

Supporting Implementation of Math Recovery[®] Professional Development

A Michigan Mathematics and Science Partnership (MSP) Grant

POST-PROGRAM SURVEY OF TEACHER PARTICIPANTS Cohorts 1 and 2

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Supporting Implementation of Math Recovery[®] Professional Development is a project funded by the Michigan Mathematics and Science Partnership competitive grants program of the Michigan Department of Education. The purpose of the project is to implement a 40-hour training called Add+VantageMR[®] (AVMR) designed for K-5 teachers. The training consists of two AVMR courses designed to provide a detailed understanding of how children develop understanding of early numeracy (Course 1) and number domains of place value and multiplication and division (Course 2). K-5 teachers also are trained to administer AVMR assessment tools that help them recognize students' current mathematics understanding and build on their current ways of reasoning.

The training was implemented to two cohorts of teachers (Cohort 1: spring/summer 2015; Cohort 2: fall/winter 2015-16) by the Muskegon Area ISD Regional Mathematics and Science Center (MUS) and the following partners:

- Calhoun Intermediate School District (CAL)
- Eastern Upper Peninsula Mathematics and Science Center (EUP)
- Mason-Lake Oceana Mathematics and Science Center (MAS)

Ninety-one (91) Cohort 1 K-5 teacher participants and 112 Cohort 2 teachers completed a post-survey at the end of Course 2 as part of the evaluation of the program. The instrument contained open-ended items asking about teachers' experiences with the program along with items rated on a scale of 1-5 related to (1) the value of project goals and how well they were accomplished, (2) teachers' knowledge of or familiarity with Math Recovery[®] related issues before attending AVMR Course 1 (pre) and after attending AVMR Course 2 (post), and (3) satisfaction with workshop arrangements. The following report presents an analysis of the post-survey data and will contribute to a comprehensive evaluation of the project. Additional survey items from the Math Recovery[®] book are summarized in the Appendix.

The external evaluation is being conducted by Science and Mathematics Program Improvement (SAMPI), Western Michigan University (WMU). Contact Dr. Kristin Everett (email: kristin.everett@wmich.edu or

phone: 269-387-2417) or Dr. Mary Anne Sydlik (email: maryanne.sydlik@wmich.edu or phone: 269-387-3791) for more information about the evaluation.

Survey Results

Program Objectives. Teachers were asked to rate the five major project objectives according to (1) their perception of the value of the objective and (2) the degree to which they think it has been accomplished. A “1” on the scale represents the lowest value; a “5” represents the highest value.

All mean “value” ratings above 4.00 *indicated that teachers recognized the importance of each objective (see pgs. 4-5)*. Mean “accomplished” ratings were lower than mean “value” ratings for all items at all sites, most of which were statistically significant. *This suggests teachers believed project objectives were not fully met.* Some comments suggested that teachers need more practice, time, or experience with the assessments and materials. The most common explanations given by the teachers for lower accomplishment of objective are summarized below.

- **Deepening teacher understanding of math content knowledge, the continuum of mathematical thinking, and understanding of assessment tasks.** Teachers gave four explanations for why accomplished ratings were lower than value ratings for these objectives: (1) they needed more practice and or classroom time ($n = 20$), (2) there was too much information presented during the professional development ($n = 12$), (3) they had limited time ($n = 11$), and (4) they lacked confidence with the materials ($n = 4$).
- **Teachers having access to on-demand support to implement Math Recovery® assessment and instructional practices.** Teachers provided three explanations for lower accomplished ratings: (1) they needed more time to familiarize themselves with support materials ($n = 5$), (2) they lacked sufficient support at their schools ($n = 3$), and (3) they had difficulty with reading professional development materials or navigating the professional development website ($n = 2$).
- **Reducing the amount of kids needing mathematics intervention.** The majority of teachers stated they have not had sufficient time to implement Math Recovery® or that they lacked the data to say whether this goal had been accomplished. Teacher responses to this objective are likely an artifact of the timing of the survey and not a problem or shortcoming of the Math Recovery® Professional Development.

Program Expectations. One-hundred ninety-five (195) teachers out of 213 (92%) stated that their expectations were met (see pgs. 6-7). Teachers gained a better understanding of how students learn math, learned more about math content or how to teach math, gained new materials and or assessments, and were better able to differentiate instruction.

Those who said their expectations were not met felt like they still did not know how to implement Math Recovery® in the classroom ($n=10$) and lacked the support for Math Recovery® at their school ($n=4$).

