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Enhanced Instructional and Professional Growth through a Pragmatic Instructional Approach

Joanna C. Weaver
Bowling Green State University

Gabriel T. Matney
Bowling Green State University

Chloe Beeker
Bowling Green State University

Alex Zalar
Bowling Green State University

ENHANCED INSTRUCTIONAL AND PROFESSIONAL GROWTH THROUGH A PRAGMATIC INSTRUCTIONAL APPROACH

Joanna Weaver, Ph.D.; Gabriel T. Matney, Ph.D.; Chloe Beeker; and Alex Zalar

Abstract

Finding a pragmatic process across university programs and disciplines that has the potential to strengthen programs and instruction has promise for adoption because of the possible impact and benefits. Jigsaw Lesson Study (JLS) has that potential and could be expanded into not only a teacher-education classroom but also into any discipline across a university campus. JLS offers opportunities for student engagement and professional development. Here, we used the JLS process, modified from Lesson Study (LS), to strengthen instructional decision-making, lesson planning, and student learning in a teacher-education course. We sought to determine the impact of JLS on teacher candidates' professional growth. We determined that when participating in the JLS process, teacher candidates engaged more fully in their subject areas, grew as collaborative educators, and developed a heightened awareness of how students learn.

Keywords: lesson study, reflection, teacher candidates, inservice teachers, collaboration, teacher education, instruction, professional development

1. Introduction

Introducing a pragmatic process throughout university programs and disciplines holds promise for enhancing both programs and instruction, thus increasing its potential for widespread adoption due to its significant impact and benefits. Jigsaw Lesson Study (JLS) stands out as a potent tool for fortifying programs and instruction, concurrently offering avenues for deeper engagement and fostering professional development. In this qualitative study, we used JLS, a modification of Lesson Study (LS), in a teacher-education classroom to examine the impact of the JLS process. Researchers surmise that identifying opportunities to utilize JLS as a pragmatic instructional strategy is integral to teacher candidates' professional growth.

2. Literature review

Lesson Study (LS), an educational practice with roots tracing back to Japan for over a century, stands as a pivotal element in the ongoing professional development endeavors of Japanese educators (Fernandez & Yoshida, 2004; Hervas, 2022; Stigler & Hiebert, 1999). Over time, LS research has reflected its efficacy in the mathematics classroom (Bocala, 2015; Lee, 2019; Ganesh & Matteson, 2010; Shuilleabhain & Bjuland, 2019) with inservice teachers (Dudley et al., 2019; Huang et al., 2023; Rock & Wilson, 2005; Weaver et al., 2023) and with interdisciplinary teams of teacher educators

(Weaver et al., 2023; Weaver et al., 2021; Weaver et al., 2023) because it focuses on team collaboration and reflection of student learning through observations (Lewis, 2002a; Lewis & Hurd, 2011).

The LS process includes four steps: *Study, Plan, Teach, Reflect* (Lewis, 2002a). In the initial step, participants assess challenges they may encounter and select a singular challenge to *study* and overcome. The LS team studies the challenge collaboratively and uses the findings to create a *plan*. Subsequently, the team develops a lesson focused on enhancing student learning by addressing the encountered challenge. Third, the team chooses one team member to *teach* the collaboratively developed lesson while being observed by their team members. Lastly, the group of teachers reconvene to discuss and *reflect* on the strengths and areas for improvement of their instruction (Ermeling & Ermeling, 2014; Hervas & Medina, 2020; Stigler & Hiebert, 1999; Takahashi & McDougal, 2016). The goal is that teachers choose to revise the lesson plan with their LS teams and conduct a second iteration of the research lesson with a different class, repeating steps three and four of the LS process.

Inservice teachers participating in the LS process have improved knowledge of instructional strategies and content as well as increased confidence levels (Ogegbo et al., 2019). Furthermore, researchers noted heightened enthusiasm for teaching and learning (Bautista & Banquied, 2021; Hervas & Medina, 2020; Ogegbo et al., 2019). A sense of belonging was created among participants that enhanced instruction, boosted morale, confidence, and efficacy. The teachers showed enriched knowledge and progressive traits and these qualities transferred into their own classrooms (Weaver et al., 2021).

