The Rice University School Mathematics Project (RUSMP)

Evaluation Report for 2024 Summer Campus Program for Teachers (Virtual)

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The Rice University School Mathematics Project (RUSMP)
2024 Summer Campus Program (Virtual)

In the summer of 2024, the Rice University School Mathematics Project (RUSMP) offered its 38th annual Summer Campus Program (SCP) for mathematics teachers in Houston, its neighboring areas, and around Texas. With emphasis on problem-solving, motivation, use of manipulatives, real-world applications, and technology in mathematics classrooms, the SCP provided an active learning approach to professional development in pedagogy and mathematics content. The SCP focused on concept-based learning activities for numbers concepts, algebraic reasoning, and geometry and calculus by "Integrating Algebra, Geometry, and Number through STEAM." Participating teachers attended one of three classes: Elementary (2nd–5th grade teachers; 27 attendees), Middle School (6th grade–Prealgebra teachers; 10 attendees), and High School (Algebra I–Calculus teachers; 12 attendees). Fifty seven teachers registered for the SCP but 49 of them actually attended. RUSMP provided each participant with classroom materials, including books, manipulatives, and other resources to support instruction before the week of July 8, 2024, the start of the virtual program. Hurricane Beryl delayed the start of the SCP by two days. The lost time due to hurricane was made up by adding instructional time in the first few days.

At least two Master Teachers led each class. Most Master Teachers were former RUSMP participants themselves. All 49 teachers who registered for the SCP were invited to complete pre- and post. Teachers completed the demographic and professional background questionnaire prior to the SCP. These teachers came from 35 different schools (including public schools in two independent school districts, two charter school systems, and four private schools) to participate in the program. All participants were classroom teachers during the 2023-2024 school year.

The program was held from 9:00 a.m. to 3:00 p.m. via Zoom—Wednesday through Friday in the first week and Tuesday through Friday in the second week. Each morning, teachers joined the Zoom meetings and engaged in different activities where they undertook the role of students and actively explored important mathematics content and discussed pedagogical strategies to enact various educational activities. These activities included hands-on individual work (with resources provided by RUSMP) or mini-projects with peers (using the Zoom breakout rooms). Most of the afternoons were designed for teachers to discuss and engage in various work and tasks with their peers.

All participants received a certificate of attendance and 54 Continuing Professional Education (CPE) contact hours. In addition, Houston ISD awarded 6 hours of Gifted and Talented Professional Development credit.

Program Goals

The program provides rigorous, innovative professional development for teachers who are not "highly qualified" as defined by the K-12 education law, Every Student Succeeds Act (ESSA) to progress towards this goal. The program assists teachers as they work towards the goal of "demonstrating competence" in mathematics as the core teaching subject. Instructional activities foster the development of a conceptual framework that is necessary for a deep understanding of the K-12 mathematics concepts developed.

Program Objectives

- Teachers' technological pedagogical content knowledge will increase in mathematics.
- Teachers' methodology in the appropriate use of technology and manipulatives in the math classroom will improve for the targeted mathematics TEKS.
- Teachers will learn how to implement engaging, student-centered inquiry-based instructional methods for mathematics instruction.
- Teachers will learn how to use a variety of assessment methods including appropriate ongoing formative strategies to guide instruction.
- Teachers' self-efficacy, confidence, and sense of preparedness in teaching mathematics will improve.

Evaluation

Overall, 48 participants completed both the pre-survey and post-survey. The surveys included information about the background of participants in addition to the Likert-scale items to assess RUSMP's impact on SCP participants in specific areas (e.g., teaching self-efficacy, diversity dispositions, and confidence in their preparedness and teaching skills for mathematics instruction). Participants' survey responses were used to conduct paired samples *t*-tests and measure changes as a result of participating in the SCP in the following specific areas: teachers' motivational beliefs about mathematics and mathematics teaching; teachers' knowledge and beliefs about pedagogical content knowledge as well as constructivist mathematics teaching and assessments; confidence in their preparedness and teaching skills for mathematics instruction; and their diversity dispositions (Tables 2-10). The significant improvements in respective areas

are marked by *, **, or *** in these tables (more *s mean greater significance). The tables indicate changes for both by class (elementary, middle, and high) and the whole group. Participants' evaluations of the SCP classroom climate and ratings about their overall satisfaction with the program were also analyzed (Figures 1-7). A summary of the significant results is provided in the Conclusion section at the end of the report. Appendix A contains a list of survey items used to assess teachers' beliefs, attitudes, and perceptions.

As shown in Table 1 below, there were significantly more female teachers than male teachers overall, even though the number of male high school teachers slightly exceeded the number of female high school teachers. In terms of ethnicity, the SCP had a very diverse composition. Slightly more than 30% of the SCP participants were novice teachers with five years or less of teaching experience. Most of the teachers did not have a standard teaching certification. Lastly, most of the teachers volunteered to attend the SCP rather than being requested to do so by their school administrations.

Table 1
Program Class Demographics

	SCP Teachers (All)	SCP Teachers (Elementary)	SCP Teachers (Middle School)	SCP Teachers (High School)
	N = 48	*N = 26*	*N* = 10	*N* = 12
Gender				
Female	76%	100%	58%	42%
Male	24%	0%	42%	58%
Ethnicity				
White, Non-Hispanic	30%	23%	58%	17%
Black, Non-Hispanic	14%	8%	25%	17%
Hispanic	24%	35%	0%	25%
Asian/Pacific Islander	22%	19%	8%	42%
Other	10%	15%	8%	0%
Years Teaching				
0-1	10%	12%	8%	8%
2-3	12%	4%	33%	8%
4-5	10%	19%	0%	0%
6-10	40%	46%	25%	42%
11-20	22%	11%	33%	33%
21-30	4%	4%	0%	8%
31+	2%	4%	0%	0%
Certification				
Standard	38%	46%	17%	42%
Provisional	36%	46%	17%	33%
None	26%	8%	67%	25%
Volunteered	64%	50%	75%	83%

Program Outcomes

Self-efficacy for Teaching

Table 2
Paired-Samples t-test Results on Measures of Teacher Self-efficacy Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
Variable	**M**	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary									
Instruction	3.86	.76	4.55	.70	.69	4.22***	.35	1.03	.83
Student Engagement	4.18	.65	4.60	.53	.42	3.20**	.15	.69	.63
Middle School									
Instruction	3.83	.46	4.08	.47	.25	1.58	-.11	.61	.50
Student Engagement	3.63	.60	3.90	.61	.27	1.47	-.15	.70	.47
High School									
Instruction	4.02	.57	4.06	.60	.04	.33	-.24	.32	.09
Student Engagement	3.79	.74	4.00	.78	.21	1.48	-.10	.52	.49
Overall									
Instruction	3.89	.65	4.33	.67	.44	4.09***	.22	.65	.59
Student Engagement	3.97	.69	4.31	.68	.34	3.84***	.16	.52	.55

