

Preservice Teachers' Perceptions of Their Knowledge of and Confidence in Using High-Leverage Practices

Melanie Reaves¹, Melissa Sullivan-Walker¹, Trent Atkins²,
Estee Aiken³ and Kari Dahle-Huff¹

¹Montana State University Billings USA

²University of Montana USA

³University of Montana Western USA

Author Notes

Melanie Reaves: <https://orcid.org/0000-0001-5409-5453>

Melissa Sullivan-Walker: <https://orcid.org/0000-0002-2720-9352>

Kari Dahle-Huff: <https://orcid.org/0000-0002-2154-7748>

Abstract: *High-Leverage Practices (HLPs) are a fundamental set of skills teachers should use consistently in the classroom to positively impact both their own capabilities and their students' learning. In our state, the five most important HLPs have been embedded into multiple courses across several educator preparation programs (EPPs). We asked preservice teachers to share their perceptions of their knowledge of and confidence in implementing HLPs prior to being introduced to them in their courses. Preservice teachers reported overwhelmingly strong knowledge and confidence, despite having never learned about the HLPs. In addition to our results, we share our thoughts about the illusion of fluency, the Dunning-Kruger Effect, and implications for EPPs with regard to field experiences and implementing HLPs.*

In recent years, many educator preparation programs (EPPs) have integrated 19 High-Leverage Practices (HLPs) compiled by TeachingWorks because they have strong evidence toward positive impact in classroom outcomes (Ball & Forzani, 2010; Matsumoto-Royo & Ramírez-Montoya, 2021). In 2017, the Montana Collaborative for Effective Educator Development, Accountability, and Reform (MT CEEDAR) began its work to systematically select HLPs to embed within Montana EPPs. This state-wide partnership involved the Montana Office of Public Instruction (OPI), Montana Higher Education Consortium (HEC), University of Montana, University of Montana Western, Montana State University, Montana State University Billings, and University of Providence. After surveying key stakeholders, which included EPP faculty, K-12 administrators, and K-12 teachers across the state, MT CEEDAR selected five HLPs to begin our work (Atkins et al., in press). Labeled *The Big Sky Five* these HLPs include:

1. Building Respectful Relationships
2. Implementing Organizational Routines
3. Designing Single Lessons and Sequencing of Lessons
4. Leading Group Discussions
5. Checking for Student Understanding During and at the Conclusion of Lessons

In the present study, we asked preservice teachers to share their perceptions of their knowledge and confidence implementing HLPs at the beginning of courses in which the Big Sky Five had been embedded.

REVIEW OF LITERATURE

For our review of literature, we sought out seminal and recent research that informed the five HLPs of focus. However, we open with literature that informed how we put the HLPs into sub-categories. We divided these five HLPs into *visible* and *invisible* categories. Visible HLPs have connections to general life practices preservice teachers experience, and they are frequently observed by others, such as building relationships, organizing routines, and engaging in group discussions. On the other hand, preservice teachers rarely experience designing lessons or checking for student understanding within their lives before entering an EPP, and these skills are also rarely observed by others. This fits well with Mellati et al. (2015) division of pedagogical skills into “Experienced Pedagogical Beliefs” and “Educational Pedagogical Beliefs” (p. 177). However, we believed *visible* and *invisible* accounted for more than just previous experiences inclusive of observability. Although HLPs are rarely honed only through experience (Ball et al., 2009), we believed this categorization to be important because preservice teachers may perceive that they already know and have confidence with more visible HLPs, having engaged in these practices as learners (Lortie, 1975).

BUILDING RESPECTFUL RELATIONSHIPS

Building relationships is central to being human (Heidegger, 1953). Since teaching is a helping profession, the act of building and maintaining relationships is essential because learning takes trust and vulnerability (Croom et al., 2020). When it comes to relationships with students, there are many factors for teachers to navigate, such as cultures and identities that may differ from their own. Unfortunately, preservice teachers are often ill-prepared to build relationships with students and their families in intentional ways (Giallourakis et al., 2005; Patte, 2011). In fact, preservice teachers can often identify the importance of building relationships within their work, but they are less likely to articulate specific strategies on how to do so (Weatherby-Fell & Neilsen-Hewett, 2019). Instead, they may lean on vague and traditional forms of family involvement strategies in attempts to build relationships with their students and their families, such as sending communications home, conducting parent-teacher conferences (Patte, 2011), or using digital messaging platforms.

DESIGNING SINGLE LESSONS AND SEQUENCING OF LESSONS

Planning effective learning experiences requires the consolidation of various aspects of learning, such as knowledge of development, strong content knowledge, and knowledge of the learners’ cultures/identities, as well as academic and social/emotional needs (Sahin-Taskin, 2017).

