

The Apprentice Instructor Model: An Integrated Approach to Course Coordination and Professional Development

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Abstract: Course coordinators are well-positioned to effect change in high-enrollment introductory STEM courses because of their influence over both the educational and professional development experiences of their students and instructor team members respectively. This article introduces the Apprentice Instruction Model as a specific model for course coordination that integrates two common orientations to the role of course coordinator (namely, resource-management and humanistic-growth) and amplifies their potential to act as providers of professional development to the members of their teaching team. After describing the model conceptually, the author shares their experience in using it to implement Team-Based Inquiry Learning in a multi-section Linear Algebra course with a teaching team of graduate students and postdocs, highlighting critical moments in their mentorship of Apprentice Instructors. This experience illustrates the potential for the Apprentice Instructor Model to scale active learning pedagogies to high enrollment courses while simultaneously providing novice instructors critical experience in using active learning early in their teaching.

Keywords: course coordination, professional development, active learning, inquiry-based learning, team-based learning

1 Introduction

Despite national efforts to diversify the STEM workforce, women and racial and gender minorities remain underrepresented throughout the STEM education sequence [NSF]. One significant contributor to this problem is the quality and format of introductory STEM courses. For instance, a recent analysis of student record data across a variety of institution types indicates that a poor performance or experience in a student’s first semester in college is a major predictor of whether or not they continue to pursue a STEM discipline [HBT22]. While there may not be an agreed upon set of procedures that instructors and administrators can adopt to remedy these problems, there is a strong body of literature that supports the claim that active learning methods are effective in increasing student performance and lead to more equitable learning outcomes (see [FEM⁺14, THT⁺20] for instance).

A recent study examined key contextual characteristics and beliefs that influenced an instructor’s decision to implement active learning [AHS⁺21]. One of their main findings was that instructors with previous experience with such methods—either as an instructor or a student—were more likely to adopt active learning pedagogies than those without such experiences. This suggests that one way to increase the adoption of active learning in higher education is to provide novice instructors with such experiences early in their professional development.

In this paper, I introduce the Apprentice Instructor Model as a model of instruction in which an experienced Mentor trains a teaching team composed of Apprentice Instructors in order to both scale the instructional practices overseen by the Mentor and provide a robust professional development experience for the Apprentice Instructors. At its core, the Apprentice Instructor Model is a specific approach to course coordination in which the course coordinator embraces the resource-management and humanistic-growth orientations

towards their role and works to realize their potential as providers of course-specific professional development [MGR⁺22]. I begin by collecting some relevant background knowledge about approaches to course coordination and professional development. After this review, I describe the Apprentice Instructor Model in detail and how I used it to implement Team-Based Inquiry Learning [LCE21] (also described below) in an introductory linear algebra course at my institution with a teaching team of graduate students and postdocs. To help illustrate the experience of the Mentor, I share some critical moments of my time using the Apprentice Instructor Model over the last two years both from my perspective as an instructor of a high enrollment course and as a mentor invested in the development of my teaching team.

2 Course Coordinators as Change Agents

Course coordination is a common method for institutions offering multi-section STEM courses both because they provide a means to accommodate enrollment demands while maintaining a cohesive set of standards and instructional practices for all students [BC21, VKH⁺21]. Course coordinators in such courses play a critical role, as the instructional design decisions that they make, as well as their leadership style, set the stage for how the rest of the teaching team navigates their respective roles. Rasmussen and Ellis [RE15] liken the role of course coordinator to that of a choice architect—someone who is responsible for cultivating the environment in which others make choices. By thinking thoughtfully as choice architects, course coordinators are well-positioned to nudge instructors working with them to make certain instructional choices while maintaining their sense of autonomy. In doing so, coordinators often provide as-needed professional development to the instructors they work with.