2.1 Lesson Study among teacher candidates

The outcomes of inservice teachers' confidence, morale, efficacy, and improved professional knowledge is well noted in research; therefore, it makes sense that similar outcomes would exist for teacher candidates (TCs). According to research, providing TCs with opportunities to engage in LS encourages collaboration, reflection, revision, and professional growth (Ganesh & Matteson, 2010; Leavy & Hourigan, 2016; Lee, 2019; Matney & Fox, 2022; Sumarno, 2019; Weaver & Matney, 2023). Cajkler and Wood (2014) found that after engaging in LS, TCs demonstrated autonomy in the practice of designing learning goals that are student centered.

LS promotes TCs' professional growth in lesson planning, instruction, and reflection (Lee, 2019) and enhances growth in TCs' content and pedagogical knowledge to increase mastery and confidence (Ganesh & Matteson, 2010). The research of Aykan and Dursun (2021) similarly noted how the collaborative process in LS had a significant positive effect on TCs. They found that LS impacted a TC's knowledge and skills regarding lesson planning, teaching methods and techniques, and course evaluation.

In a study by Chassels and Melville (2009), TCs submitted reflections detailing experiences with LS. From these reflections, Chassels and Melville (2009) concluded LS has potential for the continuous improvement of teaching and learning in the American education system among preservice teachers.

In a similar study, Matney & Fox (2022) conducted research with TCs whose teacher-education program incorporated LS as part of their professional learning each year. LS was perceived as the pivotal element, transforming their teaching practice from a teacher-centered model to a student-centered model. TCs' engagement in LS promoted students' thinking for themselves while deriving knowledge. The research aligns with other research focused on TCs' participation in LS (Leavy & Hourigan, 2016; Lee, 2019; Ganesh & Matteson, 2010; Sumarno, 2019). The phenomenological research also noted that the incorporation of LS in the program created a rich community and collegiality where multiple perspectives could be tested and respected (Matney & Fox, 2022).

2.2 Lesson Study promotes teacher candidates' flexibility in planning

In a teacher-education program, research results revealed the LS model contributed to enhanced planning skills in TCs and the ability to be flexible within different class environments (Çevik & Müldür, 2021). Cajkler and Wood (2016) emphasized the impact LS collaboration had on TCs' planning because it contributed to increased awareness on what to plan and helped change the focus of the lesson to keep the learning needs of students in mind. LS promotes TCs' professional growth in lesson planning, instruction, and reflection (Lee, 2019).

TCs demonstrate autonomy in the practice of designing learning goals with the students in mind and reflections centered around student learning rather than smooth implementation of activities (Cajkler & Wood, 2016; Lee, 2019). Furthermore, Leavy and Hourigan (2016) reported TC Lesson Study participants were able to realize the importance of analyzing student learning.

Additionally, LS enhanced growth in preservice teachers' content and pedagogical knowledge to increase mastery and confidence (Ganesh & Matteson, 2010). Sumarno (2019) concluded LS has a positive impact on prospective teachers' self-efficacy with increased efficacy noted in student engagement, instructional strategies, and classroom management. Ganesh and Matteson (2010) also found increased confidence of preservice teachers in standing in front of a class and less nervousness with taking the role of a teacher after partaking in LS.

2.3 Lesson Study promotes collaboration

An essential quality of the LS process among inservice teachers and TCs is collaboration. Collaboration lies at the foundation of LS and allows educators to feel supported and encouraged to try new instructional strategies as well as to reflect on possible changed perspectives. In addition, Bautista and Banquied (2021) indicated teachers' competence was crafted through collaboration, and Chong and Kong (2012) discussed that, because of collaboration, teachers felt supported and open to share ideas and build off one another's contributions to further develop their lesson plans. Collaboration leads to pedagogic risk-taking and builds professional capital (Cajkler et al., 2014, Rock & Wilson, 2005).

2.4 Lesson Study helps focus teacher candidates on student learning

Because observation is an integral component of LS during step three, these skills are advanced during the teaching phase of the LS process (Bocala, 2015; Reynolds, 2018; Schipper et al., 2020). This provides opportunities for teachers candidates to focus on student learning and experience, influences their perceptions and awareness of the needs of different students and how these needs should be addressed (Schipper et al., 2020). Furthermore, it guides instructional changes (Coenders & Verhoef, 2019). Bocala (2015) asserted the more experience one has with LS, the more focus can be devoted to deeper issues regarding students' thinking and misconceptions.