Preservice teachers have participated in learning experiences throughout their lives, but the skills of planning lessons are new to them. During their teacher education, they learn the components of an effective lesson, such as aligning standards, objectives, and assessment; choosing resources; considering classroom management; and designing learning tasks. While preservice teachers may embrace the importance of the planning process, they also encounter a myriad of problems while doing so, such as differentiating learning for students' individual needs (Satin-Taskin, 2017); and designing collaborative learning experiences (Ruys et al., 2012).

LEADING A GROUP DISCUSSION

Language and thought are intrinsically tied (Vygotsky, 1978). Furthermore, since thought is a central component in learning, the role of conversations in learning is equally important. In fact, conversations during learning can expand learners' ideas and perceptions, and help them develop a broader-deeper level of knowledge (Keene & Zimmerman, 2007). However, leading an effective discussion with students requires several skills, such as designing open-ended questions/prompts to encourage higher-level thinking; using variable grouping strategies, such as pairs, small groups, and whole groups; scaffolding instruction involving modeling and providing students choice about the topics of conversation within the targeted learning; and prompting students to make personal connections to the topic (McGee & Parra, 2015). Even after explicit professional development, inservice teachers continue to struggle with engaging students in conversations that foster higher-level thinking (Neuman & Danielson, 2021). As described by Robitaille and Maldonado (2015), "the specific problem is not that teachers are not asking questions, it is that they are not asking the types of questions that have been shown to best produce positive student achievement like higher order, curious, critical thinking, and problem solving questions" (p. 8).

IMPLEMENTING ORGANIZATIONAL ROUTINES

Students in a stable and positive environment are more likely to be engaged and strong contributors to collaborative learning (Salsibury, 2020). Teachers who can establish and maintain effective organizational routines allow students autonomy, access to resources, and opportunities to exercise executive function skills they need to be successful learners (Samuels et al., 2016). Researchers who have studied this aspect of teaching have largely focused on inservice teachers' skills (e.g., Dezutter, 2011). One of the most important skills in establishing and implementing good routines is the ability to navigate both structure and change (Sawyer, 2011; Sherer & Spillane, 2011). Teachers who can build effective structures within the learning environment create coherence to instruction (Sherer & Spillane, 2011). Yet developing these skills is not easy. As described by Sawyer (2011), "effective teachers act as directors, orchestrating learning experiences" (pp. 2-3) within constructivist paradigms where students are given agency within goal-oriented curricula. Yet very little is known about preservice teachers' perceptions of this aspect of teaching. Dezutter (2011) argued for teacher educators to explicitly teach preservice teachers "disciplined improvisation" (location 834, Kindle edition). However, this requires teacher educators to navigate the tension between the "planning-centric view of teaching" (location 849, Kindle edition) and true constructivist approaches where knowledge is generated, not just transmitted. One of Dezutter's suggestions is to follow the model of how jazz musicians and actors are taught how to improvise within the structures of their art. In fact, several collaborations have been established between the theater and teaching communities to improve teachers' improvisational skills, such as Second City Theater's workshop series for teachers called

Improvisation for Creative Pedagogy and the *Developing Teachers Fellowship Program* sponsored by the Eastside Institute in New York City (Dezutter, 2011). Such research emphasizes the importance of solid structures and routines that provide a safe space in which teachers can be responsive to students' needs (i.e., improvise). This needs to be explicitly taught during preservice teachers' education. They can also be intentional about looking for how mentor teachers engage in solid structures, routines, and flexibility/improvisation as well.

CHECKING FOR STUDENT UNDERSTANDING DURING AND AT THE CONCLUSIONS OF LESSONS

The skills involved with checking for student understanding (assessment) have largely been ignored compared to other aspects of teaching (Danielson, 2017). One reason for this may be linked to the complexity of the skills involving multiple facets, such as designing assessments, calibrating use of assessments among multiple teachers, analyzing student responses, and using results of assessment to plan future learning experiences (Danielson, 2017). Within an explicit direct instruction framework, checking for understanding has been described as “the teacher continually verifying that students are learning *what* is being taught *while* it is being taught” (Dezutter, 2011, location 1101, Kindle edition, italics in original). It requires the teacher to go beyond checking for memorization of facts and check to see if students can apply, evaluate, and synthesize what they are learning. But even in inquiry-based approaches, this skill plays a role as teachers need to engage in ongoing formative assessment to help guide their students and they even teach students how to check for understanding among their peers (Duran & Duran, 2004). However, since this pedagogical skill involves frequently checking during learning, preservice teachers have less opportunities to practice it until their immersive teacher residencies as student teachers.

