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Exploring the Experiences of Paid Mathematics Apprentice Teachers: A Qualitative Investigation

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ABSTRACT

This qualitative study on the experience of paid Apprentice Teachers (ATs) from a UTeach replication program suggests that creating a strong social sense of belonging for Apprentice Teachers is critically important, as is identifying a high-quality mentor teacher in the content area. Additionally, university programs should revise their curricula to address specific topics that are critical to success during Apprentice Teaching, particularly before the culminating semester. Ultimately, the implementation of these recommendations could lead to better teacher retention rates in this population.

Keywords: Internships, Preservice Teachers, Teacher Retention, Paid Internships

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INTRODUCTION

The challenges that preservice teachers (PSTs) in mathematics may experience on their path to becoming teachers are well-documented. Whether these challenges are found in the placement process (Gardiner & Robinson, 2011; Kabilan, 2013; Rigelman & Lewis, 2023; Ronfeldt, 2015), the alignment of coursework and field experience (Conner & Gómez Marchant, 2022; Darling-Hammond, 2000; Ferber & Nillas, 2010; Gainsburg, 2012), or the struggle of identity creation as a teacher of the subject (Harford & MacRuairc, 2008; Maher et al., 2013; Mosvold & Bjuland, 2016; Wasserman & Walkington, 2014), learning to be an effective teacher, is not easy.

Every state in the United States requires some form of supervised clinical experience. This clinical experience is an crucial component of teacher preparation and has been extensively researched (Darling-Hammond, 2014; Rigelman & Lewis, 2023; Nijiku, 2025; van Es et al., 2014). PSTs who have clinical experience that encourages cooperation, mentorship, and teacher collaboration may have better experiences that can translate to longer careers and greater student achievement (Fifolt & Searby, 2010; Gardiner & Robinson, 2011; Gurl, 2019; Ronfeldt, 2015). Graduates from UTeach replication sites often have improved outcomes in their teaching experiences because of the design of the UTeach program (Backes et al., 2018; Wasserman & Walkington, 2014). The Apprentice Teaching Capstone semester of interning is designed to build on early classroom experiences and still allows students to complete two majors. However, in at least one area of the Western United States, the demand for mathematics teachers has caused the local school district to increase its requests for paid interns from the local university.

LITERATURE REVIEW

Paid interns are in a unique category of PSTs because their Apprentice Teaching is accomplished without the traditional elements of supervised experience, which includes strong mentorship. Instead, they are employed during their clinical experience as if they are in-service teachers. These paid interns are not categorized as emergency certifications or alternative routes to licensure students but instead are traditional PSTs, whose final semester capstone experience is modified to include the full responsibilities of an in-service teacher. These modifications may create additional stress and problems for PSTs and do not align with the ideal expectations outlined in the literature on effective placements (Darling-

Hammond, 2000, 2014; Desmeules et al., 2025; Dreer, 2023; Zeichner, 2002).

Neither the university nor the local school districts consider these types of placements ideal, and support is still given to the paid PSTs by the university (Adams & Jessup-Anger, 2025). The school district assigns a teacher to be a mentor of the paid PST as usual; however, this mentor is teaching their own classes and may not have a common prep period or content area with the PST. The program also provides additional observations, meetings, and support to the paid PSTs, but the university supervisor has classes they teach and other PSTs to support. Nevertheless, the pragmatic need for mathematics teachers in classrooms has created demands that need to be filled with paid interns. Missing from much of the discussion on clinical placements is the support that paid PSTs can receive in their paid clinical experience (Desmeules et al., 2025; Hora et al., 2020; Smith et al., 2015). Compared with traditional placements, there is a paucity of research examining paid intern experience. This gap in the literature creates an opportunity that this study can mitigate. Filling the literature gap is essential, as shortages in mathematics PSTs are expected to continue, and therefore, the demand for paid PSTs may increase (Darling-Hammond, 2022; Ingersoll & Perda, 2010).