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Self-efficacy for Mathematics Teaching

Table 3
Paired-Samples t-test Results on Measures of Teachers' Self-efficacy for Mathematics Teaching Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary	3.96	.49	4.30	.61	.34	3.97***	.16	.52	.78
Middle School	3.98	.39	4.04	.46	.06	.74	-.13	.25	.26
High School	3.99	.53	4.03	.41	.04	.29	-.25	.33	.08
Overall	3.97	.47	4.18	.54	.21	3.34**	.08	.33	.48

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Mathematics Self-Concept

Table 4
Paired-Samples t-test Results on Mathematics Self-Concept Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary	3.70	.74	3.76	.76	.06	.88	-.08	.21	.17
Middle School	4.02	.57	3.92	.56	.10	-.85	-.36	.16	-.27
High School	4.20	.58	3.95	.54	-.25	-2.57*	-.46	-.04	-.74
Overall	3.89	.69	3.84	.66	-.05	-.88	-.16	.06	-.13

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Epistemic Beliefs for Mathematics

Table 5
Paired-Samples t-test Results on Measures of Teachers' Epistemic Beliefs for Math (non-Availing) Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
Variable	**M**	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary									
Certainty of Knowledge	2.82	.40	2.71	.48	-.11	-1.23	-.31	.08	-.24
Middle School									
Certainty of Knowledge	3.05	.24	2.73	.70	-.32	-1.48	-.82	.17	-.47
High School									
Certainty of Knowledge	2.58	.43	2.36	.51	-.22	-1.54	-.53	.09	-.44
Overall									
Certainty of Knowledge	2.81	.40	2.63	.55	-.18	-2.43*	-.34	-.03	-.35

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Technological Pedagogical Content Knowledge

Table 6
Paired-Samples t-test Results on Technological Pedagogical Content Knowledge Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary	3.65	.63	4.30	.67	.65	4.90***	.37	.92	.96
Middle School	4.06	.69	4.16	.45	.10	.46	-.40	.60	.14
High School	4.03	.60	4.33	.48	.30	1.51	-.14	.74	.44
Overall	3.83	.65	4.28	.58	.45	4.38***	.24	.65	.63

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Standard-Based Teaching

Table 7
Paired-Samples t-Test Results on Measures of Teachers' Constructivist Teaching Practices Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
Variable	**M**	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary									
Student Tasks	3.79	.55	4.26	.49	.46	3.49**	.19	.73	.69
Student-Student Interaction	4.15	.47	4.50	.59	.35	2.69*	.08	.61	.53
Teacher's Role	3.85	.56	4.62	.45	.77	5.32***	.47	1.07	1.04
Discovery	3.19	.85	4.04	.92	.85	3.98***	.41	1.28	.98
Middle School									
Student Tasks	3.90	.47	4.23	.72	.33	1.79	-.09	.75	.57
Student-Student Interaction	3.93	.54	4.27	.64	.33	1.40	-.21	.87	.44
Teacher's Role	4.00	.53	4.30	.35	.30	1.61	-.11	.72	.51
Discovery	3.30	.82	4.20	.42	.90	2.86*	.19	1.61	.91
High School									
Student Tasks	3.92	.49	4.03	.52	.11	.63	-.28	.50	.18
Student-Student Interaction	3.89	.43	4.25	.55	.36	2.31*	.18	.70	.67
Teacher's Role	3.96	.33	4.13	.71	.17	.84	-.27	.60	.24
Discovery	3.67	.65	4.17	.58	.50	1.73	-.14	1.14	.50
Overall									
Student Tasks	3.85	.51	4.19	.55	.25	3.73***	.16	.53	.54
Student-Student Interaction	4.04	.48	4.39	.59	.35	3.77***	.16	.53	.55
Teacher's Role	3.91	.50	4.43	.55	.52	4.90***	.31	.73	.71
Discovery	3.33	.81	4.10	.75	.77	5.15***	.47	1.07	.74

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Assessment

Table 8
Paired-Samples t-test Results on Teachers' Beliefs about Assessment Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**Mean Δ**	**t**	**LL**	**UL**	
Elementary									
Summative	2.87	.63	3.05	1.00	.18	1.20	-.13	.50	.23
Formative	4.25	.49	4.44	.49	.19	2.13*	.01	.38	.42
Testing	1.94	.48	1.71	.57	-.23	-2.18*	-.45	-.01	-.43
Large-scale	3.07	.83	3.15	.98	.07	.43	-.26	.40	.08
Middle School									
Summative	2.75	.54	2.63	1.00	-.13	-.60	-.60	.35	-.19
Formative	4.18	.70	4.34	.34	.16	.97	-.21	.53	.31
Testing	2.07	.66	1.80	.50	-.27	-2.06^	-.56	.03	-.65
Large-scale	2.84	.93	2.68	.81	-.16	-.74	-.65	.33	-.23
High School									
Summative	3.06	.69	2.65	.71	-.42	-2.01^	-.87	.04	-.58
Formative	4.38	.45	4.15	.65	-.23	-1.87^	-.51	.04	-.54
Testing	1.72	.47	1.86	.64	.14	1.05	-.15	.43	.30
Large-scale	2.88	.84	2.87	.92	-.02	-.06	-.63	.60	-.02
Overall									
Summative	2.89	.63	2.86	.94	-.03	-.28	-.26	.19	-.41
Formative	4.13	.59	4.32	.52	.08	1.11	-.06	.22	.16
Testing	1.91	.52	1.76	.57	-.15	-1.96^	-.30	.00	-.28
Large-scale	2.98	.84	2.98	.93	.00	.00	-.24	.24	.00

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Level of Preparedness to Use Pedagogical Techniques

Table 9

Paired-Samples t-test Results on Pedagogical Preparedness Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**MeanΔ**	**t**	**LL**	**UL**	
Elementary	2.91	.56	4.65	.50	1.74	16.39***	1.52	1.96	3.21
Middle School	3.08	.65	4.17	.46	1.09	5.80***	.66	1.52	1.83
High School	3.01	.59	4.24	.57	1.23	9.12***	.94	1.53	2.63
Overall	2.97	.58	4.45	.54	1.48	17.07***	1.30	1.65	2.46

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

Diversity Dispositions

Table 10

Paired-Samples t-test Results on Teachers' Diversity Disposition Before and After PD

	Time 1		Time 2				95% CI		Cohen's d
	M	**SD**	**M**	**SD**	**MeanΔ**	**t**	**LL**	**UL**	
Elementary	1.44	0.72	1.96	1.57	0.52	1.74^	-0.10	1.14	0.34
Middle School	1.34	0.55	1.39	0.49	0.43	0.34	-0.24	0.33	0.40
High School	1.32	0.52	1.93	1.48	0.61	1.27	-0.45	1.66	0.37
Overall	1.39	0.63	1.83	1.39	0.44	2.19*	0.04	0.85	0.32

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.10$.