Taken together, this body of literature informed us that when individuals enter an EPP, they bring with them their experiences as learners. Researchers have discovered that nascent in-service teachers' perceptions of their skills and knowledge increase significantly over the course of their first three years of teaching, but they do so at differing rates (Choy et al., 2013). However, we were interested in preservice teachers' perceptions over the course of the program because we believed that navigating their initial beliefs about teaching, learning, and their abilities to teach becomes the pathway toward being a professional educator. Moreover, preservice teacher success relies on their receptivity to challenging their current perceptions about teaching and being open to new pedagogical approaches and strategies (Sheridan, 2016). It also involves developing early understandings of what it means to be a professional educator, such as dressing, talking, and acting professionally; building affect-based attitudes (e.g., enthusiasm) and professional behaviors (e.g., interactions with student/colleagues); and taking on *teacher* as their personal and professional identity (Garza et al., 2016). Of these aspects of professional skills and knowledge, Fajet et al. (2005) found that preservice teachers perceived the skills around building relationships with students and developing affect-based characteristics (e.g., passion, energetic persona, enthusiasm) to be more important than other aspects of teaching, such as subject-matter knowledge and classroom management.

CURRENT STUDY PURPOSE AND QUESTIONS

The purpose of the current study was to determine which HLPs preservice teachers perceived to be the most knowledgeable about and confident in using prior to learning about them. We hypothesized that preservice teachers' perceived knowledge and skills would be higher for the

visible versus the *invisible* HLPs as follows: (a) “Designing Lessons and Sequence of Lessons” and “Checking for Student Understanding” would yield the lowest scores in knowledge and confidence, and (b) “Building Respectful Relationships,” “Leading a Group Discussion” and “Implementing Organizational Routines” would yield the highest scores in knowledge and confidence. To explore this phenomenon, we asked the following research questions:

1. What level of perceived knowledge do preservice teachers have in five selected HLPs?
2. What level of perceived confidence do preservice teachers have in the five selected HLPs?
3. How do preservice teachers’ knowledge about invisible and visible HLPs differ?
4. How do preservice teachers’ confidence about invisible and visible HLPs differ?
5. For which HLPs, if any, do preservice teachers indicate divergent knowledge of and confidence in using?

METHODS

SURVEY DEVELOPMENT

This survey was developed as part of a federally funded grant through the Montana Collaborative for Effective Educator Development, Accountability, and Reform (MT CEEDAR). The survey was developed by five professors representing three universities in the state of Montana based on the HLP framework of Ball et al. (2016) and was further refined based on the Big Sky Five HLPs, which were earlier developed by multiple groups of education stakeholders in Montana (Atkins et al., in press). The next steps of refinement included a shared decision-making process where faculty involved in this study narrowed the sub-items under the Big Sky Five to make the survey instrument shorter and more concise. Faculty developed a four-point, Likert-type scale for each of the survey items. The response options included: None, Little, Some, A lot. The goal with a four-point scale was to prompt respondents to tilt one way or the other on the perceived level of knowledge and confidence.

We piloted the survey in the spring of 2021 with 27 respondents. Initially, the survey was designed to examine the change in perception over the course of a semester with respondents rating their knowledge and skills before and after they learned about the HLPs in university courses. Results were promising and faculty found preservice teachers’ pre-course perceptions to be valuable for designing the instruction in their courses, so we decided to focus our efforts in this study on the preservice teachers’ experiences during their initial courses in preservice teacher education.

DATA COLLECTION

The anonymous survey was distributed electronically via *Qualtrics* to 80 preservice teachers in upper-division, initial-licensure courses at three universities during their teacher preparation programs in elementary and /or special education. Respondents were offered course points for submitting screen shots of the survey completion page to maintain anonymity in the data set. A total of 70 preservice teachers completed the survey with a response rate of 87.5%. By using these courses, we were able to access the perceived knowledge and confidence of preservice teachers in the beginning to mid-stages of their preparation programs. Once the survey was completed, data was entered into Excel and data were organized and analyzed using SPSS.

ANALYSES

To answer research questions 1 and 2, we used a simple rank ordering to determine the highest to lowest perception of knowledge and confidence for each of the survey items. To determine the ranking for perceived knowledge and confidence, we combined the response options of “some” and “a lot.” This allowed us to clearly see for which HLPs preservice teachers scored themselves the lowest and the highest.

To answer research questions 3 and 4, we wanted to determine if preservice educators were more likely to report more knowledge and confidence in visible skills as opposed to invisible skills. We rank ordered the results, then we coded each sub-item to indicate that item’s category. More specifically, we hypothesized which HLPs preservice teachers would be least likely to have knowledge of or confidence in during the beginning stages of teacher preparation. For instance, a priori we believed that “Designing Lessons and Sequence of Lessons” and “Checking for Student Understanding” would yield the lowest scores in knowledge and confidence and that “Building Respectful Relationships,” “Leading a Group Discussion” and “Implementing Organizational Routines” would yield the highest scores in knowledge and confidence.

Finally, to answer question 5, we dichotomized the Likert scale responses by collapsing “none” and “little,” and “some” and “a lot.” This allowed us to conduct chi-square analyses to determine if there were statistically significant differences between preservice teachers’ perceived levels of knowledge and confidence. We conducted chi-square analyses for each item of the survey knowledge against confidence and each item was tested at $p < .05$.

