STRENGTHENING MATH TRAINING IN TEACHER PREPARATION PROGRAMS

Recommendations from Teach Plus New Mexico Policy Fellows

INTRODUCTION

We are a group of New Mexico charter school teachers and Teach Plus New Mexico Policy Fellows focused on improving math outcomes for students in our state. Math proficiency in New Mexico is declining, with just one in four students proficient.[1] On the Nation's Report Card from 2024, New Mexico's 8th graders scored below the national average, marking a historic low for the state since 1990.[2] Strong educator preparation programs (EPPs) are critical to improving student outcomes, especially at the elementary level where teachers build the foundations of mathematical learning and help students develop a positive mathematical mindset.

To examine elementary teacher preparation in New Mexico, we researched current course work and licensure requirements, and led focus groups with 30 elementary educators about their experiences with traditional and alternative licensure in New Mexico. This report outlines our findings and provides actionable policy recommendations to strengthen teacher preparation, align coursework with classroom needs, and ensure new teachers are equipped to deliver high-quality math instruction from Day One.

Findings

1. New Mexico educator preparation programs, including alternative licensure pathways, provide inconsistent and insufficient preparation in elementary mathematics content and pedagogy, leaving many new teachers underprepared to teach foundational math skills.

2. Job-embedded professional development and mentorship were more effective than educator preparation programs in building teacher confidence and classroom-ready skills in elementary mathematics.

Recommendations

1. Require increased math credit hours for elementary teacher licensure, ensuring coursework integrates content knowledge with effective teaching methods.

2. Require all educator preparation programs to provide sustained clinical experiences in real classrooms, ensuring teacher candidates practice elementary mathematics instruction before graduation.

3. Require sustained early-career support for all new teachers, including mentorship, math coaching, and ongoing professional development—regardless of school or district in which educators work.

METHODOLOGY

Our approach was two-fold. We reviewed secondary research pertaining to math instruction and student outcome data. To learn about teachers' experiences and ensure we included teacher voice, we moderated focus groups over the course of three weeks to gather educators' verbal and written responses. Of the focus group participants, 72 percent were elementary educators who earned licensure through a traditional or alternative New Mexico Educator Preparation Program, with the majority having taught for more than six years.

Participants were asked a series of questions about their experiences in their educator preparation programs (EPP), especially as it related to math instruction. These questions sought to help teachers identify the overall effectiveness of their program, its specific strengths and weaknesses, how they felt as new teachers in the classroom about teaching math, and how their EPP could have prepared them to teach math more effectively.

FINDINGS

1. **New Mexico educator preparation programs, including alternative licensure pathways, provide inconsistent and insufficient preparation in elementary mathematics content and pedagogy, leaving many new teachers underprepared to teach foundational math skills.**

The majority of focus group participants shared that their EPP treated math content knowledge ("knowing how to do math") and pedagogy ("knowing how to teach math") as distinct silos, while at the same time requiring inconsistent—and sometimes minimal—math coursework across licensure pathways. As a result, many said they left their program underprepared in both areas. Most teachers in our focus groups reported they did not feel prepared to teach math, with preparation varying widely by program type: some elementary candidates completed as little as one semester of math coursework, while others—particularly in alternative licensure pathways—were not required to take any math-related courses at all.

Even when coursework was required, teachers reported limited alignment between content, instructional strategies, and classroom application. Focus group participants reported varying levels of readiness along with different levels of required coursework and practical experience. For example, many participants mentioned lack of differentiation strategies as an area that put them behind when they left their EPP and entered the classroom, having none or very limited understanding of how to differentiate for their students in the math classroom.

> *"I did not feel ready to teach anything above kindergarten level and I didn't fully understand the concepts I would need to know to teach higher levels of math."*—kindergarten teacher (NM traditional licensure program)

> *"I was not required to take any classes related to math lesson planning or teaching. When I entered the classroom, I was given a curriculum with no training… really, I had no idea what I was doing."*—kindergarten teacher (NM alternative licensure pathway)

2. Job-embedded professional development and mentorship were more effective than educator preparation programs in building teacher confidence and classroom-ready skills in elementary mathematics.

Learning within EPPs should directly align with and inform the realities of classroom teaching. Many teachers reported a significant disconnect between what they learned in their preparation programs and what they were expected to do once in the classroom. In particular, teachers described feeling unprepared to meet the needs of diverse learners and to support students' conceptual understanding of mathematics—gaps that significantly affected their effectiveness in their first years of teaching.

As a result, teachers reported relying heavily on school administrators and teaching teams for "on-the-job" learning, rather than building upon a strong foundation from their preparation programs. Teachers noted that without exposure to real instructional materials—those actually used in classrooms—it was difficult to understand what effective math instruction would look like in practice.

Educators consistently expressed a desire for stronger alignment between educator preparation coursework and the instructional expectations of local schools and districts. One example frequently cited was the integration of Language Essentials for Teachers of Reading and Spelling (LETRS) into literacy-focused EPPs, while comparable district- or school-aligned math training initiatives were largely absent. Teachers emphasized that similar alignment in mathematics preparation would better equip them to enter the classroom ready to teach with confidence and coherence.