In a study that examined characteristics and behaviors of course coordinators, two dominant orientations towards what made people effective in these roles emerged: a humanistic-growth orientation, and a resource-management orientation [MGR⁺22]. Actions taken by coordinators that exhibited a humanistic-growth orientation included: attending to student experience, showing concern for others, actively building community, addressing instructional differences, and providing opportunities for instructor growth. Traits and actions that were aligned with a resource-management orientation included: drawing on knowledge and experience related to the course, department, and institution, providing curricular materials, and strong communication and administrative skills. While all coordinators interviewed displayed traits aligned with the resource-management orientation, the authors suggest that coordinators may be at their most effective when they intentionally incorporate behaviors aligned with a humanistic-growth orientation.

In exploring the potential for course coordinators to provide effective and transformative professional development for their instructors, Martinez et al. describe how each of the orientations that emerged in [MGR⁺22] lend themselves to two different approaches towards professional development, namely, community-based and materials-based. A community-based approach to professional development broadly includes activities that are done as a community, such as joint reflections on student learning, team lesson designs, and co-creation of curricular materials, while a materials-based approach is one that relies primarily on the creation of high-quality instructional materials as a means of supporting instructors [PFSS19]. The community-based and materials-based approaches align well with the humanistic-growth and resource-management orientations, respectively, and provide a framework for conceptualizing the work that is done by those holding these critical and evolving roles.

Course coordinators are well-positioned to support departmental and institutional change efforts to improve student outcomes and broaden participation among historically excluded groups in STEM. Martinez et al. conjecture that such change efforts are most effective when course coordinators embrace a humanistic-growth orientation towards their role and provide valuable community-based opportunities for professional development to the variety of instructional personnel with which they are working. In the following section, I describe a specific coordinated instruction model that was helpful to me in integrating these perspectives as I sought to implement a large-scale active-learning transformation with the help of

a teaching team consisting of graduate students and postdocs.

3 The Apprentice Instructor Model

The *Apprentice Instructor Model* is a model for teaching with an instructional team in which a *Mentor* plays a double role as the course coordinator and the provider of course-specific professional development to a team of *Apprentice Instructors*. In these roles, the Mentor places the goals of providing all of their students with an effective learning experience across sections and supporting the pedagogical development of their Apprentice Instructors on equal footing. What characterizes the Apprentice Instructor Model among other coordinated instructional models are the orientations that the Mentor adopts in their various roles, and the emphasis on building productive Mentor-Apprentice Instructor relationships. By incorporating a combination of the resource-management and humanistic-growth orientations discussed above, the Mentor seeks to organize class materials and course logistics in such a way that Apprentice Instructors can focus their attention on building relationships with their students. In turn, the Mentor leverages these experiences to facilitate rich discussions about student learning and instructional challenges during course meetings.

My first experience in using the Apprentice Instructor Model was in implementing Team Based Inquiry Learning (TBIL), a style of learning in which class time is largely devoted to problem solving discussion sessions, in our introductory Linear Algebra sequence. To accommodate our annual enrollment of approx. 550 students, I divided the course into sections of 48 students, and coordinated a teaching team consisting of graduate students and postdocs who each lead their own sections of the course. In this setup, the Apprentice Instructors were the primary point of contact for their students and were responsible for facilitating class activities, hosting office hours, and providing feedback to their students. In addition to directly teaching my own section, I worked as a Mentor behind-the-scenes to support Apprentices by offering pre-semester training, providing continued group and one-on-one mentoring throughout the term, and overseeing course policy and logistics. Apprentice Instructors and their students were additionally supported by undergraduate Learning Assistants who helped with facilitating activities and providing feedback to students.

My decision to implement TBIL strongly influenced the environment in which my Apprentice Instructors navigated their own instructional choices and approaches. This decision, and the resulting course design, was informed by my experiences in teaching, attending professional development, and the body of evidence that supports active learning and TBIL specifically [LE20]. In order for Apprentice Instructors to faithfully implement the pedagogy I was responsible for, they needed specific training around facilitating group discussions, managing a diversity of student learning experiences, and striving for equity throughout each step of the course. To achieve this outcome, it was critical that I worked to build a strong Mentor-Apprentice relationship so that they felt supported in their work and were open with me about the challenges that they faced throughout the semester.