RESULTS

The analyses conducted to address the research questions resulted in clear findings about preservice teachers’ perceptions of their knowledge and confidence regarding the Big Sky Five. Each of the research questions are addressed in order and associated tables are referenced for clarification.

RESEARCH QUESTION 1: WHAT LEVEL OF PERCEIVED KNOWLEDGE DO PRESERVICE TEACHERS HAVE IN FIVE SELECTED HLPs?

These results can be found in Table 1. In summary, the percentage of responses that were either “some” or “a lot” ranges from, 99% ($n = 69$) for “Have small, personal conversations with students” to 56% ($= 41$) for “Create public artifacts as resources and reminders.” In sum, these findings indicate, that across all the items, preservice teachers perceived their knowledge as quite strong.

Table 1
Preservice Teachers' Perception of their Knowledge Ranked from Highest to Lowest

HLP Sub-Skill	Perceived "High" Knowledge (n = 70)	Domain
Have small, personal conversations with individual students	99% (69)	Relationships
Greet students positively every day*	99% (68)	Relationships
Provide multiple opportunities for students to demonstrate understanding	94% (66)	Understanding
Support and respond positively to students' identities	93% (65)	Relationships
Provide positive, constructive notes/feedback for students	93% (65)	Relationships
Encourage and supporting students to participate	90% (63)	Discussion
Support students to carry out the routines safely/responsibly	89% (62)	Routines
Align standards, instructional outcomes, and learning activities	87% (61)	Lessons
Circulate to monitor student learning and offer feedback	83% (58)	Understanding
Activate prior knowledge (if necessary)	83% (58)	Discussion
Pose an open-ended question	83% (58)	Discussion
Probe students' thinking to clarify and expand student ideas	80% (56)	Discussion
Include opportunities for students to practice/master skills before moving on	79% (55)	Lessons
Provide opportunities/structures for students to assess their own work	79% (55)	Understanding
Explain and model the routine	77% (54)	Routines
Plan and pose intentional questions to elicit evidence of student understanding	74% (52)	Understanding
Provide opportunities for student inquiry and discovery	74% (52)	Lessons
Use assessment data to design instruction	71% (50)	Lessons
Offer scaffolds, supports, and reminders for routines	70% (49)	Routines
Create public artifacts as resources and reminders	59% (41)	Routines

*n = 69 for this question only

RESEARCH QUESTION 2: WHAT LEVEL OF PERCEIVED CONFIDENCE DO PRESERVICE TEACHERS HAVE IN THE FIVE SELECTED HLPs?

These results can be found in Table 2. In summary, the percentage of responses that were either “some” or “a lot” ranges from, 99% (n = 69) for “Greet students positively every day” to 50% (n = 35) for “Create public artifacts as resources and reminders.” These findings indicate, that across all of the items, preservice teachers were confident in their ability to implement the Big Sky Five.

Table 2
Preservice Teachers' Perception of their Confidence Ranked Lowest to Highest

HLP Sub-Skill	Perceived "High" Confidence (n = 70)	Domain
Greet students positively every day	99% (69)	Relationships
Have small, personal conversations with individual students	97% (69)	Relationships
Support and respond positively to students' identities	94% (66)	Relationships
Provide positive, constructive notes/feedback for students	93% (65)	Relationships
Align standards, instructional outcomes, and learning activities	84% (59)	Lessons
Provide multiple opportunities for students to demonstrate understanding	83% (58)	Understanding
Encourage and supporting students to participate	81% (57)	Discussion
Circulate to monitor student learning and offer feedback	81% (57)	Understanding
Include opportunities for students to practice/master skills before moving on	81% (57)	Lessons
Support students to carry out the routines safely/responsibly	74% (52)	Routines
Activate prior knowledge (if necessary)	74% (52)	Discussion
Provide opportunities/structures for students to assess their own work	74% (52)	Understanding
Use assessment data to design instruction	74% (52)	Lessons
Plan and pose intentional questions to elicit evidence of student understanding	73% (51)	Understanding
Provide opportunities for student inquiry and discovery	73% (51)	Lessons
Explain and model the routine	71% (50)	Routines
Pose an open-ended question	70% (49)	Discussion
Probe students' thinking to clarify and expand student ideas	67% (47)	Discussion
Offer scaffolds, supports, and reminders for routines	67% (47)	Routines
Create public artifacts as resources and reminders	50% (35)	Routines

RESEARCH QUESTIONS 3: HOW DO PRESERVICE TEACHERS' KNOWLEDGE ABOUT INVISIBLE AND VISIBLE HLPs DIFFER?