RESEARCH METHOD

The study design employed a phenomenological approach, involving semistructured interviews that lasted approximately one hour. Personal interviews are believed to be better for understanding information that is personal and complex. Phenomenology, “looks at the lived experiences of those who have lived with or experienced a particular phenomenon” (Lichtman, 2013). The interviews started with the broad question “describe your paid internship experience” and continued with prompts such as “can you tell me more about ...” to draw examples and have each participant fully describe their lived experience. Each interview was transcribed and qualitatively coded independently by each of the three authors. The coding was accomplished via a comparative thematic analysis of the transcripts (Merriam & Tisdell, 2015). Requiring the three researchers to code the transcripts independently improves the accuracy and reliability in the process of coding and qualitative analysis (Creswell, 2015; Lichtman, 2013; Miles & Huberman, 1994).

Researchers' Background

Among the three researchers, the lead author is a teaching faculty member and university supervisor for the program, the second author is a

tenured professor and administrator for the program, and the third author is a graduate assistant. The first two authors worked with the paid PSTs during their coursework, and the first author was the university supervisor for all but one of the interns. The third author had no knowledge of any of the paid interns and was blinded to their experience.

Participants

This study was based in the western United States, which is a medium-sized city. The local school district has a total student population of approximately 65,000 students who attend 16 middle schools or 11 comprehensive high schools. There are also rural school districts bordering the main city school district that have smaller student populations. The university is a mature UTeach replication site where secondary education undergraduates earn two degrees in their four years and graduate with the requirements to be certified by the state. During the program's ten-year existence, approximately one-third of the undergraduate mathematics interns were hired as paid interns, with all such arrangements occurring in the last three years.

For this study, the population consisted of nine graduates who completed a dual degree program in both secondary education and either a B.A. or B.S. in mathematics at the university, and who also had a paid internship in whole or in part to fulfill their clinical experience requirements.

Research Questions

1. How do paid mathematics apprentice teachers who graduated from a UTeach replication teacher preparation program describe their experiences?
2. What factors do mathematics apprentice teachers who graduated from a UTeach replication teacher preparation program identify as helping them succeed, and what factors do they identify as having posed a barrier to their success?
3. What should a UTeach replication teacher preparation program do to support and help future paid mathematics apprentice teachers?

RESULTS

Paid internship outcomes

Among the nine graduates, seven agreed to participate in an interview. Among the seven participants, one identified as female and six identified as male. Table 1 provides information on the interns, including

their identified gender, the nature of the school where they completed their paid internship, the years since they graduated, and their current status.

Table 1
Paid Intern Outcomes

Paid Intern Pseudonym	Gender	Description of Internship School	Years Since Graduation	Current Status
Frank	Male	Urban high school, 130 students	2	Employed at same high school
Jose	Male	Urban high school, 2400 students	1	Employed at different high school
Matt	Male	Urban high school, 2200 students	3	Employed at same high school
David	Male	Urban high school, 1300 students	2	Graduate school in Mathematics
Will	Male	Rural high school, 350 students	1	Employed at same high school
Amy	Female	Urban middle school, Title 1, 1100 students	1	Employed at same middle school
Rob	Male	Urban high school, 2200 students	2	Employed at same high school

A variety of types of schools employed these paid interns. While Matt and Rob both performed their paid internships at the same school, six different schools in two different school districts have hired these paid interns. Notably, except David, all the paid interns continue to be employed in the school district in which they did their internship, and all but Jose are employed at the same school. Accepting a paid internship has not hurt PSTs in these cases.

Thematic Analysis and Research Questions

The themes that emerged in the analysis were independently identified by the authors and allowed a secondary reading of the transcripts using these themes as a lens. By engaging in this iterative process, the outcomes of the interviews were also aligned with the research questions.

Four themes emerged. First, all the paid interns expressed the belief that all PSTs should participate in a paid internship. Even though some of the paid interns struggled during their internships, each intern, individually, said that the experience was valuable enough to require paid internships for all future interns. Three additional themes that emerged from the interviews were the importance of adult relationships, the request for additional SEL or classroom management material in university courses, and the workload of managing university courses and teaching full time during the paid internship.