Program Impacts. Teachers were asked to rate the following on a 5-point scale before attending AVMR Course 1 (pre) and after attending AVMR Course 2 (post):

1. How would you rate your knowledge of how children make sense of early mathematics?
2. How would you rate your knowledge of how children make sense of early multiplication/ division development?

3. How would you rate your knowledge of how children make sense of early place value development?
4. How secure are you in using questioning techniques to gain insight into student understanding of math concepts?
5. How well do your current mathematics assessments inform you of your students' mathematical understanding?
6. How well do your current materials help guide you in differentiating instruction for your students?
7. How familiar are you with the new Common Core standards for mathematics?

Teachers across both cohorts felt their knowledge improved pre- to post-program (see pgs. 9-10).

Teachers' perceptions of their knowledge of how children learn math ($p = <.001$), their ability to assess student learning of math ($p = <.001$), and their ability to differentiate instruction for students ($p = <.001$) significantly improved across both cohorts. Their familiarity with Common Core standards also improved significantly.

Other Impacts. Teachers reported learning key ideas central to the Math Recovery® AVMR® training (see pgs. 10-11): there are constructs or levels of student understanding, how to move students to the next level/construct, how to use the diagnostic assessments, the progression of how students learn or think (in general or in terms of developing early numeracy), it is important to not focus on memorization or algorithms too much or too early, it is essential to help students build a foundation in math or develop basic skills, and students need to develop their own strategies or strategies that work for them.

Teachers indicated they plan to use what they learned (see pgs. 12-13) in the following ways: use the results of the AVMR diagnostic assessments to plan lessons, move students to the next level, or strengthen their math skills; use the AVMR assessments to help individual students, groups of students, struggling students, and the whole class; and use what they have learned to move students beyond facts/algorithms or help them achieve a deeper understanding of math.

Program Strengths. Numerous program strengths were identified. The most common was the instructors (see pgs. 14-15). Other strengths included: activities/assessments to help teachers discover the level/construct of their students' understanding, hands-on games and/or engaging activities, materials for the assessments, collaboration among teachers or districts, the opportunity to view numerous videos of teacher-student interactions, and the safe or non-threatening environment.

Program Improvements. Several suggestions for improving the workshop related to aspects of "time" ($n = 80$) (see pgs. 7-9): Teachers in both cohorts requested more time for planning, getting lessons together, or integrating this into curricula; spreading the sessions over a longer or shorter period of time; offer the workshop during the school year rather than the summer (and vice versa), and more time to process or practice Course 1 ideas before moving to Course 2.

Some teachers still had unanswered questions after the Math Recovery program, the most common concern was how Math Recovery would actually function in the classroom (see pgs. 15-16).

Items from the SAMPI Post-Survey

Questions 8-12: Teachers were asked to rate the five major project objectives according to (1) their perception of the VALUE of the objective and (2) the degree to which they think it has been ACCOMPLISHED. A “1” on the scale represents the lowest value; a “5” represents the highest value. V = Value; A = Accomplish. They were also asked to make comments.

Cohort 1: Program Objectives	Site	n	V	A	p-value
8. Deepen teacher understanding of mathematics content knowledge.	Calhoun	24	4.29	3.79	0.049*
	EUP	16	4.88	4.38	0.006*
	Mason	29	4.76	4.38	0.005*
	Muskegon	22	4.77	4.45	0.050*
9. Deepen teacher understanding of the continuum of mathematical thinking.	Calhoun	23	4.52	4.09	0.022*
	EUP	16	4.81	4.50	0.020*
	Mason	29	4.72	4.45	0.018*
	Muskegon	22	4.77	4.23	0.004*
10. Deepen teacher understanding of assessment tasks and instruction to move students forward along the continuum of mathematical thinking.	Calhoun	23	4.52	4.00	0.004*
	EUP	16	4.88	4.38	0.015*
	Mason	29	4.83	4.28	< 0.001*
	Muskegon	22	4.73	4.41	0.069
11. Teachers have access to on-demand support to implement Math Recovery® assessment and instruction practices.	Calhoun	23	4.39	3.91	0.031*
	EUP	16	4.50	4.19	0.020*
	Mason	29	4.72	4.38	0.023*
	Muskegon	22	4.73	4.14	0.004*
12. Reduce the amount of kids needing mathematics intervention.	Calhoun	15	4.20	3.60	0.033*
	EUP	14	4.50	4.29	0.082
	Mason	27	4.70	3.52	< 0.001*
	Muskegon	21	4.67	4.19	0.014*

P-values that indicate a significant difference are highlighted ().*

Cohort 1 Comments for Item 8:

- **Calhoun:** Nothing against my instructor; I’m not willing to assume that I’m awesome yet, I just need more experience.”
- **Mason:** “I just need more practice to move to a 5,” and “Still need time with students to gain experience and mastery of knowledge.”
- **Muskegon:** “I need to continue to develop my understanding. It comes with practice and time,” and “A lot of information.”