SCP's Classroom Climate

Figure 1: Teachers' Beliefs about Professionalization of Teaching in the Classroom Climate

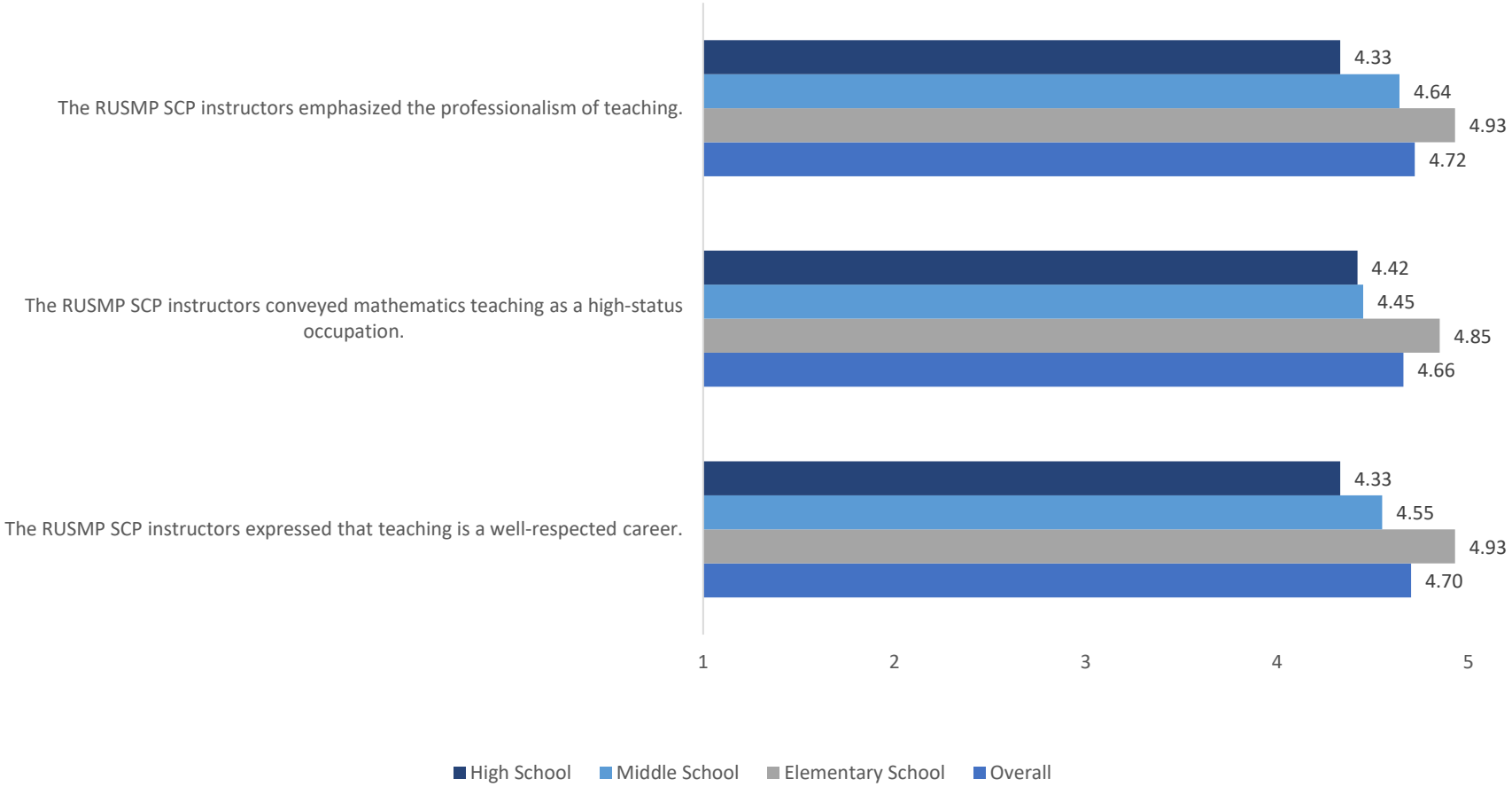


Figure 2: Teachers' Beliefs