2.5 Lesson Study impacts reflective practice

While engaging TCs in the LS process, experienced facilitators should be present to guide them through the critical reflection, feedback, and implementation of feedback to strengthen lessons. Myers (2012) investigated TCs' levels of reflection in LS and found TCs focused on individual teaching rather than the group's lesson or student learning. Myers (2012) concluded LS may contribute to reflection but does not foster high-levels if TCs are not guided properly.

Bjuland and Helgevold (2018) noted the influential role of a facilitator and Knowledgeable Other (the instructor of the course) to question, challenge, and focus TCs' reflective dialogue toward evaluation of student learning and the

effectiveness of instruction. LS is an incredibly beneficial process for TCs to enhance the development of content and pedagogical knowledge, increase confidence, and strengthen reflective habits needed to continuously grow and create engaging lessons for all students.

2.6 Lesson Study as professional development

In a study conducted by Dudley et al. (2019), participating schools co-developed lesson plans and shared experiences of how children learn. They determined the impact of LS on student learning and teacher development that included strengthening teaching materials, curriculum, professional learning, and system enhancement. In addition, the schools developed a system of norms and strategies to share with their fellow staff members during professional development and implemented this into the everyday life of the school.

Chong and Kong's (2012) findings align with Dudley et al. (2019) where LS was found to support teachers' beliefs surrounding effective pedagogy. Similarly, Collet and Greiner (2020) reported that teachers' instructional repertoires were expanded and shifted in thinking around the effective instructional strategies learned from the Lesson Study process.

Based on the positive experiences and growth of inservice teachers experience with LS, it seemed natural to examine the effect LS could have on teacher-education programs and TCs. Because there was limited access to trained inservice teachers in LS who could work with TCs when they went out to the teaching field, the authors developed a modification to LS (see Figure 1).