Cohort 1 Comments for Item 9:

- **EUP:** “I only gave 4’s in these because I feel it is my part to take it to a 5.”
- **Mason:** “Once again a summer class limits immediate use of knowledge; need time.”
- **Muskegon:** “At some point it can be too much in a short amount of time.”

Cohort 1 Comments for Item 10:

- **Calhoun:** “I’m a hands-on learner. I think I will learn even more when I actually start using the diagnostics more consistently,” and “Just being familiar and getting hands-on experience will increase this.”
- **Mason:** “I understand the process for reaching students mathematically but will require time to perfect the process,” and “Need practice over time; more practice with evaluating,”
- **Muskegon:** “I liked that we practiced assessment tasks with kids and not other adults,” and “This will need to be continuous. Brain only remembers so much at a time.”

Cohort 1 Comments for Item 11:

- **Calhoun:** “Haven’t been in school to assess yet or teach,” and “Creating the ‘What to do to move a kid from a 2 to a 3’ documents. Important to do my own work on this. Also would be nice if it were already done. Also red and purple books are difficult to read. Wordy/much jargon. Is that necessary?”
- **Mason:** “I just need to be able to put more energy into this,” “Only due to lack of time,” and “Need to access the website to find resources; trouble navigating site yet.”

- **Muskegon:** “As of today’s date,” “During the training, yes. During school year?” “Would probably be different per building,” and “Never used it before; I’ll look it up.”

Cohort 1 Comments for Item 12:

- **Calhoun:** “TBD,” “Not yet assessed,” and “To be determined.”
- **Mason:** “Need time to get things in action to start seeing a drop in numbers needing support,” “Since only a few from our school have been trained, this instruction and understanding will be spotty,” “We have not yet begun our school year. There is no data to measure,” “Need implementation time for it to work,” and “Hopefully I will see data at end of year (and throughout) to attest to this.”
- **Muskegon:** “Still would value hearing how assessments should be used with classroom setting. Everyone or just those suspected to be in need?” and “I have not witnessed this yet, but I can see it happening.”

Cohort 2: Program Objectives	Site	n	V	A	p-value
8. Deepen teacher understanding of mathematics content knowledge.	Calhoun	32	4.69	4.16	< 0.001*
	EUP	24	4.75	4.42	< 0.001*
	Mason	22	4.95	4.50	< 0.001*
	Muskegon	34	4.76	4.03	< 0.001*
9. Deepen teacher understanding of the continuum of mathematical thinking.	Calhoun	32	4.66	4.06	< 0.001*
	EUP	24	4.75	4.33	< 0.001*
	Mason	22	4.91	4.45	< 0.001*
	Muskegon	34	4.76	4.03	< 0.001*
10. Deepen teacher understanding of assessment tasks and instruction to move students forward along the continuum of mathematical thinking.	Calhoun	32	4.72	3.84	< 0.001*
	EUP	24	4.75	4.25	< 0.001*
	Mason	22	4.95	4.18	< 0.001*
	Muskegon	34	4.82	4.24	< 0.001*
11. Teachers have access to on-demand support to implement Math Recovery® assessment and instruction practices.	Calhoun	32	4.50	3.66	< 0.001*
	EUP	24	4.79	4.38	< 0.001*
	Mason	22	4.68	4.05	< 0.001*
	Muskegon	34	4.50	3.97	< 0.001*
12. Reduce the amount of kids needing mathematics intervention.	Calhoun	32	4.78	2.97	< 0.001*
	EUP	24	4.63	3.75	< 0.001*
	Mason	22	4.77	3.38	< 0.001*
	Muskegon	34	4.56	3.71	< 0.001*

P-values that indicate a significant difference are highlighted ().*

Cohort 2 Comments for Item 8:

- **Calhoun:** “Still need to implement it in classroom,” and “A bit overwhelming.”
- **EUP:** “AVMR works well with Intel Math® in deepening knowledge,” “Between 4-5; hard to digest all at once but I love it!” and “This course goes in-depth, but I know that I need more practice to accomplish where I want to be.”
- **Muskegon:** “Lower rating in ‘accomplished’ simply because there is so much new information to absorb and put into practice that not all of it has stuck in my brain!” “Level four for accomplished because I am just not there yet. I have grown so much in my understanding but I lack confidence in my decisions on assessment tools... Where to find next steps... What should be next,” “The goal was certainly to deepen understanding but it is a lot of information coming quickly

Cohort 2 Comments for Item 9:

- **Calhoun:** “It will take time. So much information!” and “Need practice to feel more comfortable.”
- **EUP:** “The continuum of mathematics was well explained, but I need more time.”