> *"I felt that my preparation program focused a lot on learning how to teach concepts, but it didn't provide enough guidance on how to differentiate instruction for the varying levels of students in my classroom. That's something I had to figure out on the job, and I wish I had learned it back in college."*—1st grade teacher (NM traditional licensure program)

> *"My school mandated after-school lessons for us first- year teachers and that was the best thing for me. ... We shared what was working, what was hard, etc. with each other and our Math Teacher Leader/Instructional Coach. ... I didn't feel alone and got a lot of support. My mentor teacher would come in but I never*

knew what to ask for help with but I remember not asking for observations during math lessons because I was struggling a lot more there than other areas of curriculum. This sounds silly now but I felt vulnerable and didn't know how to ask for help."—4th grade teacher (NM traditional licensure program)

RECOMMENDATIONS

1. **Require increased math credit hours for elementary teacher licensure, ensuring coursework integrates content knowledge with effective teaching methods.**

EPPs across traditional and alternative licensure pathways should include mandatory mathematics coursework that integrates strong content knowledge with effective pedagogy. To ensure all New Mexico teachers enter the field ready to meet diverse learners' needs on Day One in the classroom, educator preparation programs must:

- Increase the requirement of math credit hours to a minimum of 10 credit hours for elementary and special education candidates.
- Intentionally integrate content knowledge with pedagogy and classroom instructional strategies by blending:
    - Mathematical reasoning and number sense
    - Misconception analysis
    - Instructional routines
    - Developmental progressions
    - Culturally and linguistically responsive math teaching practices

"Prep programs, [...] should be longer and [have] more thoughtfully determined classes, to increase the rigor and preparedness [for teachers] to start [on Day One] after graduation and not feel a sense of 'drowning' and feeling overwhelmed. Math preparedness should be broken apart into the math [...] 'knowledge and skills' part and a 'teaching math' part."—3rd and 4th grade teacher (NM traditional licensure program)

2. **Require all educator preparation programs to provide sustained clinical experiences in real classrooms, ensuring teacher candidates practice elementary mathematics instruction before graduation.**

Educator preparation programs must align coursework with actual classroom practice. This means requiring teacher candidates to work with real math instructional materials and learn how to organize math instruction for diverse learners.

> *"One thing I would like to share is that my early prep for teaching math felt very different from what actually happens in a real classroom. I learned a lot of theory, but not the day-to-day parts like pacing lessons, using the district's curriculum, or helping kids who get stuck. Most of what really helped me came once I started teaching and could learn from my team."*—1st grade teacher (NM traditional licensure program)

3. **Require sustained early-career support for all new teachers, including mentorship, math coaching, and ongoing professional development—regardless of school or district in which educators work.**

After teachers complete their preparation programs, professional learning should continue in a structured and systematic way. These supports must be designed so all teachers can participate, regardless of school or district. Sustained early-career support allows teachers to build on their preparation and develop effective, classroom-ready instructional practices.

CONCLUSION

New Mexico's elementary teachers are entering classrooms unprepared to teach math, and students are paying the price. Our recommendations address the gap: requiring stronger math preparation in all teacher licensure programs, aligning preparation with classroom realities through sustained clinical experiences, and guaranteeing early-career support for all new teachers. Together, these reforms will ensure New Mexico's teachers have what they need to help our students succeed in mathematics so they are ready for the future that lies ahead.

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APPENDIX

Focus Group Questionnaire

1. First Name
2. Last Name
3. Email Address
4. Including the 2025-26 academic year, how many years of teaching experience do you have?
5. What best describes your current role?
    a. Teacher
    b. Administrator
    c. Other - Write In (Required)
6. What grade level(s) do you teach?
7. What subject area(s) do you currently teach?
8. Which region do you currently teach in?
    a. Northern
    b. Central
    c. Southern
9. How would you rate your level of preparedness in teaching math after your educator preparation program?
    a. I felt extremely prepared to teach math
    b. I felt adequately prepared to teach math
    c. I felt poorly prepared to teach math
    d. I did not feel prepared to teach math at all
10. Please explain your response above.
11. What are examples of specific components of math instruction where you felt well prepared leaving your educator preparation program? (For example, this can include areas such as teaching advanced concepts, differentiating instruction, or applying practical classroom strategies).
12. What are examples of specific components of math instruction where you felt underprepared leaving your educator preparation program? (For example, this can include areas such as teaching advanced concepts, differentiating instruction, or applying practical classroom strategies).
13. How confident did you feel to teach math after your educator education program?
    a. I felt extremely confident
    b. I felt mostly confident
    c. I felt a little confident
    d. I was not confident at all
14. How could the support or instruction in educator preparation programs be improved to better prepare math teachers?

15. Think back to your first three years as a classroom teacher. What types of classroom support did you find most helpful to you in teaching math?
16. How aligned were the math methods you learned as part of your educator preparation program with training or support from your district, school and mentor teachers?
17. How could the support for early career math teachers be improved?
18. Is there anything else you would like to share about early career support and preparation for math teachers?

Focus Group Questions

1. How would you rate your own level of preparedness in teaching math after your educator preparation program and why?
2. What are examples of specific components of math instruction where you felt well prepared leaving your educator preparation program?
3. How could the support or instruction in preparation programs be improved to better support math teachers?
4. Think back to your first three years as a classroom teacher. What types of classroom support did you find most helpful to you in teaching math?
5. How aligned were the math methods you learned as part of your educator preparation program with training or support from your district, school and mentor teachers?
6. How could the support for early career math teachers be improved?
7. Is there anything else you'd like to share about teacher diversity or your school experience before we close?

ENDNOTES

1 Romero, Leah. "Legislative Ed Committee Offers Recommendations for Improving New Mexico Students' Math Performance; New Mexico and U.S. Trailing Behind in Mathematics Proficiency." *Source NM*, 25 July 2025. Retrieved from https://sourcenm.com/2025/07/25/legislative-ed-committee-offers-recommendations-for-improving-new-mexico-students-math-performance/.

2 U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. *The Nation's Report Card: 2024 Mathematics Snapshot Report, New Mexico, Grade 8*. National Center for Education Statistics, 2025. Retrieved from: https://nces.ed.gov/nationsreportcard/subject/publications/stt2024/pdf/2024219NM8.pdf.