about Social Contribution of Teaching

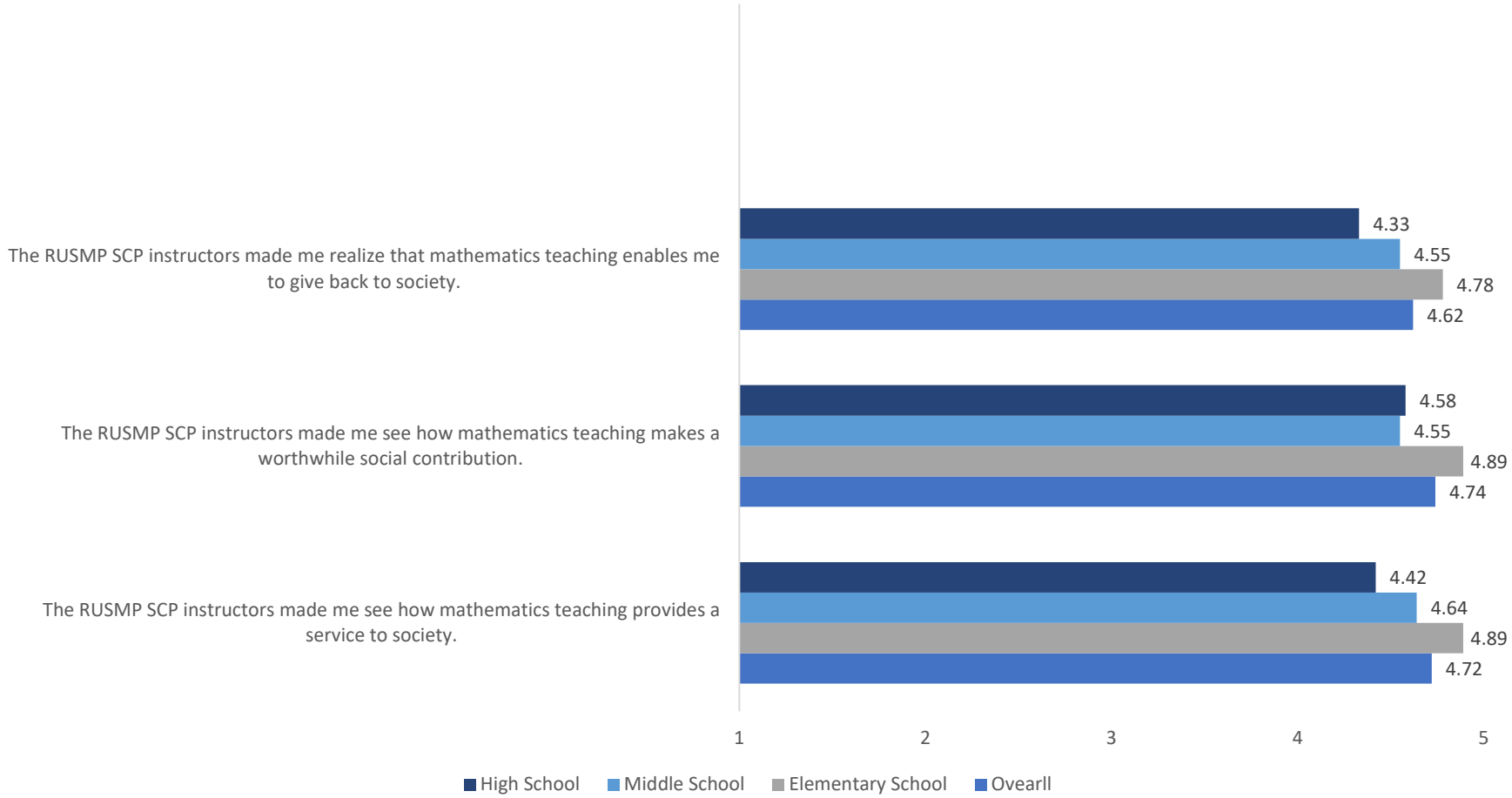


Figure 3: Teachers' Beliefs about Active Learning in the Classroom Climate

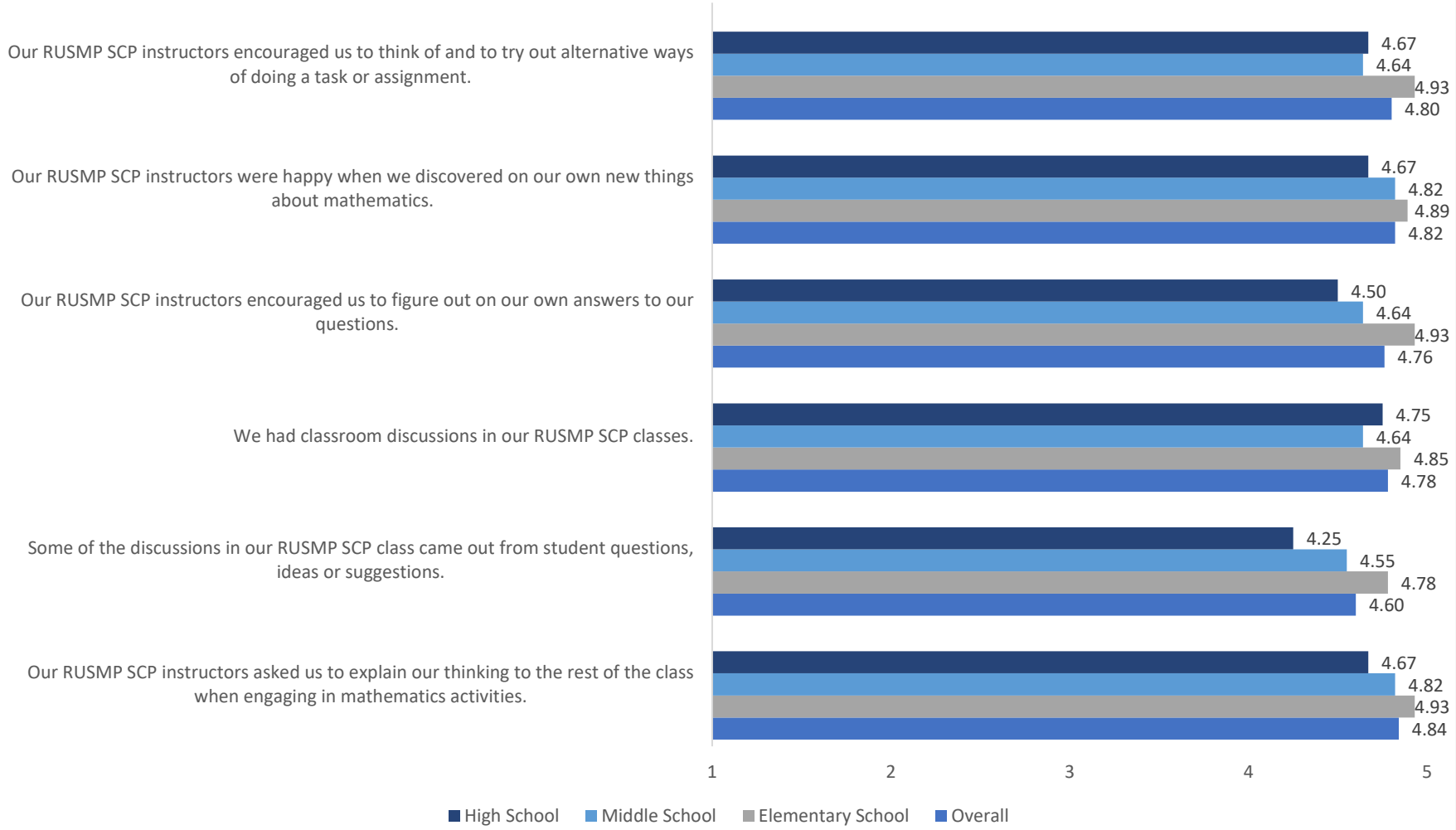