In essence, our hypothesis was confirmed that preservice teachers perceived their knowledge of the Big Sky 5 as stronger in visible HLPs than invisible HLPs. More specifically, of the highest ranking sub-items, four of them were from "Building Respectful Relationships." An outlier of sorts was an "invisible" item from the category of "Checking for Understanding." That item was, "Provide multiple opportunities for students to respond/demonstrate understanding." Beyond that, simple coding indicated there were no other distinct patterns that could be detected (see Table 3).

Table 3
Rank Orders of Knowledge Categorized by Visible and Invisible

HLP Sub-Skill	Perceived “High” Knowledge (n = 70)
Visible Skills	
Have small, personal conversations with individual students	99% (69)
Greet students positively every day*	99% (68)
Support and respond positively to students' identities	93% (65)
Provide positive, constructive notes/feedback for students	93% (65)
Encourage and supporting students to participate	90% (63)
Support students to carry out the routines safely/responsibly	89% (62)
Activate prior knowledge (if necessary)	83% (58)
Pose an open-ended question	83% (58)
Probe students' thinking to clarify and expand student ideas	80% (56)
Explain and model the routine	77% (54)
Offer scaffolds, supports, and reminders for routines	70% (49)
Create public artifacts as resources and reminders	59% (41)
Invisible Skills	
Provide multiple opportunities for students to demonstrate understanding	94% (66)
Align standards, instructional outcomes, and learning activities	87% (61)
Circulate to monitor student learning and offer feedback	83% (58)
Include opportunities for students to practice/master skills before moving on	79% (55)
Provide opportunities/structures for students to assess their own work	79% (55)
Plan and pose intentional questions to elicit evidence of student understanding	74% (52)
Provide opportunities for student inquiry and discovery	74% (52)
Use assessment data to design instruction	71% (50)

RESEARCH QUESTION 4: HOW DO PRESERVICE TEACHERS’ CONFIDENCE ABOUT INVISIBLE AND VISIBLE HLPs DIFFER?

In the area of confidence, the findings were similar given that all four of the highest ranking we in the area of “Building Respectful Relationships” indicating that preservice teachers were most confident in this *visible* category. However, there was a divergent finding in this area. That is, all the lowest five ratings were also in the *visible* category with two in the area of “Discussion” and three in the area of “Routines.” This finding is not aligned with our working hypothesis. It was expected that the preservice teachers would rate themselves as more confident in these visible areas of the teaching profession (see Table 4).

Table 4
Rank Orders of Confidence Categorized by Visible and Invisible

HLP Sub-Skill	Perceived “High” Confidence (n = 70)	Domain
Visible Skills		
Greet students positively every day	99% (69)	Visible
Have small, personal conversations with individual students	97% (69)	Visible
Support and respond positively to students' identities	94% (66)	Visible
Provide positive, constructive notes/feedback for students	93% (65)	Visible
Encourage and supporting students to participate	81% (57)	Visible
Support students to carry out the routines safely/responsibly	74% (52)	Visible
Activate prior knowledge (if necessary)	74% (52)	Visible
Explain and model the routine	71% (50)	Visible
Pose an open-ended question	70% (49)	Visible
Probe students' thinking to clarify and expand student ideas	67% (47)	Visible
Offer scaffolds, supports, and reminders for routines	67% (47)	Visible
Invisible Skills		
Align standards, instructional outcomes, and learning activities	84% (59)	Invisible
Provide multiple opportunities for students to demonstrate understanding	83% (58)	Invisible
Circulate to monitor student learning and offer feedback	81% (57)	Invisible
Include opportunities for students to practice/master skills before moving on	81% (57)	Invisible
Provide opportunities/structures for students to assess their own work	74% (52)	Invisible
Use assessment data to design instruction	74% (52)	Invisible
Plan and pose intentional questions to elicit evidence of student understanding	73% (51)	Invisible
Provide opportunities for student inquiry and discovery	73% (51)	Invisible

Research Question 5: For which HLPs, if any, do preservice teachers indicate divergent knowledge of and confidence in using?

To address this research question we began with a chi-square analysis of each knowledge item matched to the same confidence item. In short, every chi-square analysis was statistically significant well beyond the $p < .05$. Put simply, preservice teachers perceived themselves as both knowledgeable and confident on each pair. The intention of these analyses were based on our assumption there would be some divergence with some of the matched items. Clearly, our assumption was not accurate.

We were surprised by these results with the chi-square analyses and we assumed there were differences that were not statistically significant. To explore these differences, we rank ordered the difference between preservice teachers' scores on knowledge and confidence. These results show that “Support students to carry out the routines safely/responsibly” had a difference of ten preservice teachers who scored themselves higher on knowledge than confidence. This held true on 15 items, albeit, most of those differences were by a small margin. This process of examining the differences between knowledge and confidence show that 8 out of 10 areas with the greatest difference were “visible” HLPs (see Table 5).