Faculty that are deeply engaged in their pedagogy have spent years reflecting critically on their experiences, those of their students, and education literature to inform their practice. The Apprentice Instructor Model is a holistic way of approaching the role of course coordinator in order to implement high impact practices at scale, while at the same time providing critical professional development for members of the instructional team. That is, the Apprentice Instructor Model is one approach to course coordination that both combines the resource-management and humanistic-growth orientations towards these roles, while simultaneously helping to realize the potential for course coordinators to act as providers of professional development, as discussed in [MGR⁺22]. It is a model that is well-suited to course coordinators who have, or are seeking, experience in providing professional development and wish to integrate the full breadth of their expertise into their practice at a scale that can accommodate high enrollments.

4 Using the Apprentice Instructor Model with Team Based Inquiry Learning

While the Apprentice Instructor Model is broadly applicable, my first experience using it was to introduce Team Based Inquiry Learning in an introductory Linear Algebra course

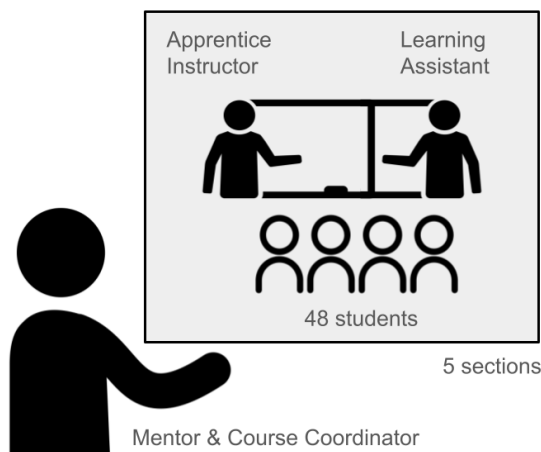


Figure 1. Pictograph of a Team-Based Inquiry Learning implementation using the Apprentice Instructor Model. Inside the grey box is a typical classroom for the Apprentice Instructor and Learning Assistant who interact with 48 students. Outside of the grey box is one larger figure that indicates the mentor and course coordinator who interacts with the Apprentice Instructors and Learning Assistants directly and their students indirectly. The number of sections (5) is indicated below the grey box.

that accommodates approximately 550 students each academic year. In what follows, I describe what Team Based Inquiry Learning is, how I used the Apprentice Instructor Model to implement it in my local context, and share my reflections on this experience after its first two years of adoption.

4.1 Team Based Inquiry Learning

Team Based Inquiry Learning (TBIL) is a blend of Team Based Learning and Inquiry Based Learning that was introduced by Lewis et. al in order to implement IBL methods in introductory mathematics courses [LCE21]. In a TBIL course, students are divided into permanent teams that are created by the instructor and class time is devoted to problem solving discussion sessions. The primary role of the instructor in this environment is to facilitate these discussions in such a way to showcase student thought and varied approaches to problem solving, while steering the conversation in order to develop the course content.

The NSF-funded program *Transforming Lower Division Undergraduate Mathematics Through Team Based Inquiry Learning* (<http://tbil.org>) has produced a variety of resources to support instructors in adopting TBIL. First and foremost, curricular materials for single variable calculus and introductory linear algebra are revised and maintained as Open Education Resources that are publicly available at [CL]. Secondly, the group offered training in the use of TBIL during the Summers of 2021 and 2022 and—as of the writing of this article—continues to offer such training with the support of professional development networks like MAA Open Math. Finally, there is an active and growing community of TBIL practitioners that work to refine curricular materials and share issues, challenges, and successes in implementing TBIL across a variety of institutional contexts.

