community members. In looking back, all teachers agreed that more deadlines would have helped students make more efficient use of their time. Part of the struggle with setting deadlines during E-Time, however, was inherent in

the nature of a personalized approach: that their young adolescents were each progressing through their unique projects at their own pace. As a result, teachers found it difficult to know when to set deadlines for the work. One of the team's humanities teachers explained:

> I feel like I haven't done— I don't even know who I am in E-Time. I don't recognize myself as a leader or a teacher during that time period. I feel like I haven't really set deadlines, which is so awkward for me. But everybody was kind of at different places with where they were.

Although this teacher felt she could effectively establish deadlines in core content classes, the multiplicity of student projects in E-Time made the task increasingly difficult. The struggle to set deadlines was so "awkward" that it kept her from seeing herself as a teacher during E-Time.

Teachers also struggled with setting deadlines because they wanted students to have more ownership of the learning process. One of E-Time's goals was for students to become more self-directed and to take increased responsibility for their learning, including having a say in when and how they completed components of their projects. At the end of the school year, however, some teachers concluded that allowing students to set their own deadlines did not work for all young adolescents. As the team math teacher remarked:

> I think sometimes we're so quick to say like let the students decide—let them decide when it's due and I think we'd like to think that's what they really want. It doesn't reach all students, just as the opposite doesn't reach all students. So I think it's finding a happy medium. And maybe in the beginning of the year, structure. Like have due dates up there and by the end of the year, less structure.

Overall, teachers described a need for increased balance between student and teacher responsibility for project deadlines, which could differ on a student-to-student basis. Teachers also reported the need to scaffold the deadline-setting process, structuring students' work while helping them develop the skills to set their own due dates.

Defining Expectations for Diverse Projects. Teachers also found it challenging to establish clear expectations for the outcomes and quality of student work given the range of projects. As with deadlines, there was near unanimous recognition among teachers that they would need to develop clearer expectations for student work in E-Time the following year. Although the team created rubrics to assess their students' final presentations and demonstration of critical thinking and problem solving skills, some teachers felt the criteria used to evaluate proficiency in the school's learning standards were too broad. They believed the rubrics did not provide enough specific expectations for outcomes of student work. Part of the challenge with creating specific requirements was again the diversity of student projects. As the team's student teacher explained:

> I think that once there's more distinct outline of the quality distinctions, that'll be really helpful because some kids are getting by on not doing much—but I think it'll be a challenge to come up with some sort of proficiency or grading rubric that will fit all these different topics.

This student teacher felt the common practice of creating a single rubric for an entire class could not be easily transplanted into E-Time because students were pursuing such a broad and varied range of projects. Without these specific expectations and requirements, teachers felt it was difficult to hold students accountable for their work, which allowed some students to "get by" without doing much work in E-Time.

DISCUSSION

Strengths of Personalization in the Middle Grades

Teachers on Team Explorer perceived that the primary success of E-Time was strength-

ened relationships between teachers and students and among students themselves. This outcome of strengthened relationships aligns well with the recommended practices for the education of young adolescents in particular, which emphasize both the importance of high-quality teacher-student relationships for learning (Kiefer, Ellerbrock & Alley, 2015) and the prominence of student-student social support (Bishop & Pflaum, 2005). The middle grades concept further advances practices such as Lounsbury's (1988) "wayside teaching," which "is all about relationships" and "enhances academic learning by providing a sense of belonging and safety that helps free learners to participate more fully in their own education" (Powell, 2011). The personalized and student-centered nature of E-Time supported relationship building by extending time for human interactions, placing less emphasis on content coverage, and focusing more on helping young adolescents investigate issues of relevance to them.

Strengths of Personalization Beyond PjBL and PBL

This ability for teachers to focus more attention on each young adolescent in E-Time also aligns with Dole et al.'s (2016) finding in PBL and PjBL classrooms that instructional practices such as more facilitation and less lecturing allow teachers to work with more learners on an individual basis and build better connections with their students. One important difference between the E-Time setting and those investigated by Dole et al., however, was that students pursued topics of their choosing in the former whereas they were primarily assigned projects and problems in the latter. Team Explorer teachers felt they could connect with students personally because the topics were student-chosen and therefore meaningful to their lives. In this way, the personalized learning occurring in E-Time held potential to influence relationships beyond the instruction characteristic of some PBL and PjBL settings.