Cohort 2 Comments for Item 10:

- **Calhoun:** “So much information.”
- **EUP:** “It takes practice and time to get this,” “This is true assessment to guide learning. (Answers are not.) Lots to put into place,” and “Still unsure as to what this will look like...”
- **Mason:** “I’m still clumsy with finding activities to match student abilities,” “Still need time to process myself,” and “I need to spend more time understanding the process.”

Cohort 2 Comments for Item 11:

- **Calhoun:** “[My district] in a state of flux,” “Our school does not have a trainer,” “We don’t have strong building support as far as a math coach or curriculum director,” “With time, I will get better at knowing where to look to find the information I need,” and “I don’t feel we have much administrative support to keep us moving forward,”
- **EUP:** “It’s there. Just need time to work with it.”
- **Mason:** “Limited time,” “Not able to get additional assistance,” and “It wasn’t pushed too often; suggested a couple times.”
- **Muskegon:** “More video’s available online,” and “Could use more support from school.”

Cohort 2 Comments for Item 12:

- **Calhoun:** “Time limits,” “I see a lot of kids are still needing lots of support,” “Difficult to implement new learning immediately; time constraints,” “We’ll see!” and “We don’t know yet…”
- **EUP:** “Again this takes time to accomplish,” “I wish my school could/would do more math intervention in lower education before misconceptions are carried on,” “This is the goal! Schools need to make this a priority,” “It hasn’t been in my class/school long enough to see an impact yet but it will,” “I believe this will give us a great resource to help all students. It will take time to see if this is actually accomplished,” and “Difficult when whole school is not involved.”
- **Mason:** “Facilitator cannot accomplish this,” “Valuable but just getting started,” and “Time is needed for accomplishment.”
- **Muskegon:** “Not accomplished yet. This course created an awareness of a greater deficient,” and “I feel this will take time for students to start thinking like this.”

13. Teachers were asked, “**Were your expectations met?**” They were also asked to explain their answer. All of the responses summarized below are explanations of “Yes” responses to item 13. (*Sum of responses is greater than 100% because some participants provided more than one response.*)

Cohort 1	CAL (24)	EUP (16)	MAS (29)	MUS (22)	Total (91)	
					No.	%
I gained a better understanding of how students learn math.	2	3	10	4	19	21%
I learned more about math content and or how to teach math.	2	4	4	5	15	16%
I have gained new assessments.	1	1	5	1	8	9%
I have gained new knowledge.	3	1	2	2	8	9%
I am better able to bring students to the level they need.	2	1	3	1	7	8%
I liked the program and or it surpassed my expectations.	--	2	5	--	7	8%
I am now better able to differentiate my teaching based on the needs of students.	4	--	2	--	6	7%
I learned how to implement Math Recovery into the curriculum.	5	--	1	--	6	7%
I have gained new materials/activities.	1	1	4	--	6	7%
The facilitator did a great job.	--	--	2	2	4	4%
I gained a better understanding of how math workshops function.	3	--	--	--	3	3%
I gained a baseline understanding of Math Recovery.	--	--	2	--	2	2%
Unique Response*	--	1	--	1	2	2%

Explanation*:

- **EUP:**
 - Very much! I was not excited about 10 days of my summer being spent in this training, but I feel all K-5 teachers need this training. I am so happy I came.
- **Muskegon:**
 - I thought Course 2 was easier, perhaps because we knew the jargon and terms. Like the content better, but it’s more my comfort level.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
I learned more about math content or how to teach math.	7	6	3	7	23	21%
I gained a better understanding of how students learn math.	8	4	5	5	22	20%
I am now better able to differentiate my teaching based on the needs of students.	1	3	4	6	14	13%
I liked the program and or it surpassed my expectations.	3	3	5	3	14	13%
I have gained new assessments.	3	3	2	3	11	10%
The facilitator did a great job.	3	--	4	1	8	7%
I have gained new materials/activities.	--	3	2	--	5	5%
I have gained new knowledge.	1	2	1	1	5	5%
I learned how to implement Math Recovery into the curriculum.	1	1	--	2	4	4%
Unique Responses*	--	2	--	2	4	4%
I am better able to bring students to the level they need.		1	1	--	2	2%
I did not know what to expect	1	--	--	--	1	1%