Figure 4: Teachers' Beliefs about Meaningful Learning in the Classroom Climate

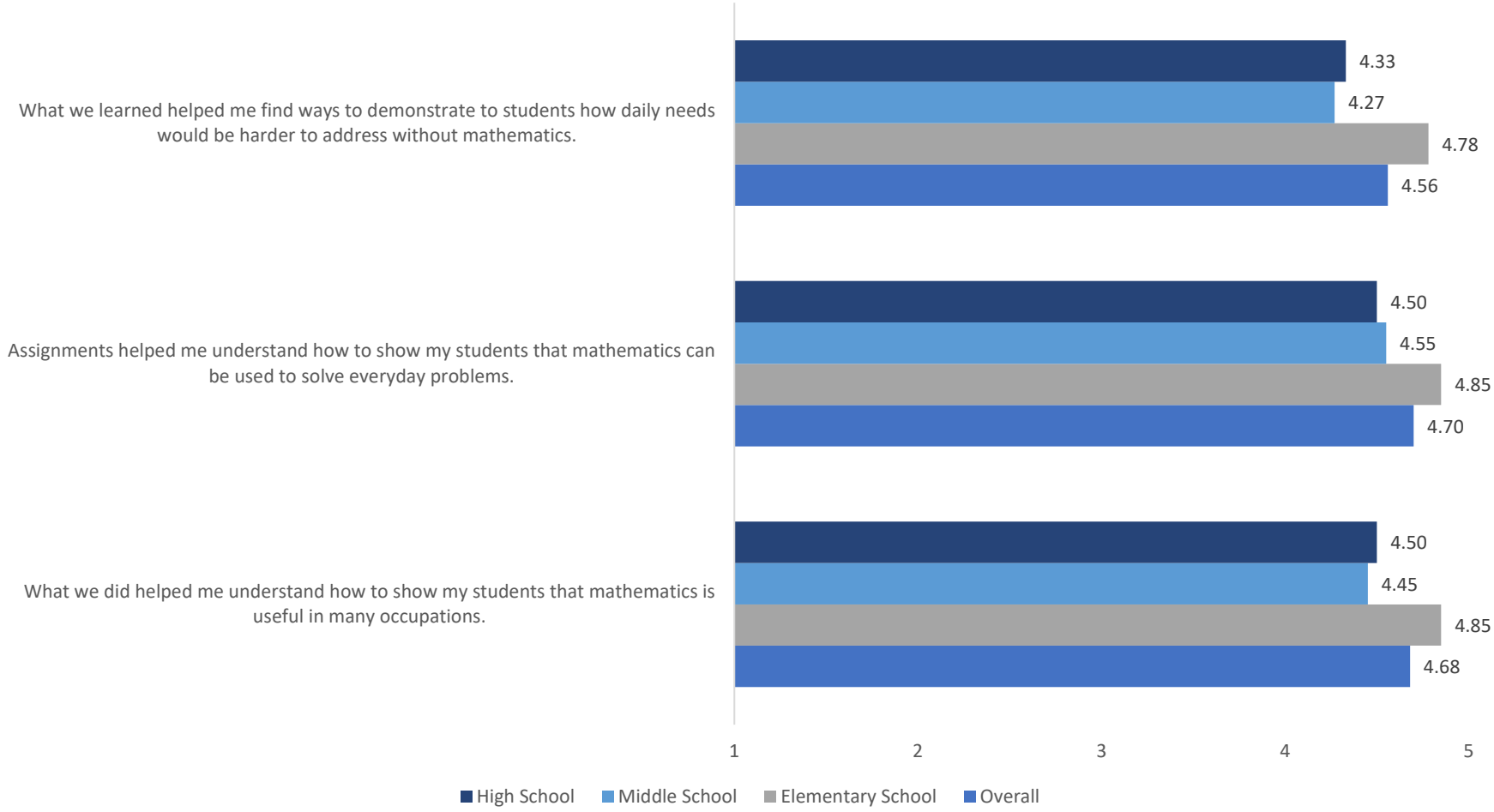


Figure 5: Teachers' Beliefs about Classroom Community