Challenges of Personalization Beyond PjBL and PBL

Many of the challenges teachers confronted in the present study were similar to those experienced in past research on PBL and PjBL. Team Explorer teachers found it difficult to scaffold students' inquiry during E-Time, to adopt new roles as facilitators, and to hold students accountable for their work, as have teachers enacting PjBL (Brush & Saye, 2000; Ladewski et al., 1994; Marx et al., 1997). However, the present study illuminated additional hurdles that personalized learning may present for teachers, including transfer of control and the multiplicity of student projects.

Transfer of Control. Because much of the PBL and PjBL enactment literature (e.g., Brush & Saye, 2000; Ladewski et al., 1994) explores more teacher-generated activities, educators in those studies maintained a degree of ownership of learning processes and structures and could therefore plan for these prior to the unit. In contrast, students in E-Time largely developed their own learning objectives and approaches for meeting their goals. This shift in ownership required E-Time teachers to adopt more emergent instructional practices and structures. For most teachers, who were accustomed to setting learning objectives and activities at the outset of class, this more emergent approach to working with young adolescents conflicted with their existing classroom practices and structures. Transferring control over deadlines to students in E-Time presented a particular challenge beyond those that teachers experienced in studies on PBL and PjBL enactment. In the latter research, teachers remained in control of due dates for the entire class and could generally keep all students on a similar schedule and timeline. In E-Time, however, teachers gave the middle schoolers more responsibility for setting deadlines and managing their own time so they could become more self-directed learners. This additional transfer of control exacerbated the more typical challenges teachers have experienced

holding students accountable for their work while enacting PBL (Brush & Saye, 2000).

Multiplicity of Student Projects. The multiplicity of student projects also introduced new challenges beyond those found in the PBL and PjBL enactment research (e.g., Pecore, 2013; Pedersen & Liu, 2003). With all students generally working on the same projects and problems, albeit in different ways, in PBL and PjBL classrooms, teachers could use relatively uniform deadlines and product expectations. In E-Time, however, students pursued a diverse range of projects that necessitated different timelines and quality distinctions. With anywhere between 10–20 diverse learners in each TA, teachers needed structures and processes that were tailored to each individual student. The more individualized nature of facilitation in E-Time therefore multiplied some of the challenges teachers experienced with scaffolding student learning and holding students accountable in the PBL and PjBL literature.

Implications

The present study has helped illuminate some specific challenges middle grades teachers may encounter in the transition to personalized learning beyond those characteristic of related student-centered approaches. One such challenge is transferring control over key aspects of the learning process such as objectives and deadlines to students. Another is managing numerous and diverse student projects within a single class that may require different deadlines, expectations, and scaffolds. Knowledge of these challenges can be used to inform professional development and teacher training that supports middle grades educators in the transition to personalized learning. Team Explorer's struggles in E-Time suggest middle grades teachers may benefit from the following areas of professional development: (1) scaffolding student-directed learning; (2) facilitating and managing diverse student projects; and (3) individualizing student assessment. These practices are currently not prevalent in many middle schools (McEwin & Greene, 2011); therefore, pre- and in-service training in these areas can help teachers develop some of the skills they will need to be successful within personalized learning environments.

Questions for Future Research

Findings from the present study also raise questions for future research. The first question relates to Team Explorer's relative inexperience with PBL and PjBL prior to its enactment of E-Time. Given that Team Explorer encountered many of the same challenges in E-Time as teachers who have enacted PBL and PjBL, one question for future research is how do middle grades educators who feel comfortable using problem- and project-based instructional approaches experience enactment of personalized learning? These teachers may experience an entirely distinct set of successes and challenges based on their familiarity with PBL and PjBL. A related question is what are the characteristics of teachers who feel efficacious within personalized learning environments? Finally, teachers in the present study largely did not discuss their experiences facilitating projects about which they had little content knowledge. Given that personalized learning often asks teachers to step outside of bounded content areas, how do middle grades educators experience and manage student projects about which they have little content knowledge?