4.2 Implementation

In describing how I used the Apprentice Instructor Model to implement TBIL, I focus on some of the major decisions I made regarding resource management, strategies I used to

support Apprentice instructors, and highlight opportunities I provided for instructor choice. In doing so, I hope to reveal how I acted as a choice architect for my Apprentices.

As noted above, to accommodate my enrollment demands, I divided the course into sections of 48 students with one Apprentice Instructor assigned to each section (I also taught one section each semester). Each Apprentice was further supported in the classroom by an undergraduate Learning Assistant who was, in turn, trained and mentored through participation in a separate program at our institution [KH]. The decision to have sections of 48 was determined by a number of factors, the most important of which included: availability of active-learning spaces on campus, advice given to me by the TBIL community, and degree of comfort with graduate student and postdoc Apprentices.

Team Based Inquiry Learning has a number of critical components and I decided to organize the course resources in such a way that Apprentice Instructors could primarily focus on facilitating the class activities, build relationships with their students, and provide timely and actionable feedback on assessments. Using the curated curricular materials maintained in the TBIL Resource Library [CL], I created a document called a Living Lesson Plan that provided a schedule of topics to be covered in each lesson and detailed facilitation notes for each of the TBIL activities. These facilitation notes provided Apprentices with options for facilitating activities, provided timing estimates for how long each activity might take, and indicated which activities were critical to cover and which were reasonable to skip depending on instructor discretion. Team formation, the Readiness Assurance Process, and the specifics of the course assessment structure were largely designed and maintained by myself, with opportunities for consultations and further direction to the Apprentice Instructors offered in a just-in-time manner.

I provided professional development to my Apprentice Instructors by offering a 2-hour TBIL training prior to the beginning of the term, followed by continuing support throughout the semester via weekly team meetings and formative observations during the first quarter of the term. My goals for the pre-semester training were three-fold: Apprentices will be able to (1) describe TBIL and our implementation to students, (2) describe potential benefits of TBIL to their students, and (3) identify best practices in facilitating TBIL lessons. Cognizant of the fact that my teaching team had never taught using predominantly active learning methods before, I made it clear that I expected all of us to make a lot of mistakes and imperfections in our facilitation and that that was okay – in fact, I assured them that these mistakes would provide valuable insights into how we become better facilitators. To further support my Apprentices, I assigned readings focussed around good facilitation practices (see [GHC15] for example).

Our weekly meetings were largely focussed around how the Apprentice Instructors' experiences compared with what was set out in the Living Lesson Plan; we used this time to reflect on how we might facilitate some of the activities differently if given another opportunity, to strategize around how to address the challenges faced by each section, and to compare and contrast the student thinking that we were observing across the sections. In addition to our weekly Facilitator meetings, I observed each Facilitator twice throughout the semester in order to provide feedback on their facilitation practices, with one-on-one meetings scheduled shortly after each observation.

4.3 Experience from Years 1 and 2

In what follows, I share my experience from using the Apprentice Instructor Model to implement TBIL at my institution throughout Academic Years 2022-2023 and 2023-2024. I begin by reflecting on my experience through my primary role as an instructor of a high enrollment introductory mathematics course. I then reflect on my experience as a Mentor to Apprentice instructors and share two vignettes that are illustrative of the orientation that a Mentor takes to their role in the Apprentice Instructor Model.

4.3.1 As an Instructor (of a High Enrollment Course)

My primary responsibility is to teach introductory Linear Algebra, a critical introductory course that is required by most of our STEM programs; the enrollment for this course is

between 550-600 students each academic year. I taught the course using asynchronous on-line methods throughout Academic Years 2020-2021 and 2021-2022 due the impacts of the COVID-19 pandemic. As we returned the course to an in-person format, it was important to me that the revised course model centered student thought, developed verbal and written mathematical communication skills, and provided opportunities for students to have authentic mathematical experiences. Towards these goals, the Apprentice Instructor Model implementation of TBIL has been broadly successful. Similar to the instructor reflections that were documented in [LCE21], I found my students to take more varied approaches to solving problems both inside and outside of class and that they were less hesitant to share ideas with myself or other students in office hours. These observations were common among the Apprentice Instructors on the teaching team, and were also reported by the undergraduate Learning Assistants.