Explanation*:

- **EUP:**
 - Because of the grade level I teach, I felt that AVMR1 was not particularly helpful, however AVMR1 is quite useful. I would not want to have had instruction only in AVMR2, though. AVMR1 is helpful knowledge to build on for AVMR2.
 - I understand the importance of “conceptual understanding” so much more. I love the progressions (FNWS moving into early addition/subtraction and structuring numbers). This has given me tools to teach the conceptual place value and not just conventional place value.
- **Muskegon:**
 - This training has been amazing for me and my students. We have learned about math and how to start our strategies more efficiently with each other. I have become more effective in being able to see where my students have needs and am acquiring the ability to know how to get them to the next step.
 - I understood looking at math differently than I have but I feel we need to get students in first and second grade to do this. Also get parents on board; teaching them instead of the old way.

14. Teachers were asked, “**In what ways could this workshop be improved?**” (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL (24)	EUP (16)	MAS (29)	MUS (22)	Total (91)	
					No.	%
No response or it was fine the way it was	4	2	12	7	25	27%
Miscellaneous*	3	3	5	4	15	16%
Offer “make-and-take” activities/ideas/games	4	1	2	2	9	10%
Give more time for planning, getting lessons together, or integrating this into curricula	--	5	3	--	8	9%
There should be less paperwork, or we should be given a folder, toolbox, or description of how to organize it all	3	1	2	2	8	9%
Spread the sessions out over a longer period of time	--	3	--	3	6	7%
Give us time to practice Course 1 materials before moving on to Course 2, or give us more “processing time”	1	2	2	1	6	7%
Show a video of a math class where this is practiced, or show us more of how this can be applied to the classroom	1	1	--	4	6	7%
Offer it during the school year (not during the summer)	3	1	--	1	5	5%
Offer follow-up sessions during the school year to answer our questions after we implement the assessments.	2	--	3	--	5	5%
Divide into groups based on lower and upper elementary	--	--	3	--	3	3%
Offer this to more teachers	--	--	2	--	2	2%
This could be taught with half the time.	2	--	--	--	2	2%

Miscellaneous:

- **Calhoun:**
 - Link the concepts and the Common Core State Standards.
 - Books that are easier to understand. Am I the only one?
 - More time for hands-on activities.
- **EUP:**
 - Some of the meeting areas were cramped.
 - AVMR1 presenter was awesome. AVMR2 – not so much.
 - Less lecture! More time to process.
- **Mason:**
 - Larger groups from the same districts so there is more support and use.
 - Provide more support for students at higher levels. Develop this support for middle and high school.
 - Having fractions!
 - If we had had the same presenter for both courses. Our first presenter laid things out in a very organized manner that was easy to connect to previous learning.
 - Keeping it simple.
- **Muskegon:**
 - Not to use big work terms all the time. Use more real life words that a regular teacher needs to understand.
 - I would like to learn more about conducting valuable number talks with students. I do them, but I would like them to be meaningful for my students. Not sure if they are.
 - Better video quality.
 - Time for common building teachers to work together intertwining course with district work.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
No response or it was fine the way it was	1	8	7	5	21	19%
Give more time for planning, getting lessons together, or integrating this into curricula	10	1	3	5	19	17%
Give us time to practice Course 1 materials before moving on to Course 2, or give us more “processing time”	3	--	4	5	12	11%
Offer “make-and-take” activities/ideas/games	5	2	1	4	12	11%
Spread the sessions out over a longer period of time	1	2	1	5	9	8%
Miscellaneous*	1	2	3	3	9	8%
This could be taught with half the time or a day or two shorter	2	3	--	2	7	6%
Offer the course in the summer	6	--	--	--	6	5%
Divide into groups based on lower and upper elementary or smaller group size	1	--	1	4	6	5%
Offer this to more teachers	--	1	3	1	5	4%
Show a video of a math class where this is practiced or show us more of how this can be applied into the classroom	--	2	--	3	5	4%
There should be less paperwork, or we should be given a folder, toolbox, or description of how to organize it all	1	1	--	--	2	2%
Offer follow-up sessions during the school year to answer our questions after we implement the assessments.	--	1	1	--	2	2%
Offer it during the school year (not during the summer)	--	1	--	--	1	1%

Miscellaneous:

- **Calhoun:**
 - More focus on instruction implementation.
- **EUP:**
 - More models of instruction after assessment is completed.
 - I believe it is hard to take this workshop during the times it is offered. When learning the classroom as much and as sporadically as we did, it’s hard to implement fully.