Research Question 1: Description of the Experience

Each of the seven interns, independently, said that the paid internship experience was valuable enough that the program should create paid internship opportunities and require every future mathematics intern to perform a paid internship. Jose said, "... I will say that experience made me a lot more prepared for what an actual teaching job was. In addition, that is one of the biggest benefits, that I can say I was ready to be a teacher by the end of it." Multiple interns said that they saw the internship as a job, which increased their feeling of responsibility. For example, Amy said, "I felt very motivated to be successful during my internship because I was being paid for it as well. ... Like it was my job because it *was* my job. Each of the interns in the sample said something similar to these statements, that being a paid intern increased their sense of responsibility not only to their students but also to themselves and their own learning. Even interns who did not have positive experience echoed this sentiment. For example, David said, "It was a very hard job to do as a first-time teacher, but it was rewarding in a sense that I felt like, I got a full teaching experience." Amy also said, "I didn't feel like I was just an intern during my paid internship." Rob expanded on this idea and focused on his own confidence and learning during the process: "I felt like I was more prepared than just a regular apprenticeship. I felt I could command my classroom. I could be in control and be confident as a teacher at the front of the room." This sentiment was echoed by many of the paid interns. Rob also balanced his support of the paid internship experience. He cautioned future paid interns to know their limits and be aware of their other commitments. If students are taking additional classes or have additional responsibilities, they say that they should not perform the paid internship because, "You're going to run out of time, you're going to be overworking yourself and you're going to burn yourself out way too early." The warning from the paid interns tempered the enthusiasm with the reality of being a university student and having multiple demands upon them.

Research Question 2: Factors Helping Success and Barriers to Success

Despite the unanimous recommendation for doing a paid internship, the internship experience was not all successful. Frank introduced his internship experience as follows: “So the way I would describe my paid internship experience, is, I would say, overwhelming.” There were factors that led to more successful experiences as well as barriers that created stress.

One factor that led to success in the paid internship experience was the social structure of the department and school. Matt described his overall experience as positive and said that he had no real difficulty in the paid internship. His department and school engaged in a unique social practice, including regular Friday morning meetings for breakfast, monthly department meetings after school with food and treats, and a “Social Committee” that scheduled regular whole school events. Rob was at the same school and mentioned social activities as well; however, he did his paid internship during the COVID-19 year and wondered if he would have had a better experience if social activities had not been curtailed. Amy also mentioned being invited to social events, as well as the strength of the mentor/mentee relationship that fostered active communication: “So I felt like I was actually being listened to and I felt like my opinions mattered in our department.” A powerful statement by Amy summarized the importance of the social aspect: “You’re part of our community and you should act like you’re part of our community.”

There were also important barriers to success that the paid interns encountered. Just as the social element of the department and school created success, for others, it created a barrier. Jose distinguished between ‘work friends’ and ‘friends.’ “With the other workers I felt like they were business friends, they felt like coworker friends. We were happy like at work and stuff like that, but I don’t know if I would say, I had the same type of relationship or connection to any of them.” The lack of a social structure that created social connections, if not friendships, made the paid internship experience more difficult for Jose.

The lack of a mentor/mentee relationship also created barriers to success for some of the interns. Frank, who was at a small school and had a mentor teacher who was outside of the mathematics content area, struggled with the content discussion. He said, “I would say definitely (my mentor) tried her dang best, but we were on opposite sides of the building, and she’s an English teacher. So, it was kind of a rough pairing when I was saying I don’t know what to do (with) this curriculum, and she’s like ‘can you text someone?’” This raised two different and important points: the physical proximity of the mentor and the mentor’s content experience.

Frank was the only intern with this experience, but his experience reinforced the findings of previous research.

Several interns reported that the absence of a mentor in the room to support them created additional challenges in the area of classroom management. Will said, “It was much more difficult at first, especially to manage the class and to command the room and do everything like that. And maybe that was just because the mentor teacher was not there. So, I had to learn classroom management strategies a lot more robustly.” The presence of a mentor in the room supporting and coaching the paid interns would have helped. David even stated this explicitly: “If I were to have started with teacher in the classroom full time for the first week or two, I think that part could have been a bit easier getting those norms set up because the experienced teacher could have helped me set those up.” Having a mentor to support, coach, and build skills early on in the paid internship experience would have lowered the barriers to learning classroom management skills for him.

Research Question 3: What Can the Program Do to Support Future Paid Interns?

Each paid intern was asked what the UTeach replication preparation program could improve to support paid interns better. Not every intern had immediate ideas for improvement and required some prompting. The range of responses from all interns is summarized in Table 2. Three of these suggestions are curricular (SEL, IEP and CRP), one requires important program changes to the modality of teaching, and the final suggestion is contextual to the school and department. Implementing these curricular changes in early courses in the UTeach program is suggested to strengthen the ability of PSTs to seamlessly integrate themselves into the requirements of full-time teaching.