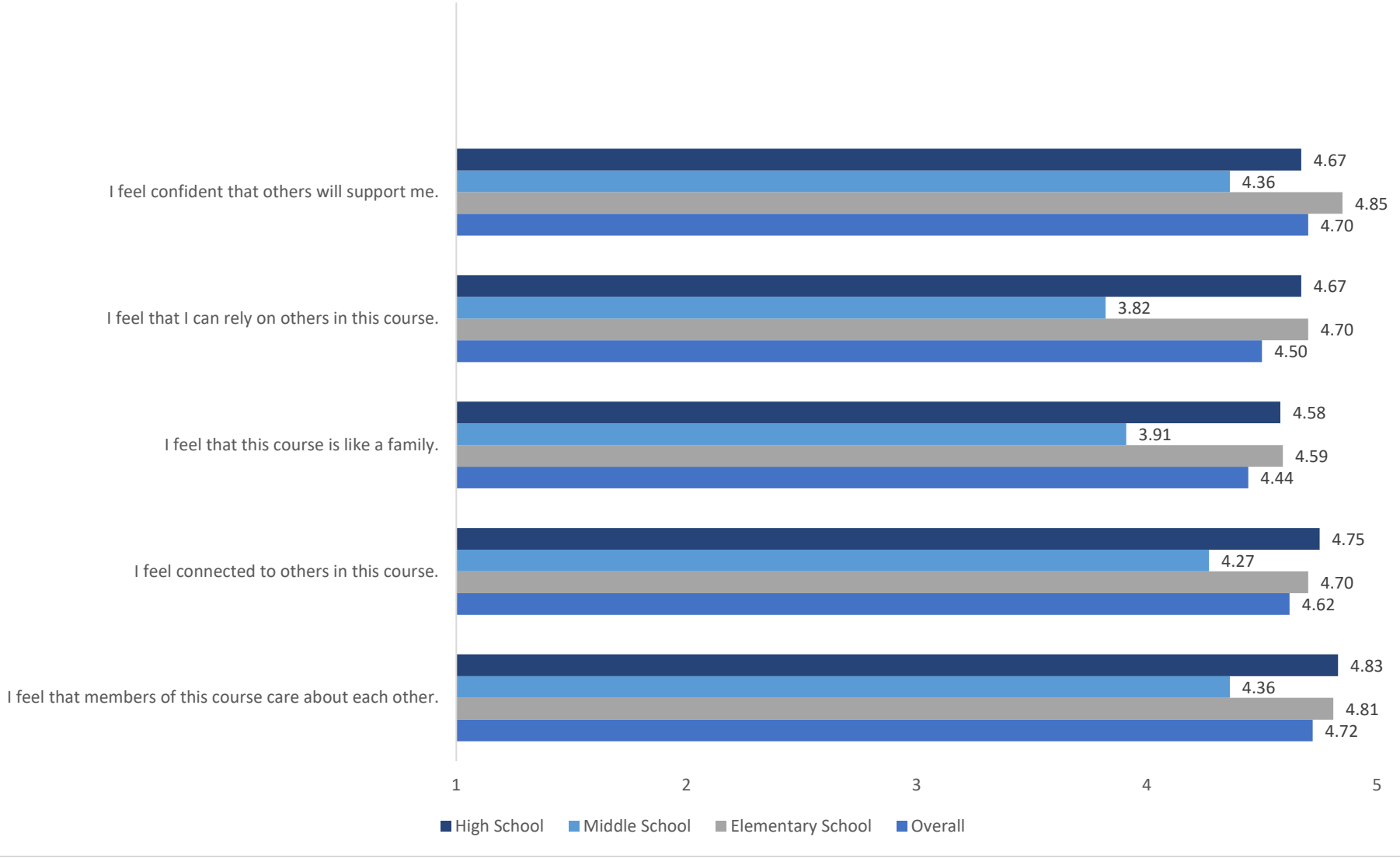


Figure 6: Teachers' Overall Satisfaction with the Program

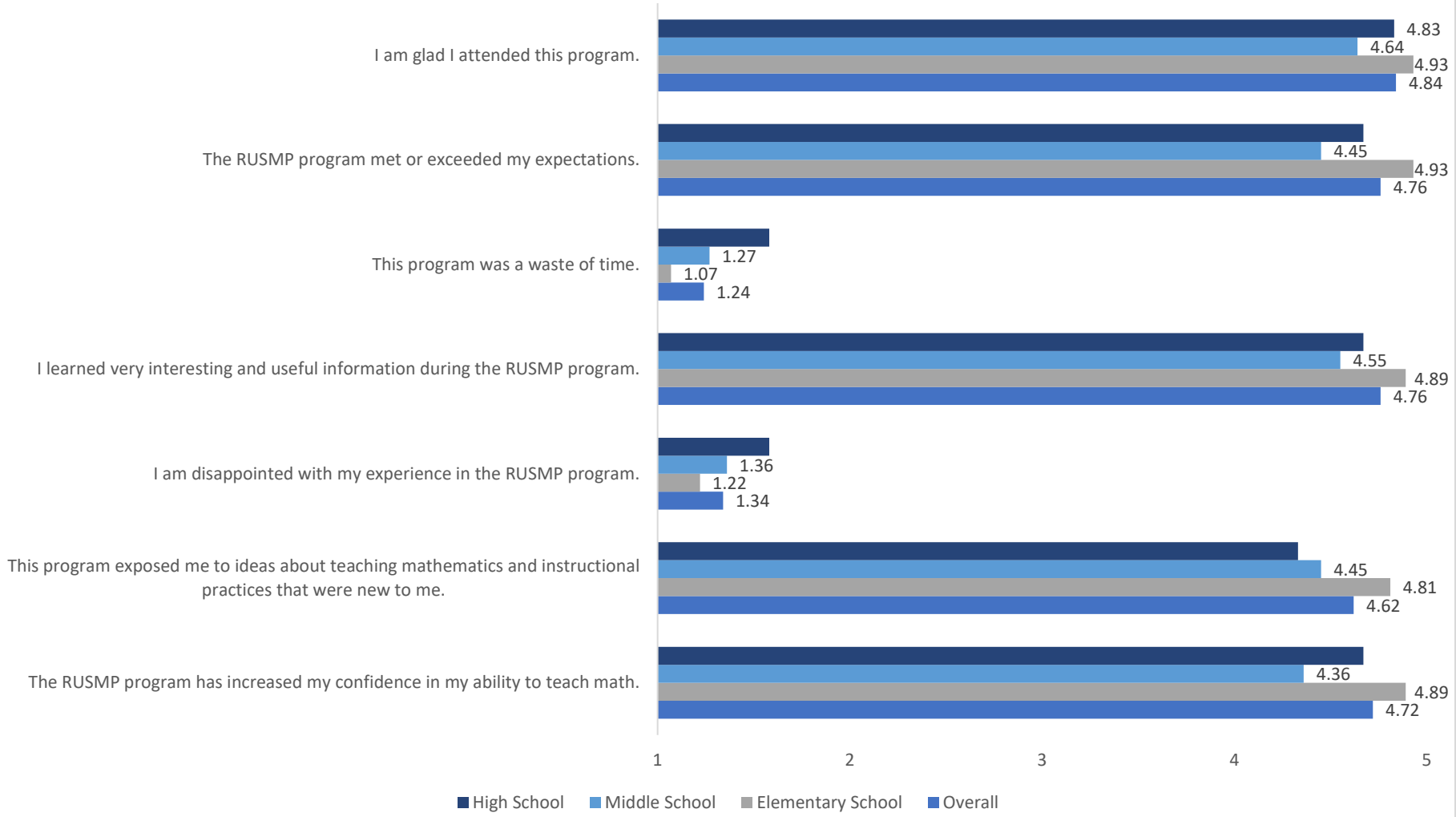
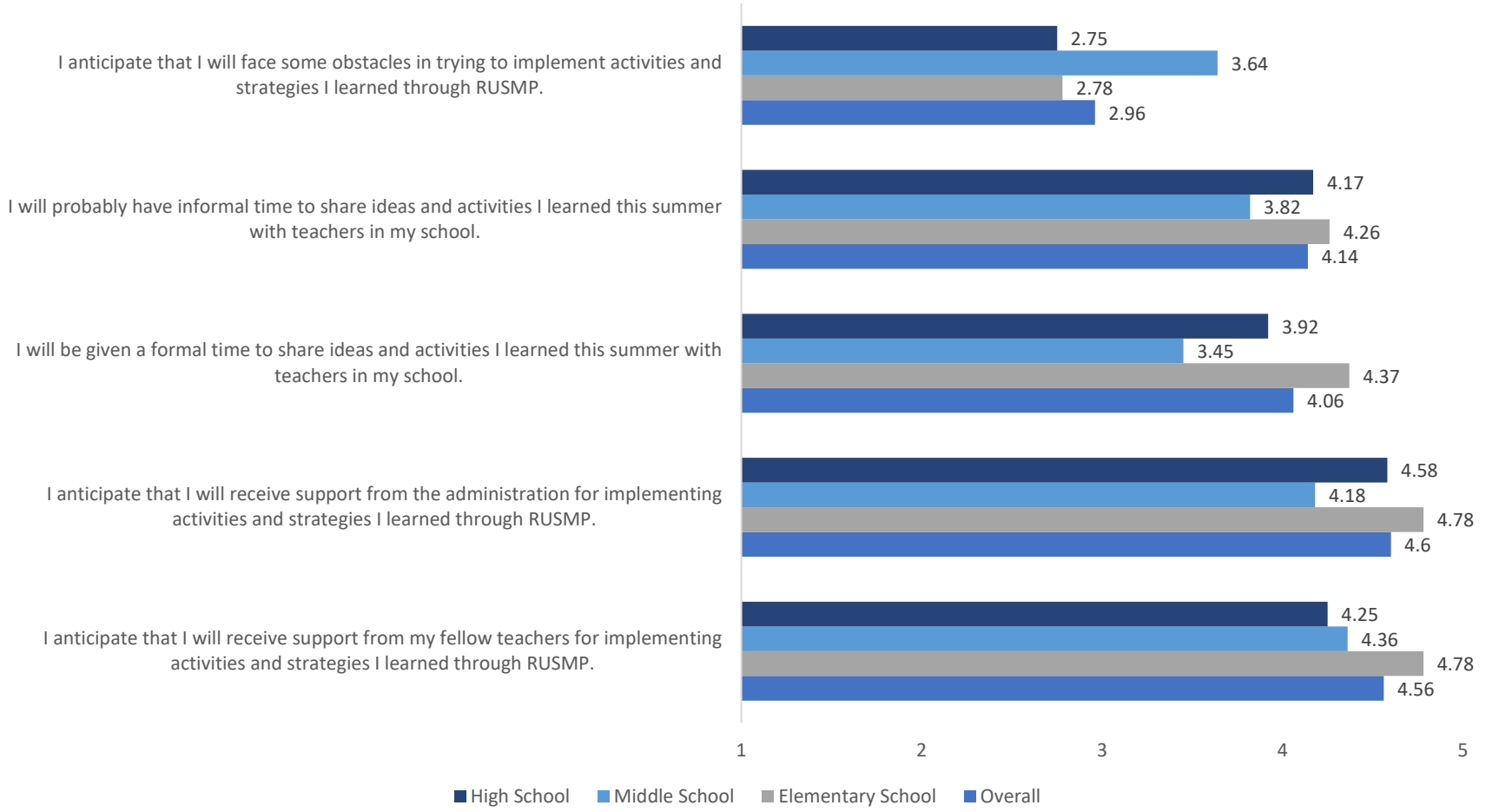