- **Mason:**
 - When taught how to administer an assessment, we need to assess a student right away instead of waiting.
 - If it were scheduled during times that aren't busy in school calendar (testing window, conferences).
 - More time to collaborate.
- **Muskegon:**
 - A good way to organize all the materials that are given to us.
 - I think that we could break them up into deeper units of study. Meet a number of times on addition and subtraction or if I understand that concept. Then place value on structured numbers.
 - Starting at bottom and moving up. I felt like some prior knowledge was needed that I personally was missing but I'm not sure how you would/could better assess/monitor/prepare for that.

15. Teachers were asked to rate several statements in terms of their perception before attending AVMR Course 1 (pre) and after attending AVMR Course 2 (post). A “1” on the scale represents the lowest value; a “5” represents the highest value.

Cohort 1	Site	n	Before	After	Change	p-value
a. How would you rate your knowledge of how children make sense of early mathematics?	Calhoun	24	2.50	4.13	1.63	< 0.001*
	EUP	16	2.56	4.25	1.69	< 0.001*
	Mason	29	2.45	4.41	1.96	< 0.001*
	Muskegon	22	2.41	4.05	1.64	< 0.001*
b. How would you rate your knowledge of how children make sense of early multiplication/division development?	Calhoun	24	2.54	4.00	1.46	< 0.001*
	EUP	16	2.50	4.19	1.69	< 0.001*
	Mason	29	2.10	4.10	2.00	< 0.001*
	Muskegon	22	2.50	4.00	1.50	< 0.001*
c. How would you rate your knowledge of how children make sense of early place value development?	Calhoun	24	2.38	4.00	1.62	< 0.001*
	EUP	15	2.60	4.27	1.67	< 0.001*
	Mason	29	2.17	4.31	2.14	< 0.001*
	Muskegon	22	2.32	4.14	1.82	< 0.001*
d. How secure are you in using questioning techniques to gain insight into student understanding of math concepts?	Calhoun	24	2.63	4.00	1.37	< 0.001*
	EUP	16	2.19	3.94	1.75	< 0.001*
	Mason	29	2.07	4.00	1.93	< 0.001*
	Muskegon	22	2.82	4.18	1.36	< 0.001*
e. How well do your current mathematics assessments inform you of your students' mathematical understanding?	Calhoun	24	2.71	4.04	1.22	< 0.001*
	EUP	16	2.19	4.19	2.00	< 0.001*
	Mason	29	2.14	3.86	1.72	< 0.001*
	Muskegon	20	2.00	3.65	1.65	< 0.001*
f. How well do your current materials help guide you in differentiating instruction for your students?	Calhoun	23	2.83	4.13	1.30	< 0.001*
	EUP	16	2.44	4.06	1.62	< 0.001*
	Mason	29	2.66	3.90	1.24	< 0.001*
	Muskegon	22	2.32	3.64	1.32	< 0.001*
g. How familiar are you with the new Common Core standards for mathematics?	Calhoun	24	3.17	3.54	0.37	0.083
	EUP	16	3.69	4.19	0.50	0.027*
	Mason	29	3.31	4.07	0.76	< 0.001*
	Muskegon	22	3.45	3.82	0.37	0.008*

*Statistically significant at $\alpha \leq 0.05$.

Cohort 2	Site	n	Before	After	Change	p-value
a. How would you rate your knowledge of how children make sense of early mathematics?	Calhoun	32	2.45	4.09	1.64	< 0.001*
	EUP	24	2.73	4.46	1.73	< 0.001*
	Mason	22	2.41	4.27	1.86	< 0.001*
	Muskegon	34	2.29	4.21	1.92	< 0.001*
b. How would you rate your knowledge of how children make sense of early multiplication/division development?	Calhoun	32	2.26	3.94	1.68	< 0.001*
	EUP	24	2.68	4.33	1.65	< 0.001*
	Mason	22	2.41	4.36	1.95	< 0.001*
	Muskegon	34	2.00	3.68	1.68	< 0.001*
c. How would you rate your knowledge of how children make sense of early place value development?	Calhoun	32	2.29	3.94	1.65	< 0.001*
	EUP	24	2.68	4.42	1.74	< 0.001*
	Mason	22	2.05	4.18	2.13	< 0.001*
	Muskegon	34	2.44	4.15	1.71	< 0.001*
d. How secure are you in using questioning techniques to gain insight into student understanding of math concepts?	Calhoun	32	2.45	3.94	1.49	< 0.001*
	EUP	24	2.64	4.25	1.61	< 0.001*
	Mason	22	2.18	4.23	2.05	< 0.001*
	Muskegon	34	1.94	3.88	1.94	< 0.001*
e. How well do your current mathematics assessments inform you of your students' mathematical understanding?	Calhoun	32	2.45	3.91	1.46	< 0.001*
	EUP	24	2.18	4.08	1.90	< 0.001*
	Mason	22	2.45	3.68	1.23	< 0.001*
	Muskegon	34	2.06	3.65	1.59	< 0.001*
f. How well do your current materials help guide you in differentiating instruction for your students?	Calhoun	32	2.10	3.63	1.53	< 0.001*
	EUP	24	2.14	4.13	1.99	< 0.001*
	Mason	22	2.41	4.00	1.59	< 0.001*
	Muskegon	34	2.03	4.00	1.97	< 0.001*
g. How familiar are you with the new Common Core standards for mathematics?	Calhoun	32	3.16	3.72	0.56	< 0.001*
	EUP	24	3.59	4.08	0.49	< 0.001*
	Mason	22	3.45	4.00	0.55	< 0.001*
	Muskegon	34	3.12	3.91	0.79	< 0.001*