Coordinating an Apprentice Instructor Model implementation of TBIL requires me to fill three primary roles: coordinator, instructor, and mentor throughout the semester. While I treat all of these roles as equally important, the responsibilities of each role tend to ebb and flow throughout the term. However, in the first three weeks of the semester I must be equally present in all three of these roles, which is a high demand on my time, attention, and emotional bandwidth. For instance, as a coordinator, I need to help students navigate the logistics around finding a section that works for their schedule during registration while simultaneously working to place students in teams. At the same time, I am working closely with my Apprentice Instructors as they begin to facilitate their first TBIL lessons and process these experiences, while finally working to set the stage with my own section of students. To help me balance these responsibilities, I lean heavily on the course-infrastructure that I have built: email auto-responses with FAQs help the vast majority of students with logistics issues, discussion forums help me keep organized with student questions, and I've come to truly appreciate just how useful a well thought-out syllabus and course website can be. With students and Apprentices having easy-to-find resources to help them navigate the beginning of the term, I find that I have the bandwidth to coach Apprentices and students through early challenges in our active learning model and get the course started on the right foot.

After the three-week mark, I find that my initial investments in mentoring and coordination begin to pay off as these responsibilities become less ever-present and more as-needed. Apprentices are often comfortable with facilitating lessons by this point in the term, which lowers much of the anxiety that can be present in novice instructors. Likewise, students across all of the sections have adapted to the consistent rhythm of the course structure and have begun to develop tight bonds with their teammates. This change in rhythm allows me to better focus on my students and fully enjoy being an instructor. For instance, this is usually about the time where I can learn all of their names and really develop a sense of who needs a little more attention or encouragement.

Compared to teaching the same course in one large section, the latter half of each semester using TBIL has been remarkably smooth. Rather than being directly responsible for the well-being of my 500+ students, I have a team of Apprentice Instructors that I have come to trust as we work to support our students. One of the most important specific examples of this is exemplified by our team's ability to identify students who are not on track to complete the course by the end of the semester. The combination of our pedagogy and the structure of the Apprentice Instructor Model has helped tremendously in directing students to critical campus resources in order to get the help that they need. That's not to say that there haven't been challenges, but rather that the challenges have been much easier for me to handle with the structure of the Apprentice Instructor Model.

4.3.2 As a Mentor

Mentoring Apprentice Instructors through using TBIL has been a rewarding experience for me largely because of the rich—and sometimes surprising—conversations we have in our weekly meetings about our students. One of the main reasons I wanted to adopt TBIL at my institution was because of its emphasis on showcasing student thought and varied approaches to problem solving to the students themselves. In turn, I have found this format to be equally effective in showcasing student learning to Apprentice Instructors. With student thinking

more visible, I’ve observed my Apprentice Instructors becoming more aware of what their students know—and don’t know—and the varied learning processes of their students. In turn, this growing awareness among the team helps us reflect collectively on the needs of our current students, and how we can best support them in the future. For example, when teaching row reduction early in the semester, we observed our students work to develop varied strategies rather than relying solely on a rote memorization of the Gauss-Jordan algorithm; in doing so, we reflected on the differences in how we were taught the same material compared to how our students were approaching it. This group reflection formed the foundation of a Lesson Analysis Manuscript that was co-authored with some of my Apprentice Instructors [KLB⁺24].

While rewarding, my experience with mentoring Apprentice Instructors was not without challenges. None of the instructors I mentored had prior experience with using group problem solving as a vehicle for principal instruction, as opposed to supplementary review sessions. This lack of experience with such active learning strategies lead to some Instructors feeling anxious about whether they would be successful in facilitating TBIL lessons. Some voiced skepticism around the effectiveness of TBIL itself. Having anticipated these challenges, the strategies I took to address them were not dissimilar to how I worked to obtain buy-in from students in learning with TBIL. By finding common ground in our desire to see our students succeed in learning mathematics, I shared my knowledge of the evidence behind TBIL and worked to align it with challenges in student learning that we’ve seen at our institution. Using our weekly meetings and one-on-ones as needed, I was able to help Apprentice Instructors align their observations with the literature and to compare and contrast our experiences as a group.