Figure 7: Teachers' Beliefes about Implementation Support



Open-Ended Questions

Participants were additionally asked open-ended questions to reflect on their personal experiences with the program. These questions inquired about how the SCP met their expectations, what could have been done better to meet their needs, and any other thoughts participants would like to share about the SCP.

They frequently mentioned that the program provided them with exceptional teaching strategies and a new perspective on how to approach their students. The following are directly taken from the participants' responses.

> *"This program met my expectations by providing good lessons and strategies that I can implement in my classroom."*

> *"The program provided new and effective teaching strategies that can be directly applied to your college-level math classes, helping you to better engage and support your students."*

> *"I have learned great strategies from the instructors and my fellow attendees. I also learned to use math classroom materials in very effective ways."*

> *"It did meet my expectations. I learned new methods to teach Mathematics and engage students in class. I also learned how to use hand-on material to help students understand different concepts."*

> *"It offered practical strategies and resources that I can implement in my classroom. These include lesson plans, activities, technology tools, and assessment techniques to enhance student learning."*

> *"It gave me a deeper understanding on how help my students to understand better by a different perspective."*

Another common theme among the responses was the impact of the resources and materials. They frequently mentioned that they benefited from the materials and having easy access to them.

"Provided great resources and tools/strategies to use in class."

"It definitely met and go beyond my expectations because of the priceless teaching experiences
from our coaches and the awesome resources in one spot - google drive :)"

"It has exceeded my needs by providing so many resources for my grade level."

"Amazing resources to implement in the classroom. Really needed it, and they are fun."

"I appreciate the organized digital resources (including videos of the presentations to review) so
we can continue using the ideas presented effectively."

"[It met my needs] in a lot of ways especially in the part of receiving some pretty good materials
that I can use in class"

Participants also stated that the course instructors did an excellent job and fostered a collaborative learning environment.

"Clear and concise instructions and immense support from the instructors."

"Excellent professors. The articles assigned to us were insightful and made me reflect on my teaching. We also received suggestions for improving as teachers such as proper language usage, doing away with outdated math rules…"

"I enjoyed the collaboration of this program and connections I made."

"Ms. White and Ms. Thompson are masters of their craft, very knowledgeable in fact I enjoyed the R[U]SMP summer camp tremendously…"

"I enjoyed the interactions with the other teachers and the instructors were very patient with me and explained things until I was able to understand the term or idea."

While most participants indicated that their needs were perfectly met, some expressed a desire for a longer program, the opportunity to participate in person, and follow-up support throughout the academic year.

"If it can last 3 weeks instead of 2 weeks [it would better meet my needs]"

"Offering ongoing support and follow-up sessions throughout the academic year to help
implement and refine new strategies could ensure lasting impact."

"I would love to take this class in person instead of online."

Conclusion

In conclusion, the participants have benefited from the SCP in several ways. The paired-samples *t*-tests indicated some significant changes in teachers' beliefs, knowledge, and confidence in teaching mathematics. Elementary teachers significantly improved their self-efficacy for teaching in terms of instruction and student engagement as well as their self-efficacy for mathematics teaching after participating in the SCP. Even though there were slight changes in middle and high school teachers' self-efficacy, these changes were not statistically significant.

Overall, mathematics self-concept did not seem to change much and was not statistically significant. Interestingly, high school teachers' mathematics self-concept decreased after the SCP.

Regarding epistemic beliefs, although the changes by class level do not indicate any significant results, when all teachers taken together, teachers slightly improved their epistemic beliefs about mathematics from pre- to post-SCP.

The changes in teachers' technological pedagogical content knowledge (TPACK) were statistically significant and demonstrated a sharp increase both when evaluated for overall and for elementary school teachers. Although they were not statistically significant, the changes for middle school and high school teachers were also positive after participating the SCP.

When all class levels are combined, teachers' beliefs about constructivist teaching (Windschitl, 2001) changed significantly and positively after participating in the SCP. Constructivist teaching has four categories: student tasks, student-student interaction, teacher's role, and discovery. Collectively, all teachers made significant progress in all the sub-categories of constructivist teaching. When the changes are explored by each class level, all four subcategories showed significant improvement for elementary school teachers in all four subcategories. The change in discovery was significant for middle school teachers, and the change in student-student interaction was significant for high school teachers. The remaining three categories showed positive but not significant changes for middle and high school teachers.

Regarding assessment, there were four categories in which teachers were asked to state their perceptions: summative, formative, testing, and large-scale. Elementary teachers' beliefs about assessment significantly shifted in favor of formative form. Middle school teachers developed a negative stance against testing-based assessments after participating the SCP. High school teachers interestingly developed negative attitude towards both summative and formative assessments. When all teachers combined, there was some statistical evidence ($p < 0.10$.) that suggests that teachers' beliefs about assessments decreased against testing.

When teachers were asked about their level of preparedness to use pedagogical techniques aligned with reform-based mathematics teaching, they all significantly improved their self-perceptions of their preparedness to use these techniques. This was the case for both the overall level (whole group) and for each class level.