*Statistically significant at $\alpha \leq 0.05$.

16. Teachers were asked, “**What are two or three BIG things that you learned?**” (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL	EUP	MAS	MUS	Total (93)	
	(24)	(17)	(29)	(23)	No.	%
There are constructs or levels of student understanding	12	3	6	5	26	29%
How to use the diagnostic assessments	5	9	4	8	26	29%
Miscellaneous*	5	1	8	5	19	21%
Don't focus on memorization or algorithms	1	3	10	2	16	18%
How students learn (in general or in terms of developing early numeracy), or the progression of how students learn	3	3	6	4	16	18%
Structuring	2	3	10	--	15	16%
Strategies teachers can use to help students (in general, for solving problems, differentiated instructional strategies, number talks, how to fill in gaps, etc.)	2	2	4	7	15	16%
How to move students to the next level/construct	9	1	2	1	13	14%
It is important to build a foundation or develop basic skills	2	1	4	2	9	10%
There are many activities/games we can use to help students	4	1	--	1	6	7%
Questioning	2	1	2	1	6	7%

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Students need to develop their own strategies or strategies that work for them	--	3	--	3	6	7%
Conceptual place value vs. conventional place value	--	--	2	2	4	4%
Wait time	2	--	--	--	2	2%
T value of partially screening	--	--	2	--	2	2%

Miscellaneous:

- **Calhoun:**
 - How to use the textbooks from information from the teacher guides. Separation of addition/subtraction, multiplication/division, structure, place value.
 - What to allow kids to continue to use for support.
 - Subitizing; I have never heard of this term and it is an important skill that we were skipping.
 - Students do not need to ‘show their work’; rather, they should show their thinking.
 - How to design your math block.
- **EUP:**
 - I learned that using fingers is part of their development.
- **Mason:**
 - It’s important to go back to manipulatives every time a new concept is introduced.
 - Full arrays to straight numbers.
 - Ways to differentiate.
 - Teaching multiple ways.
 - Using manipulatives is okay for teaching older students (grade 6 and higher).
 - If they aren’t ready to move on; we need to take a step back and see why.
 - Kids are discrete or interval thinkers.
 - Backward number sequence is huge.
- **Muskegon:**
 - Math isn’t awful.
 - Helps me getting ready for small group work.
 - How our current math materials are pushing concepts way too fast before number sense foundation is in place.
 - Seven mental strategies.
 - Jotting and semi-formal notations are extremely important to my addition and subtraction instruction and much come before formal algorithms.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
How to move students to the next level/construct	11	6	1	5	23	21%
Strategies teachers can use to help students (in general, for solving problems, differentiated instructional strategies, number talks, how to fill in gaps, etc.)	4	4	7	3	18	16%
How students learn or think (in general or in terms of developing early numeracy), or the progression of how students learn	4	1	9	3	17	15%
There are constructs or levels of student understanding	4	4	2	4	14	13%
Structuring numbers	6	3	1	5	15	13%
How to use the diagnostic assessments	2	8	2	3	15	13%
There are many activities/games we can use to help students	6	1	1	5	13	12%
Students need to develop their own strategies or strategies that work for them	5	1	1	4	11	10%
Conceptual place value vs. conventional place value	--	4	3	3	10	9%
It is important to build a foundation or develop basic skills	1	4	4	--	9	8%
Miscellaneous*	2	1	2	3	8	7%