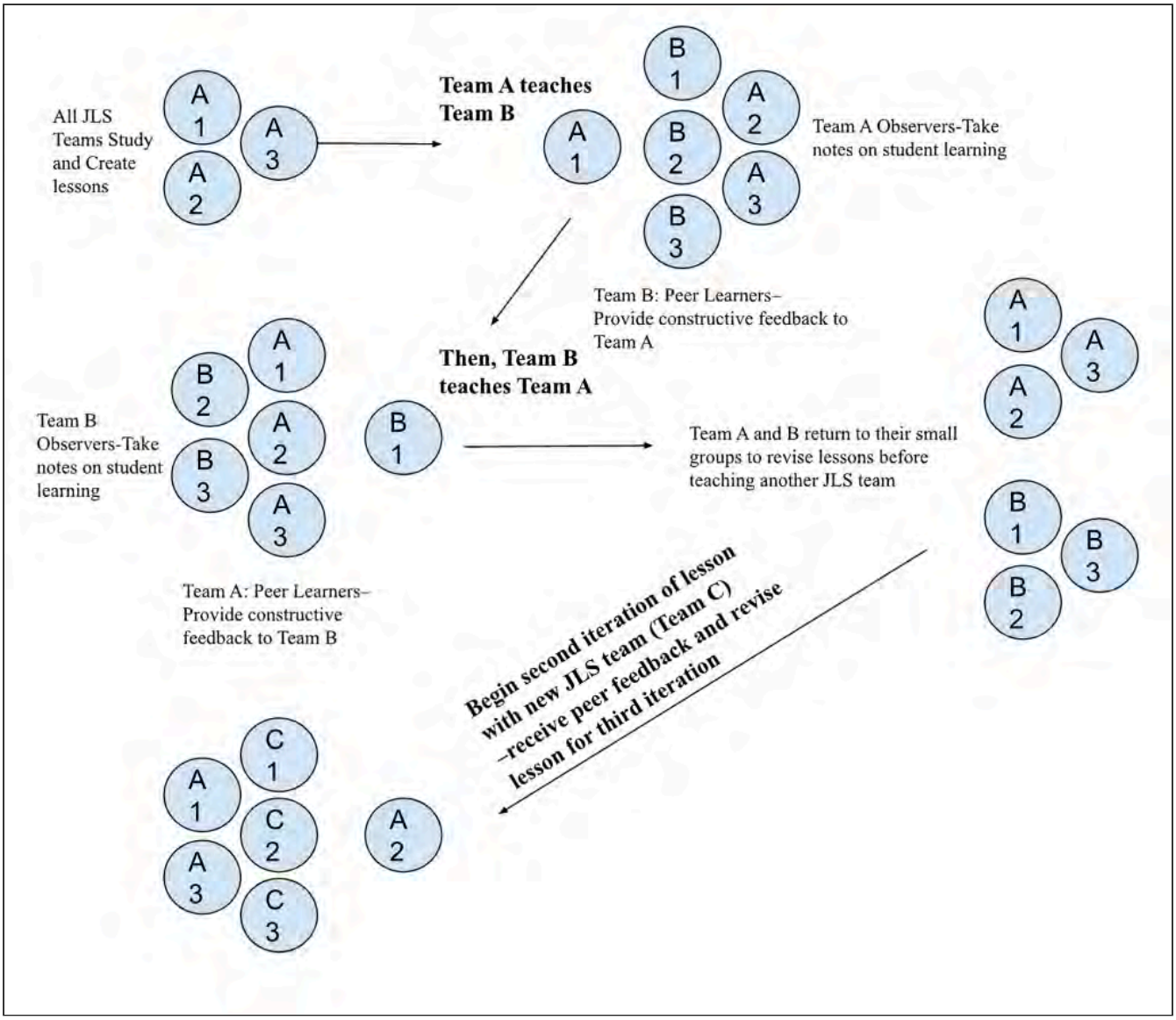

Figure 1: *Jigsaw Lesson Study Process*
Source: *Weaver, J. C., & Matney, G. (2022). Jigsaw Lesson Study process. Bowling Green State University*

In this qualitative study, we examine a modification of LS, called Jigsaw Lesson Study (JLS), to engage TCs in this valuable professional experience involving the steps of Lesson Study within the context of an English Language Arts Methods Course. The research shared here seeks to answer the following research question: How did engaging in the Jigsaw Lesson Study process impact teacher candidates' professional growth? A further description of the Jigsaw Lesson Study process is provided in the context section of the methodology.

3. Methods

3.1 Participants

The study uses qualitative methods to investigate impacts of Jigsaw Lesson Study (JLS) on TCs' instruction. 55 Inte-

grated Language Arts (ILA) TCs enacted the JLS as part of a methods education course requirement during two different fall semesters prior to student teaching. Of the 55 TCs, 43 identified as females; 5 identified as males; and 7 identified as nonbinary. The TCs were from a midwest university in the United States. The JLS teams were self-selected. All participants in this study have been given pseudonyms.

3.2 Context

JLS (Weaver & Matney, 2023) was developed by the first two authors to overcome the challenge that TCs were not yet in a field experience teaching *real* students and observing *real* student learning with inservice teachers who were trained in LS. Therefore, during a teacher-education class, multiple teams of three were created to move through the four LS steps: *study, plan, teach, reflect.* The teams of TCs studied a difficult-to-teach topic and collaboratively created lessons. Then, each team taught their lesson to another JLS team of three.

Similar to LS, the JLS process is entirely collaborative. It represents a collaborative professional development methodology fostering cooperative engagement, constructive critique, and reflective practice throughout each phase of the LS process.

After each teaching, team members and peer learners offered evidence-based, constructive feedback that informed lesson revisions. After each teaching, teams would reflect together and revise their lessons before teaching another team. They taught three iterations of their lessons to three other small groups (see Figure 1). Because there were three iterations of each lesson, each member of the team had a chance to teach one iteration of the lesson. Groups rotated throughout the JLS process reflecting and revising along the way.

JLS was implemented to professionally develop TCs at a midwest university using a pragmatic process, allowing TCs to work collaboratively to build instructional knowledge. JLS took place during the first four-week period of the semester with four-hour teacher-education course blocks. For both semesters, during weeks one and two, TCs spent two of the four-hour blocks studying and planning their collaborative lesson. The full four-hour block was used during weeks three and four to teach, reflect, revise, and reteach lessons.

During the third week, the class was divided into teaching pairs. For example, Team A ↔ Team B; Team C ↔ Team D; Team E ↔ Team F. After each lesson was taught by the first team, (i.e., Team A taught Team B), the paired team (Team B) provided instructional feedback, then taught their lesson (Team B taught Team A), and then received feedback from the first team (Team A). When both teams in the pairs finished teaching and received feedback, they returned to their individual teams, reflected on the taught lesson, and asked questions pertaining to the level of student engagement in the lesson content and the effectiveness of the instructional methods based on the observations of student learning (i.e., What were the learners' challenges and successes?).