Additionally, strengthening the alignment between mentors and the content was found to be essential. In Frank’s case, he was at a very small school without an additional mathematics faculty member who could serve as a mentor. The number of interns who stressed the importance of their mentor teacher to their success or as a barrier to their success elevated the importance of this relationship. In addition to the topics suggested by several paid interns, there was one intern who struggled specifically due to the larger number of classes they were asked to teach during the internship. David was asked by the school to teach three different subjects, which he found difficult and added to his stress. He strongly suggested that the program limit the number of different courses taught by future interns to one or at most two.

Table 2*Program Changes to Support Future Paid Interns*

Suggesting Intern	Suggestion
Will, Frank	Make it easier to attend university courses while doing the paid internship. Lower requirements, class attendance, or more opportunities for remote or asynchronous classes.
Frank, Jose, Will, David	More implementation of Culturally Responsive Practices (CRP) of teaching, more focus on Social Emotional Learning (SEL) in university coursework
Will, Amy, Rob	Classroom management practices taught more extensively in the program
Matt, David, Amy	Additional preparation in Individual Education Plans (IEP) and IEP meetings
Frank, Hunter, David, Will, Amy	Ensure a good mentor/mentee fit, proximity to mentor teacher, and have a mentor teacher in content area

DISCUSSION AND CONCLUSIONS

One finding of this study is that an important element of the paid internship experience is the relationships created by the paid intern. These relationships extend beyond the traditional mentor-mentee relationship found in the literature, encompassing the relationships among the paid intern, the department, and the school. This study revealed that the social environment created in departments and schools has a significant impact on the success of paid interns, aligning with other findings in the field related to belonging (Gravett & Ajjawi, 2022; Kensington-Miller et al., 2014; Scherer, 2012). Interestingly, the intern who had the most difficulty due to the large number of subjects and a sense of not belonging in the school was the only intern who made no mention of adult social relationships. Interns who were in an environment that supported and focused on creating a strong social sense of belonging had experiences that surpassed those of their fellow interns (Hernandez et al., 2023). Therefore, one recommendation of this study is to specifically ask the school requesting a paid intern about the social environment of the school and department, as well as the appropriateness of the mentor teacher, as this would play a role in our decision-making and support process.

Additional recommendations include shifting some of the topics that are only found in the Apprentice Teaching UTeach course into other courses so that those students who find themselves hired for paid internships are exposed to those topics prior to starting their internship

semester. This practice can also create a more coherent program that works for PSTs and paid interns equally (Nguyen & Munter, 2023). Topics such as IEP meetings and classroom management may fall into this category. In addition, topics such as CRP and SEL should be intentionally integrated into all UTeach courses so that classroom management and student relationship building become a natural progression in the coursework, culminating in the internship.

Finally, the intentionality of placements with strong mentor teachers must be maintained. Research has long shown the importance of having a strong mentor/mentee relationship in the content area (Adams & Jessup-Anger, 2025; Andrews & Quinn, 2005; Darling-Hammond, 2014; Darling-Hammond & Baratz-Snowden, 2007). This study revealed that this relationship is additionally strained and difficult for paid interns because the mentor is not in the room with them. Having a strong relationship with a content-aligned mentor reduces stress and increases the success of the paid intern.

It is likely that mathematics teacher shortages will continue to necessitate that school districts request paid interns from local universities be hired. The recommendations of this study should provide better experiences for these PSTs in other UTeach replication programs that could lead to better retention rates in this critical population.

IMPLICATIONS

The first implication is that a program designed to support a traditional preservice teacher intern may not support the paid intern sufficiently. Programs that have a large number of paid interns may need to consider revising their coursework to front load content that is traditionally taught by a mentor teacher.

A second and third implication is the importance of intentionality in placements as well as the interns' sense of belonging to the department and school. University supervisors should consider the social aspects surrounding the placement, in addition to the relationships between the mentor teacher and the intern. This may require the university supervisor to engage with the intern and mentor about belonging as well as the social constructs at the school site. A relationship between the intern and mentor teacher is essential but is only one relationship. The interns' sense of belonging with the other faculty in the building is also essential to their success.

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NOTE:

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