Diversity dispositions was the last area of exploration for the impact of the SCP. Overall, teachers had significantly more availing beliefs about diversity in teaching and learning after participating in the SCP. This was the case for both the overall level (whole group). For each level,

changes were positive but only practically significant for elementary class and not statistically significant for middle and high school classes.

Teachers were also asked about the overall classroom climate during the SCP, rating of their SCP instructors and overall SCP program rating. Overall, teachers had positive feedback about their experiences in the SCP. The SCP at RUSMP provided opportunities for these teachers to learn about and engage in activities and discussions about classroom climate including teaching professionalization and societal contribution of teaching as well as active and meaningful learning. The RUSMP's SCP helped teachers to see the value in the teaching profession and highlighted the importance of attending to the community's needs.

Appendix A
Scale Items and Their Sources

*Indicates reverse-coded items

Teaching Self-Efficacy (Instructional strategies) - Tschannen-Moran & Hoy (2001)

How much can you do to craft good questions for students?
How much can you do to implement a variety of assessment strategies?
How much can you do to provide an alternate explanation when students are confused?
How much can you do to implement alternative strategies in your classroom?

Teaching Self-Efficacy (Student engagement) - Tschannen-Moran & Hoy (2001)

How much can you do to motivate students who show low interest in school work?
How much can you do to get students to believe they can do well in school work?
How much can you do to help students value learning?
How much can you do to assist families in helping their children do well in school?

Self-Concepts in Mathematics - Marsh (1990)

Please indicated how much you agree or disagree with the following statements:

Compared to my colleagues, I am good at mathematics.
I usually received good grades in mathematics courses.
Work in mathematics courses was easy for me.
I struggle with mathematics.*
I learn things quickly in mathematics.
I have always done well in mathematics.

Epistemic Beliefs for Mathematics (Certainty of knowledge) - Hofer (2000)

Please indicated how much you agree or disagree with the following statements:

Answers to questions in mathematics change as experts gather more information.*
All experts in mathematics understand the field in the same way.
Truth is unchanging in mathematics.
In mathematics, most work has only one right answer.
Principles in mathematics are unchanging.
All professors in mathematics would probably come up with the same answers to questions in this field.
In mathematics, it is good to question the ideas presented.*
Most of what is true in mathematics is already known.

Self-Efficacy for Mathematics Teaching - Enochs et al. (2000)

Please indicated how much you agree or disagree with the following statements:

I'm continually finding better ways to teach mathematics.
Even if I try very hard, I don't teach mathematics as well as I teach other subjects.*
I know the steps to teach mathematics concepts effectively.
I'm not very effective in monitoring mathematics activities.*
I generally teach mathematics ineffectively.*
I understand mathematics concepts well enough to be effective in teaching mathematics.
I find it difficult to use manipulatives to explain to students why mathematics works.*

I'm typically able to answer students' questions.
I wonder if I have the necessary skills to teach mathematics.*
Given a choice, I would not invite the principal to evaluate my mathematics teaching.*
When a student has difficulty understanding a mathematics concept, I'm usually at a loss as to how to help the student understand it better.*
When teaching mathematics, I usually welcome student questions.
I don't know what to do to turn students on to mathematics.*

Technological Pedagogical Content Knowledge - Schmidt et al. (2009)

Please indicated how much you agree or disagree with the following statements:

I can teach lessons that appropriately combine mathematics, technologies, and teaching approaches.
I can use strategies that combine content, technologies, and teaching approaches that I learned in my coursework in my teacher preparation/certification program.
I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn.
I can provide leadership in helping others to coordinate the use of content, technologies, and teaching approaches at my school and/or district.
I can choose technologies that enhance the content for a lesson.

Constructivist Mathematics Teaching - Ross et al. (2003)

Please indicated how much you agree or disagree with the following statements:

I like to use math problems that can be solved in many different ways.
I regularly have my students work through real-life math problems that are of interest to them.
When two students solve the same math problem correctly using two different strategies, I have them share the steps they went through with each other.
I often learn from my students during math time because my students come up with ingenious ways of solving problems that I have never thought of.
In my classes, students learn math best when they can work together to discover mathematical ideas.
When students are working on math problems, I put more emphasis on getting the correct answer than on the process followed.*
I don't necessarily answer students' math questions but rather let them puzzle things out for themselves.
I teach students how to explain their mathematical ideas.
It is not very productive for students to work together during math time.*

Assessment-Summative - Brown (2004)

Please indicated how much you agree or disagree with the following statements:

The main purpose of assessment is to assign a grade or level to student work.
The main purpose of assessment is to place students into categories.
The main purpose of assessment is to determine if students meet certain standards.
Assessments should only be used to determine how much students have learned from teaching.

Assessment-Formative - Brown (2004)

Please indicated how much you agree or disagree with the following statements:

Assessment information should be used to modify ongoing teaching of students.

Assessments should be integrated with teaching in the classroom.
Assessments should be used to inform instruction for different student needs.
Assessments should be used to help students improve their learning.
Assessments should be used to provide students with feedback about their learning needs.

Assessment-Testing

Please indicated how much you agree or disagree with the following statements:

Assessment equals testing.
There is a lot more to assessment than just testing.*
There are different types of assessment including classroom discourse and observations.*

Assessment-Large-Scale - Brown (2004)

Please indicated how much you agree or disagree with the following statements:

Large-scale assessments are an accurate indicator of a school's quality.
Large-scale assessments are a good way to evaluate a school.
Large-scale assessments provide reliable information on how well schools are doing.
Large-scale assessments are an accurate indicator of teacher effectiveness.
Large-scale assessments are an accurate indicator of student learning.

Level of Preparedness to Use Pedagogical Techniques - Germuth et al. (2003)

Please rate each of the following statements about how prepared you feel to do the following in mathematics instruction:

Providing concrete experiences to introduce abstract concepts.
Developing students' conceptual understanding of mathematics.
Taking students' prior understanding into account when planning curriculum and instruction.
Practicing computational skills and algorithms.
Making connections between mathematics and other disciplines.
Having students work in cooperative learning groups.
Having students participate in appropriate hands-on activities.
Engaging students in inquiry-oriented activities.
Engaging students in applications of mathematics in a variety of contexts.
Using performance-based assessment.
Using questioning strategies to assess student understanding.

Diversity Deposition Index - Schulte et al. (2009)

Please indicated how much you agree or disagree with the following statements about diversity:

I look for new ways to teach difficult material.
I am reflective about how my actions affect student achievement.
I continually search for new knowledge within my content area.
I am responsible for creating an atmosphere where all students feel free to openly exchange ideas, thoughts, and opinions.
I believe in setting high standards for all students.
I am passionate about my own learning.
I believe that diversity enhances student knowledge.

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