The goal during the debriefing time was to identify strategies in the lesson that needed clarification and revision as well as to review student learning. JLS teams analyzed the feedback and observational notes to modify and revise the lessons before reteaching the lesson to the next team (see Figure 1). This same process was followed the second iteration of teaching. After the third, each team debriefed together to reflect on the entire learning experience of the JLS process and how it impacted their professional growth.

3.3 Data and analysis

For this study, data was collected from post-survey responses that identified the TCs' takeaways from the JLS process and noted revisions made in their lessons. Researchers examined the data for TCs perceptions of changes in instructional practice, professional knowledge, and/or their perception of the JLS process.

Researchers utilized the constant comparative method (CCM) (Glaser & Strauss, 1967) and Erikson's (1986) coding process. As an inductive process, CCM allowed for the recoding of data compared to other data and incidents (Glaser & Strauss, 1967). Open coding provided opportunities for core categories to emerge as data are recoded and reduced (Glaser, 1978; Glaser & Strauss, 1967; Strauss, 1987). Researchers individually coded each set of surveys. Then, after the second read-through, researchers discussed and negotiated assertions that emerged from the key constructs and then reread the data with the agreed-upon assertions and met for a third time to clarify the examples that served as warrants.

4. Results

Teacher candidates (55 total) in the course recorded their takeaways on a post-survey after experiencing the JLS. Based on the analysis and coding process, five themes emerged. TCs' perceptions of: (1) Collaboration, (2) Observation, (3) Reflections and Revisions, (4) Flexibility, and (5) Takeaways.

4.1 Teacher candidates' perceptions of collaboration

One of the most prominent themes to come from the data was collaboration. Of the 55 participants, 51 of them directly discussed collaboration in their survey responses from the JLS process. Participant responses in the survey discussed how collaborating was an opportunity for them to grow while working with other educators. For example, Jaime reported that they valued "hearing peers give feedback and that you need to keep a circle of teachers you trust to give that in your professional careers." They also drew comparisons between teachers and students, stating, "we are constantly learning ways to better ourselves and the content we teach." According to Allen, "it's not very hard to work with others when creating lesson plans. I hope that the school I end up teaching in is big on collaboration because multiple minds are better than one." Thirty-five other TCs reported similar views.

The idea of continuous learning was echoed in the survey by a fellow candidate, who wrote, "This practice of collaboration could be very valuable for teachers of the same subject and grade level, especially across student proficiency groups (such as AP teachers/college prep/college career classes)." Reiterating the importance of collaboration, Teagan stated, "I wish there was more collaboration between different content areas, because . . . it is nice to learn new strategies."

Through collaboration, participants were able to discuss and build from one another's ideas as well as experiences. New ideas were generated in discussion that expanded upon past experiences and blended each team member's strengths. Similarly, the blending of team member's strengths created an overall flow of ideas and combined learning styles with the goal of increasing teacher confidence and crafting an engaging lesson for various learners. Chris stated, "each of us had different modes of learning, so being able to hear different ideas was very helpful."

The survey results highlighted teacher candidates' positive experience with Lesson Study. Sixteen teacher candidates emphasized the importance of listening to everyone on the research team and working together to construct a strong lesson plan that considers student learning needs. Colby explained, "I learned greatly from my research team's lesson plan ideas while collaborating over the past couple weeks. The amount of differing ideas helped with putting the lesson together."

Collaboration aided teacher candidates' understanding of one another and positively contributed to the decision of the topic of focus for the lesson. Forty-seven participants further highlighted how collaboration impacted the topic and direction of the lesson. Participants felt supported, uplifted, and were willing to voice their areas of struggles in English Language Arts. TCs stated on the survey that by voicing their areas of struggle, they were able to identify common topics and viewed the Lesson Study experience as an opportunity to expand content knowledge.

4.2 Teacher candidates' perceptions of observation notes

During the JLS process, TCs took observational notes on student learning while a member of the team taught the lesson. Forty-five teacher candidates described the impact of taking observational notes as beneficial and recorded how the notes helped focus revisions and track student thinking as well as feedback. Moira stated, "The note taking was essential for our team due to making revisions that changed the path of our lessons."