LIMITATIONS

Although the present study offers potentially useful insights into one middle school team's enactment of personalized learning, it is not without limitations. One limitation is the timing of data collection. When data collection started, Team Explorer had been engaged with personalized and student-driven projects in E-Time for approximately three months. Despite this limitation, we witnessed E-Time in a relatively early stage of its existence and inter-

viewed teachers when they were actively reflecting on the class and considering potential revisions for the following year. As the findings illuminate, the challenges Team Explorer experienced during E-Time persisted throughout the first year of enactment, so data collected later in the school year did capture these difficulties. Another limitation of the present study is its lack of generalizability. As with any case study, the participants brought a unique set of experiences and beliefs to their enactment of E-Time. Other middle school teams may experience different successes and challenges based their own orientations to student-centered approaches. A team that has greater experience with PBL or PjBL may encounter different successes and challenges than Team Explorer did during their enactment of personalized learning. The school context can also shape teachers' experiences with classes like E-Time. The administration at Riverside Middle School encouraged Team Explorer's enactment of E-Time and placed minimal pressure on teachers to raise students' scores on standardized tests. In schools that are less supportive of student-centered practices and more focused on raising student test scores, teachers may confront a distinct series of challenges related to these administrative stances and pressures. Finally, our sample was limited in terms of the racial and ethnic diversity of participants. Team Explorer teachers' experiences may not be representative of those of educators from different racial or ethnic backgrounds.

CONCLUSION

Although personalized learning theoretically aligns with the middle school movement's emphasis on developmentally responsive pedagogy, realizing the promise of personalization in practice may prove challenging for many teachers. With more than three quarters of middle schools still using direct instruction on a regular basis (McEwin & Green, 2011, p. 54), personalized learning will represent a significant shift in practice for many teachers in the middle grades. It will require them to transition from content deliverers and classroom directors to facilitators and guides through personalized, student-driven inquiry processes. Existing literature on similar student-centered pedagogies (e.g., Grant & Hill, 2006) suggests such a transition can be fraught with risks and challenges for teachers. As one teacher on Team Explorer described the shift, "I feel like I've been asked to teach high school physics or something."

Despite the challenges personalized learning may present, it does hold potential as a mechanism for meeting the middle school movement's call for developmentally responsive practices with young adolescents. In the present study, Team Explorer's teachers experienced personalized learning's potential to foster strong relationships with students and learning about their personal interests and concerns. With time, scaffolding, and experience, students in personalized learning environments can be empowered to take control of their learning, explore their interests, and pursue questions that are personally meaningful and relevant to their lives.

NOTES

1. The term "enactment" is used in the present study rather than "implementation" because, as Marx, Blumenfeld, Krajcik, and Soloway (1997) noted, enactment foregrounds the constructive and iterative nature of employing new instructional practices in the classroom.
2. The names of the school, team, and teachers have all been replaced with pseudonyms.

APPENDIX A: INTERVIEW PROTOCOL FOR TEACHERS

1. Can you talk a little about your experience with E-Time this year?
2. What do you believe have been some successes of E-Time?

3. What have been some struggles or challenges with E-Time?
4. What are some areas for improvement with E-Time?
5. What has the student experience in E-Time been like?
6. What have students been saying about E-Time?
7. What are some projects that students have done in E-Time?

APPENDIX B: FOCUS GROUP PROTOCOL FOR TEACHERS

1. What are some of your main lessons learned or takeaways from your experience with E-Time this year?
2. What do you think was the biggest success of E-Time this year?
3. Are there any special considerations that must be accounted for when taking more personalized approaches to learning with middle school students?
4. I got the sense during the team reflection that you are thinking about using time differently during E-Time next year. Am I right in that assumption? If so, can you talk a little about how you're thinking of using that time?

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