For example, when a particular lesson did not go quite as planned, we needed to debug the challenges we observed as a team. This lesson focused around learning about spanning sets of vector spaces. At one point, students are asked to apply their knowledge in a new setting of polynomial spaces to decide if a given set of polynomials spans the entire vector space of polynomials. Many teams in every section wrote the incorrect matrix, confusing the rows for the columns, and treating each polynomial as a row. Since we had not expected this level of confusion before class, most of us were surprised and some of the Apprentice Instructors interpreted this as a failure of some kind whether it was the TBIL model itself, their facilitation of the lessons, or were just plainly disappointed in their students.

I began the next group meeting by centering the discussion on this lesson. After hearing that almost all of us had a similar experience with this lesson, the Apprentice Instructors seemed to take the perceived failure less personally, which allowed us to think more critically about what happened in that lesson. The resulting discussion had three main outcomes. Firstly, we realized that this moment provided us with a critical perspective on our students’ conceptual understanding about this topic—namely, students were skipping over a key translation step and trying to go directly from polynomials to Euclidean vectors, rather than via the corresponding linear systems. Secondly, we reflected on previous non-TBIL experiences in which I, and members of my teaching team that I had previously worked with as TAs, noticed students make mistakes similar to these on midterm exams. Lastly, we discussed what we would look for in future lessons as we continued to address this concept with our students. Sure enough, two lessons later students worked through a similar problem, this time asking about the linear independence of a set of polynomials. Unlike the spanning problem, most teams went about this the correct way and were confident enough to explain it to the class in order to clarify for the few teams that continued to make the same mistake. That is, what was at first a disappointing lesson to us turned out to be quite valuable because of what we learned about our students that day and we were fortunate enough to quickly see the impact of our response.

An example of a critical one-on-one conversation with an Apprentice Instructor occurred after an Apprentice had a frustrating interaction with a team during class. During the lesson, the Apprentice noticed that some of the teammates on one team were particularly unfocused and were playing games instead of participating in the lessons. In the moment, the Apprentice admonished the teammates. Afterwards, the Apprentice was distressed and wanted to speak with me: they were frustrated at the behavior of these students, particularly because it was becoming a pattern, but they also weren’t happy with how they handled the

situation in the moment; the Apprentice felt simultaneously disrespected by their students, and guilty about losing their temper. To support my Apprentice, I began by validating his frustration in his students, and shared a similar experience that I had in a previous semester. Working with our common goal of supporting student learning and repairing his relationship with his students, we developed a strategy for him to talk with his students about his and their behavior at that moment. I suggested that he frame this discussion around our learning community norms established early in the semester. I checked in with the Instructor after his next lesson and he felt a lot better about the dynamic in the class.

At a very basic level, my main goal in working with graduate students in TBIL was to provide them with a positive experience in using active learning to teach students at a much earlier time than I had experienced. My main concern with this approach was that, if it didn't go well for my Apprentice Instructors, then perhaps I had done more harm than good for their pedagogical development. The vignettes I included above illustrate some of the challenges my Apprentices faced over their time teaching with TBIL and the strategies I used to help them overcome them.

While a systematic investigation about the impacts of these experiences is warranted (and constitutes future work), the conversations that I have had with previous Apprentice Instructors illuminates some of the key aspects that they valued about this experience. First and foremost, Apprentice Instructors have shared that they appreciated having the opportunity to implement a novel pedagogy in a controlled environment, under the direct mentorship of someone with expertise. Secondly, for many of the Apprentice Instructors I worked with, it was important to them that they were able to build nurturing relationships with their students; they have shared with me that the TBIL structure, together with our weekly group reflections, helped them accomplish that goal. In turn, I have been able to see this continued growth in Apprentice Instructors that have been assigned to teach me again, as well as in the teaching statements of those who were on the job-market following their time teaching with me.