Table 5
Difference Between Knowledge and Confidence

HLP Sub-Skill	Knowledge	Confidence	Difference
Visible Skills			
Support students to carry out the routines safely/responsibly	62	52	10
Probe students' thinking to clarify and expand student ideas	56	47	9
Pose an open-ended question	56	49	7
Create public artifacts as resources and reminders	41	35	6
Activate prior knowledge (if necessary)	58	52	6
Encourage and support students to participate	63	57	6
Explain and model the routine	54	50	4
Offer scaffolds, supports, and reminders for routines	49	47	2
Have small, personal conversations with individual students	69	68	1
Provide positive, constructive notes/feedback for students	65	65	0
Support and respond positively to students' identities	65	66	-1
Greet students positively every day*	68	69	-1
Invisible Skills			
Provide multiple opportunities for students to demonstrate understanding	66	58	8
Provide opportunities/structures for students to assess their own work	55	52	3
Align standards, instructional outcomes, and learning activities	61	59	2
Provide opportunities for student inquiry and discovery	52	51	1
Plan and pose intentional questions to elicit evidence of student understanding	52	51	1
Circulate to monitor student learning and offer feedback	58	57	1
Use assessment data to design instruction	50	52	-2
Include opportunities for students to practice/master skills before moving on	55	57	-2

In summary, the results showed there is some distribution of how preservice teachers rank themselves on knowledge and confidence, but, generally, they report high levels of knowledge and confidence early in their teacher education programs. Secondly, preservice teachers tended to rank themselves the highest in “visible” HLPs, but in the case of confidence, all of the lowest rankings were also in the “visible” HLPs. Finally, while statistical analyses showed all matched items were statistically related (meaning no divergence between knowledge and confidence) there were areas where slight differences were detected, and most of these differences were in the “invisible realm.”

DISCUSSION

Taking these findings into account, we pondered why the preservice teachers perceived their knowledge and confidence in these practices so high before they learned about them in a formal way. We hypothesized their perceived knowledge and confidence would be higher for visible HLPs than invisible ones. However, across the board their perceptions were much higher than we expected overall. In searching the literature we found a few possible explanations—an illusion of fluency (Carey, 2014); as novices, the preservice teachers may have overestimated their abilities because they lacked the metacognition to evaluate their inflated view of their abilities, also known as the Dunning-Kruger Effect (DKE) (Kruger & Dunning, 1999); and finally, the need

for field experiences during which they can experience levels of incompetence, illuminating their need and desire to grow in the focal HLPs (Hoffman et al., 2019; Lysaker et al., 2005). In this section, we discuss each of these possible explanations for what we found and close with implications for our research and teaching moving forward.

ILLUSION OF FLUENCY

Lortie (1975) used the term *apprenticeship of observation* to describe a person's educational experiences as a student before entering teacher preparation programs. This *apprenticeship of observation* creates an understanding of what schooling and teaching should look and feel like. Smagorinsky and Barnes (2014) expounded on this by explaining:

With this pervasive acculturation to education, people enter teaching with deeply rooted beliefs and assumptions about the conduct of school that are difficult to replace during the year or so that they spend exposed to progressive pedagogies in their teacher education courses” (pp. 30-31).

We also see connections here in those deep-rooted beliefs leading to what Carey (2014) explained as an *illusion of fluency*—the belief “that, because something is self-evident in the moment, it will remain that way in a day, or a week” (p. 230). This may also be connected to *foresight bias* (Koriat & Bjork, 2006), which is an overconfidence by a learner in their mastery of content based on their perception that when faced with a question the answer is so logical that they don't need to work hard to remember the answer. In the case of the participants in this study, they had some level of exposure to each of the five HLPs in question prior to the survey. Some exposure was throughout their everyday life, or visible HLPs—building relationships, organizing routines, and engaging in group discussions; others were more localized to teacher education (invisible), such as designing lessons or checking for student understanding. However, even these invisible HLPs had been introduced to them in small ways before they took this survey—they had been asked to write lesson plans and part of writing a plan was to determine an assessment for that lesson. Although they had not spent time in the field actually implementing these practices, it is possible that they learned enough about them that when they took the survey they felt their understanding of them and abilities to use them was *logical* and when faced with having to use them in the future, it would come naturally.

DUNNING-KRUGER EFFECT

In addition to possible illusions of fluency, we also find value in the work of psychologists Justin Kruger and David Dunning (1999) who found that novices can be overconfident in their performance, now termed the *Dunning-Kruger Effect (DKE)*. The pathway they revealed begins with overconfidence, then, with experience, that confidence wanes and rises again once the novices engage in real-world practice and achieve some level of mastery of the focal skills. As described by Rahmani (2020), their overconfidence is related to the notion that they “don't know what they don't know” (p. 532) until they are required to actually perform the skills in real-life situations. Essentially, as they gain true competence, they then become more self-aware of their incompetence. This is another perspective that we see value in considering as an explanation for what we found.