According to the surveys, more than half of the TCs focused on how beneficial it was to observe students' engagement and reactions. TCs reported an increased understanding of the reactions made by students and how to use this knowledge to revise the lessons and create student-centered learning activities. For example, Tina highlighted their realization "that students learn in so many different ways and grasp on to material differently." Observational notes pushed TCs to think beyond the teacher perspective and focus attention on the learners of the lessons. TCs found themselves closely examining the learners of the lesson, finding importance even in the body language of the students. Once again, observational notes positively impacted teacher candidates' ability to revise and consistently improve the lessons while considering student needs and interests.

TCs discussed the impact of observing the instruction of team members and providing feedback to the instruction had on their thinking around planning. Survey responses spotlighted how observing their team members' teaching helped guide revisions to make changes based on what went well and what did not. For example, three teacher candidates mentioned the difficulty of time management and the process of Lesson Study and taking observation notes during the live lesson, TCs "were able to fix issues with timing."

Additionally, teacher candidates were exposed to various instructional approaches. Montana communicated, "it was interesting to see how we each took a different route to teaching even though we all used the same plan. It showed me how important it is to create a cohesive lesson plan that can be followed by anyone and still get the same result." According to the survey responses of 51 candidates, JLS guided TCs in establishing their own teaching presence, and emphasized the importance of constructing an explicit, solid lesson plan that accomplished learning goals and yielded positive student experiences and outcomes no matter who was teaching the lesson.

4.3 Teacher candidates' perceptions of reflections and revisions

TCs perceived that constructive feedback and observation notes helped them reflect on their lessons and strengthen instructional practice. Halle stated, "It was helpful to hear feedback about ways to improve lessons but also how to extend them."

Another TC, Jack, noted,

> I loved seeing the lesson evolve after each time of teaching and seeing how small changes impact the lesson as a whole and to see what works best, like our original assessment was kind of lackluster in the fact it recalled a lot on memorization, but the last assessment tool allowed for group collaboration.

His team made significant changes in their plans between the first and second lesson. Another team discussed the impact of reflection and the importance of reconvening with the group after instruction. Kelsey noted, "it was really informative to meet back with and talk about what we did in our individual lessons so we could all adapt what we were doing if someone had a positive impact the way they taught." Thirty-three other TCs reported similar responses on their surveys.

Furthering this connection to reflection, Kayla reported that "getting feedback from my peers was helpful... As a future teacher, I believe reflecting on the lesson, as well as asking students what went well and what could be changed is

important to do in the classroom." Furthermore, Moira responded in her post-survey, "Lessons aren't always going to be received the way I want them to, but it's up to me to take that feedback and grow from it and adapt my teaching to better fit the needs and wants of my students." According to another response, William's group made significant modifications to their plans based on the feedback of peers and team observations.

4.4 Lesson Study strengthened flexibility

The data revealed that TCs believed that reflection empowered flexibility during instruction. For example, Halle wrote, "we can prepare as much as we want and try and have everything figured out before we go into the classroom, but we will never know how to fully gage [sic.] the class until it is in the moment." Moreover, Chris wrote, "[teachers need] to be able to change things on the fly. You may teach the lesson a little bit different every period."

Another TC, Moira, discussed how the JLS allowed her to reflect on her group's lesson plan. According to her post-survey,

> It's important to gauge the understanding of your students and be flexible during your lesson, not just after. Some people struggled with our lesson more than others, so we had to explain things in different ways so that it made sense to everyone.

Cassidy also focused on the power of reflection in her planning, stating, "[JLS] allowed me to see how I could change my lesson after teaching each period." She went on to note how teachers and their lessons will not be flawless in action as well as "that it is okay to revise and make changes along the way if the lesson is not adhering to your student's needs." She continued to state that flexibility is key. These examples represent 53 TCs who also reported flexibility and a willingness to modify or revise "as you go" was critical to strengthening instructional practice.

4.5 Takeaways from Jigsaw Lesson Study

TCs expressed how the JLS, specifically research and planning, helped them see different pathways for learning. Kelly stated, "I learned how many ways you can teach the same topic. By comparing different modes and ideas of learning, we were able to refine our ideas to create a really well-rounded plan." Another TC, Gloria, also discussed being exposed to various teaching styles because of the JLS experience. According to her survey response,

> I also learned so much about teaching styles from both seeing how each member of my group taught different and by seeing each of the people around the room teaching their individual lessons. In each of my three presentation groups, we talked about differentiation and teaching with cultural responsiveness.