5 Discussion

The Apprentice Instructor Model is a conceptualization of the way in which I integrated my roles as a course coordinator and provider of professional development in order to transform a high enrollment introductory mathematics course. Assessment on the impacts of this transformation on students remains ongoing, but preliminary results indicate a narrowing of achievement gaps and increases in student motivation for all groups, with the strongest effects observed in women, first-generation students, and students from racial minorities [KHK]. Combined with the experiences shared above, this provides further evidence to support the conjecture of Martinez et al. [MGR⁺22] that a combination of coordinator orientations and approaches to professional development in coordinated courses is likely to lead to meaningful improvement in student outcomes.

While the Apprentice Instructor Model is broadly applicable, I believe there are some key lessons in its applications to Team Based Inquiry Learning that our community can benefit from. First and foremost, the TBIL Resource Library provided me with high-quality and customizable instructional materials to use. Beyond these materials, I was provided a critical opportunity to be trained in the use of TBIL prior to implementing it at my institution and received frequent ongoing support through the growing TBIL community. That is, the curricular and socio-technical infrastructure that underpins the TBIL project is well-aligned with the Apprentice Instructor Model, serving as a model for how I strived to organize my course and training workshops. As our community continues to develop more high-quality instructional resources and opportunities for professional development, this work presents an important success story.

In addition to supporting the Apprentices, the Apprentice Instructor Model's emphasis on community-based professional development also stands to benefit the Mentor, who seeks to refine and improve their teaching. Indeed, the first semester that I used the Apprentice Instructor Model to implement TBIL was in fact the first semester that I had taught using TBIL myself. Combined with the support of the broader TBIL community outside of my institution, the community of practice that I built to support the course was instrumental

in helping me learn more quickly how to effectively teach with TBIL. That is, by beginning the course design with a community-based instructional practice, I did not feel the pressure of having to be an expert, or know the answer to every question, before implementing TBIL. In turn, I hope this experience inspires other coordinators who may be combatting their own inertia around trying something that may feel radical to them.

Going forward, there are two main avenues I seek to further develop this work. First, now that I have more experience and confidence with both the Apprentice Instructor Model and TBIL, I hope to make continued refinements in the course and its organization with the purpose of providing more opportunities for continued professional development and for instructor choice. For example, contributing to the continued development of the OERs underlying the TBIL community, co-creating deeper exploratory problems for problem sets, and developing strategies to better engage our teams are all activities that have more room for Apprentice involvement than I had built into the early pilot. Secondly, I seek to investigate the impacts of this experience on the Apprentices. Specifically, after teaching with the Apprentice Instructor Model, are they likely to continue using active learning methods at their next institution of higher education?

6 Conclusion

I found myself responsible for a large introductory mathematics course at a critical moment in my instructional practice. By seeking out professional development, I was aware of the role that such courses play in the marginalization of students and of the documented benefits of active learning as a means of improving student outcomes. Despite this knowledge, I did not have the experience I felt I needed to confidently implement an active learning model at the scale required. The Apprentice Instructor Model was primarily born out of my unwillingness to compromise on using active learning at my institution and my desire to provide the members of my teaching team with the kinds of experiences that I wished I had earlier in my career.

Using the Apprentice Instructor Model to implement Team Based Inquiry Learning, I leveraged both my instructional and professional developmental experiences in order to successfully scale TBIL to accommodate the students at my institution. In doing so, I was able to engage my students and Apprentice Instructors in deep, engaging, and authentic experiences that will shape their perspectives as mathematicians and educators, respectively. My hope is that this article provides an illuminating example of how course coordinators can work to realize their potential as change agents by bringing the full range of their expertise into their role.

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