CONNECTIONS BETWEEN ILLUSION OF FLUENCY AND DUNNING-KRUGER EFFECT

When we consider these elements in relation to one another, we find a possible explanation for what we found in preservice teachers' overconfidence at this stage of their training. It is possible that their previous life experiences apprenticed them toward being a teacher (Lortie, 1975). Drawing upon this, they may have had foresight bias (Kariate & Bjork, 2006) while acting upon their illusion of fluency (Carey, 2014) during these early moments of their development as teachers—they believed they knew a lot about HLPs and could confidently use them in their practice. Our hope is, as DKE suggests, more real-world teaching experiences will bring challenges to this perceived mastery and they will realize they know less and have less skills than they thought, driving them toward improvement through self-awareness and reflection (Kruger & Dunning, 1999).

LIMITATIONS

We recognize there are limitations to our work presented in this paper and envision future research and practice in light of what we have found. First, we recognize quantitative analyses are more reliable with larger data points. We continue to collect data using this survey and are looking forward to what we may find with a larger corpus of data. Second, we only analyzed the pre-course survey results. We have since been collecting pre-course data, as well as post-course data and we are excited about comparing preservice teachers' perceptions of their knowledge and skill before and after they have received explicit instruction. Finally, the most promising future for this work is to incorporate field experiences for preservice teachers. We believe a mixed methods approach in which we embed qualitative data collection between the pre- and post-course surveys may illuminate more of this complex phenomenon.

IMPLICATIONS

From our view, there are two important implications of this study for teacher educators: (1) the purposeful integration of HLPs into high-quality field experiences, and (2) explicitly teaching them in courses.

Whether it is an illusion of fluency or DKE, one of the key elements to help novices move past their erroneous self-perception of skills is to provide opportunities to apply the targeted skills in the real-world. For preservice teachers, that means being in the field for numerous and extended experiences. Although experiences within classrooms and whole-class teaching are effective, even smaller teaching experiences have yielded excellent opportunities for preservice teacher growth. Hoffman et al.'s (2019) review of literacy tutoring research revealed that when preservice teachers are provided with field experiences in which they work with one-to-one or small group experiences, those experiences

resulted in preservice teachers (a) improving their knowledge of literacy, language, and word structure; (b) strengthening their pedagogical and instructional abilities, including their ability to use a variety of literacy strategies, their ability to use assessment data to individualize instruction, and their behavior management skills; (c) enhancing their attitudes toward the use of particular instructional strategies; (d) learning to build and value relationships with students, families, and colleagues, and to draw on those relationships to enhance students' literacy development; (e) developing an understanding of culturally responsive teaching (CRT); and (f)

rejecting deficit ideas about students who were participating in small-group or one-to-one instruction. (p. 239)

We found this encouraging as all five of the HLPs in our study are represented in this larger body of research. However, we also recognize that just placing preservice teachers in a field experience does not guarantee their growth. Lysaker et al. (2005) found that within a group of preservice teachers who tutored students, some were more successful than others. At the center of the successful tutoring experiences was the presence of caring and reciprocity between the student and the preservice teacher. As Giallourakis et al. (2005) and Patte (2011) suggested, this does not happen implicitly; instead, we must provide preservice teachers with explicit strategy instruction for building strong positive relationships with their students.

Knowing the importance of this explicit strategy instruction, it is crucial for EPP faculty to provide such instruction in courses that run prior to and/or in conjunction with field experiences. As we mentioned previously, though preservice teachers likely have some background knowledge regarding these HLPs, primarily through their own life and classroom experiences, they are not fluent enough to successfully implement them in a classroom. They must learn the purpose and nuances of strategies and have adequate opportunities to practice it in a low-stakes environment (e.g, with peers during class) with feedback before they attempt it during a field experience. It is this repeated practice and feedback, coupled with meaningful incorporation into field experiences, that will afford preservice teachers the knowledge and capacity to implement HLPs into their future classrooms.

CONCLUSION

High-Leverage Practices are an important component of both preservice teacher preparation and in-service teacher development in our state. Our initial step to ensure HLPs are fully integrated was to survey preservice teachers about what they think they know about effective instructional practices and what they feel confident implementing. Though their perceptions may not be as accurate as their actual skills, our results provide important insight for teacher educators in the development of their curricula and support of field experiences.