The majority of TCs noted the new instructional strategies as well as new technological resources that were discovered. Furthermore, TCs perceived revisions to be necessary when planning and crafting a truly engaging and accessible lesson, and interactivity of the lesson should be a top priority.

Instructional practice was also addressed in the survey responses. For instance, Gracious stated, "The more I practice and work through my lesson, the easier and less nerve racking [sic.] it was. I felt that I was making great progress and becoming more confident in my mind around my peers." In addition, Bailey noted, "lessons and planning can always be improved. I personally feel as though our lesson got better each time we taught it and received valuable feedback." These statements represent thoughts and takeaways of 48 candidates in the two classes.

Gloria went a step further and discussed how she believes she walked away from the experience with more ideas about how to implement differentiation and cultural responsiveness in the classroom.

5. Discussion

Jigsaw Lesson Study (JLS) produced positive instructional outcomes and professional growth for TCs in a teacher-education course. Data collected from the post-survey on JLS provided evidence that TCs were engaging fully in the JLS process and implemented best practices that impacted instruction. This corresponds with the research of Aykan and Dursun (2021) and Matney and Fox (2022) who highlighted the impact of LS on TCs' professional knowledge and skills because of the collaborative process and sharing of ideas. The findings suggested that TCs valued the collaborative practices and multiple perspectives, and the JLS process encouraged a growth mindset to implement new strategies. Furthermore, it allowed TCs to reflect on instruction and promoted flexibility during lessons, further extending the work of Chassels and Melville (2009).

The findings from this study align with previous LS research. The TCs were positively impacted by the collaborative LS process (Aykan & Dursun, 2021). The TCs noted that their instruction was improving through the process of coplanning, teaching and observing, hearing feedback and reflecting with others and then revising and reteaching the lesson anew. This connects with Weaver and Matney's (2023) finding that when TCs are engaged in the LS process, it encourages learning opportunities that transform one's teaching.

According to the findings, TCs realized the importance of reflection and feedback on instructional planning (Chassels & Melville, 2009). Furthermore, TCs noted the power of flexibility when collaborating with colleagues and the benefits of that collaboration in the instructional planning process (Aykan & Dursun, 2021; Çevik & Müldür, 2020; Chassels & Melville, 2009; Weaver et al., 2021; Weaver et al., 2023; Weaver & Matney, 2023).

One TC specifically noted how similar cross-content collaboration would be beneficial throughout teacher preparation courses. This observation aligns with the research of Weaver et al. (2021) that promoted interdisciplinary collaboration among teacher educators in the LS process. Interdisciplinary LS is an area that needs further research both with preservice and inservice teachers because we predict it will highlight the expertise of the team members as they collaborate across content areas to develop lessons that will enrich the professional knowledge of their team members. Creating interdisciplinary JLS teams in teacher-education courses might procure a new awareness of other content areas, expertise, and standards.

Implementing JLS into teacher-education courses has positive implications; therefore, it makes sense that it would work when implemented across disciplines and university programs. Using the small group of JLS can prepare higher-education professionals and other university students the opportunity for more critical reflection with a small team when considering any project that could be enhanced by multiple perspectives and collaboration of a team who need to work together for an impactful presentation. Collaborating with peers is a powerful piece of JLS, and it builds confidence through repeated practice and reflection.

In addition, JLS, like LS, promotes community accountability versus individual accountability because the work is created collaboratively with the LS group. The entire team reconvenes to make the changes that will strengthen the lesson plan and instruction. Reflection allows for revisions, enhancements, and possible reenvisioning of the lesson. It also fosters growth, flexibility, and instructional learning. Integrating JLS in higher education will strengthen instructional and reflective practice as well as professional growth.

6. Conclusion

Jigsaw Lesson Study (JLS) facilitated a heightened awareness of student learning and participant engagement, offering a potential for higher education communities to effectuate necessary revisions aimed at fortifying student learning outcomes and/or program effectiveness. Moreover, LS, like JLS, has the potential to strengthen instruction and professional

knowledge and encourages the sharing of ideas and strategies. Its collaborative nature provides participants across disciplines with opportunities to think constructively about professional knowledge and student learning.

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