REFERENCES

- Atkins, T., Aiken, E., & Downey, J. (in press). The big sky five: A statewide effort to increase teacher preparedness for inclusive classrooms. *Journal of Education Research and Innovation*.
- Ball, D. L., & Forzani, F. M. (2010). What does it take to make a teacher?. *Phi Delta Kappan*, 92(2), 8-12. <https://doi.org/10.1177/003172171009200203>
- Ball, D. L., Sleep, L., Boerst, T. A., & Bass, H. (2009). Combining the development of practice and the practice of development in teacher education. *The Elementary School Journal*, 109(5), 458-474. <https://www.jstor.org/stable/10.1086/596996>
- Carey, B. (2014). *How we learn: The surprising truth about when, where, and why It happens*. Random House.
- Choy, D., Wong, A. F., Lim, K. M., & Chong, S. (2013). Beginning teachers' perceptions of their pedagogical knowledge and skills in teaching: a three year study. *Australian Journal of Teacher Education*, 38(5), 68-79. doi:10.14221/ajte.2013v38n5.6

- Danielson, C. (2017). Assessment for learning for teachers as well as students. In *The future of assessment* (pp. 191-213). Routledge.
- Dezutter, S. (2011). Professional improvisation and teacher education opening the conversation. In R. K. Sawyer (Ed.), *Structure and improvisation in creative teaching* (pp. 1–24). Cambridge University Press.
- Duran, L. B., & Duran, E. (2004). The 5E instructional model: A learning cycle approach for inquiry-based science teaching. *Science Education Review*, 3(2), 49-58. <https://files.eric.ed.gov/fulltext/EJ1058007.pdf>
- Fajet, W., Bello, M., Leftwich, S. A., Mesler, J. L., & Shaver, A. N. (2005). Pre-service teachers' perceptions in beginning education classes. *Teaching and teacher education*, 21(6), 717-727. <https://doi.org/10.1016/j.tate.2005.05.002>
- Garza, R., Werner, P., & Wendler, L. F. (2016). Transitioning from student to professional: Preservice teachers' perceptions. *New Waves-Educational Research and Development Journal*, 19(2), 19-35. <https://files.eric.ed.gov/fulltext/EJ1211387.pdf>
- Giallourakis, A., Pretti-Frontczak, K., & Cook, B. (2005). *Understanding family involvement in the preparation of graduate students: Measuring family-centered beliefs, skills, systems, and practices*. Harvard Family Research Project.
- Heidegger, M. (1953). *Being and time*. State University of New York Press.
- Hoffman, J. V., Svrcek, N., Lammert, C., Daly-Lesch, A., Steinitz, E., Greeter, E., & DeJulio, S. (2019). A research review of literacy tutoring and mentoring in initial teacher preparation: Toward practices that can transform teaching. *Journal of Literacy Research*, 51(2), 233-251.
- Koriat, A., & Bjork, R. A. (2006). Mending metacognitive illusions: a comparison of mnemonic-based and theory-based procedures. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 32(5), 1133-1145. DOI: 10.1037/0278-7393.32.5.1133
- Keene, E. O., & Zimmermann, S. (2007). *Mosaic of thought: The power of comprehension strategy instruction*. Heinemann.
- Lortie, D. C. (1975). *Schoolteacher: A sociological study*. University of Chicago Press.
- Matsumoto-Royo, K., & Ramírez-Montoya, M. S. (2021) Mellati, M., Khademi, M., & Shirzadeh, A. (2015). The relationships among sources of teacher pedagogical beliefs, teaching experiences, and student outcomes. *International Journal of Applied Linguistics and English Literature*, 4(2), 177-184. <http://dx.doi.org/10.7575/aiac.ijalel.v.4n.2p.177>
- Neuman, S. B., & Danielson, K. (2021). Enacting content-rich curriculum in early childhood: the role of teacher knowledge and pedagogy. *Early Education and Development*, 32(3), 443-458. <https://www.tandfonline.com/loi/heed20>
- Patte, M. M. (2011). Examining Preservice Teacher Knowledge and Competencies in Establishing Family-School Partnerships. *School Community Journal*, 21(2), 143-159. <https://www.adi.org/journal/2011fw/PatteFall2011.pdf>
- Robitaille, Y. P., & Maldonado, N. (2015). Teachers' Experiences Relative to Successful Questioning and Discussion Techniques. *American International Journal of Contemporary Research*, 5(1), 7-16. <https://files.eric.ed.gov/fulltext/ED555610.pdf>
- Ruys, I., Keer, H. V., & Aelterman, A. (2012). Examining pre-service teacher competence in lesson planning pertaining to collaborative learning. *Journal of Curriculum Studies*, 44(3), 349-379. <https://doi.org/10.1080/00220272.2012.675355>
- Sheridan, L. (2016). Examining changes in pre-service teachers' beliefs of pedagogy. *Australian Journal of Teacher Education*, 41(3), 1-20. <http://dx.doi.org/10.14221/ajte.2016v41n3.1>

- Smagorinsky, P. & Barnes, M. E. (2014). Revisiting and revising the apprenticeship of observation. *Teacher Education Quarterly*, 41(4), 29-52.
<https://www.jstor.org/stable/10.2307/teaceducquar.41.4.29>
- TeachingWorks (2022). Curriculum resources: High-leverage practices.
<https://library.teachingworks.org/curriculum-resources/high-leverage-practices/>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.