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Wait time	2	--	2	--	4	4%
Don't focus on memorization or algorithms	2	--	--	1	3	3%
The value of partially screening	1	--	1	--	2	2%
Questioning	1	--	--	--	1	1%

Miscellaneous:

- **Calhoun:**
 - Importance of differentiated learning activities.
 - All children follow similar stages in their progression in numerical understandings.
- **EUP:**
 - Learned so many mathematical viewpoints; gained an appreciation for many new ways of thinking.
- **Mason:**
 - The AVMR assessments give us a much more precise way to find our kid's needs.
 - The difference between unitary and composite strategies.
- **Muskegon:**
 - I would like to see our common grade level assessments change to be more reflective of a child's ability on CCSS.
 - Not to teach a student a strategy and then tell them we don't want them to do that anymore.
 - Must teach all three aspects of number.

17. Teachers were asked, “**In what ways do you expect to use what you have learned with your students?**” (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
I will use the results of the assessments to plan lessons, move students to the next level, or strengthen their skills	13	6	10	8	37	41%
Miscellaneous*	4	2	6	5	17	19%
I will use it with small groups	5	5	4	2	16	18%
I will use it to help individual students	3	4	4	--	11	12%
I will use it in general or with the whole class	--	5	4	2	11	12%
I will use lessons/materials/games we were given	2	--	1	8	11	12%
I will move students beyond the facts/algorithms or help them get a deeper understanding of math	2	--	1	6	9	10%
I will use it to help struggling students	1	2	2	1	6	7%
This will help me to differentiate instruction	--	--	4	2	6	7%
I will use manipulatives more	--	--	--	3	3	3%
I will use it to identify or fill in gaps in their understanding	--	--	3	--	3	3%

Miscellaneous:

- **Calhoun:**
 - To close the learning gap and/or give kids the verbal skills to explain steps and seek easier short cuts.
 - I would like to gradually add this into intervention.
 - I plan to read/create activities and tasks specifically for 5th grade.
 - Very slowly. It's a lot of information. I'm interested but not sure what it will look like as I teach it.
- **EUP:**
 - I hope to use these ideas to encourage children to learn math through discovery. Make their own ahas.
 - I plan to include structuring techniques in my daily lessons.
- **Mason:**
 - I can address math issues and teach more efficiently that will sustain children's thinking and build a more confident problem solver.
 - I will work on questioning how they arrived at an answer and teach multiple strategies.

- I will look to find students' construct.
- As a screener for Title I and for special education.
- Observations of what exactly the students are doing will improve. Making for more appropriate lessons.
- I will monitor the students.
- **Muskegon:**
 - Using more mental strategies.
 - Number talks.
 - Math work stations. It's a new way of thinking in order to deliver everyday math instruction.
 - Ways to analyze the strategies they use to get an answer.
 - I expect that I will look closely at blending my current text with purple/red book activities. Purple/red book assessments and instruction will often be the precursor to my text instruction.

Cohort 2	CAL	EUP	MAS	MUS	Total (112)	
	(32)	(24)	(22)	(34)	No.	%
I will use it with small groups	5	3	3	10	21	19%
I will use it in general or with the whole class	7	6	3	5	21	19%
I will use the results of the assessments to plan lessons, move students to the next level, or strengthen their skills	4	5	3	6	18	16%
Miscellaneous*	5	4	2	3	14	13%
I will use lessons/materials/games we were given	6	1	2	6	15	13%
I will use instructional activities in math workshop	8	2	2	1	13	12%
I will use it to help struggling students	1	3	7	1	12	11%
This will help me to differentiate instruction	4	2	4	1	11	10%
I will move students beyond the facts/algorithms or help them get a deeper understanding of math	4	--	--	3	7	6%
I will use it to help individual students	2	--	1	--	3	3%
I will use manipulatives more	--	--	--	2	2	2%

Miscellaneous:

- **Calhoun:**
 - I now feel comfortable breaking them into groups.
 - I now know that place value is the most important 2nd grade concept and I intend to spend more time with it.
 - I want to study my books and check out Pinterest so I can make learning make more sense to my students.
 - I am also really drilling split and jump strategies so students can move towards mental math thinking.
 - I think it will give me a better idea of how to find out what each student knows.
- **EUP:**
 - To meet students right at their cutting edge learning stop.
 - I will be using it next year by working in the teachings and vocabulary.
 - Planning for instruction and teaching students.
- **Mason:**
 - I can start apply things in my lower elementary classroom to better prepare students to understand multiplication and division.
 - We hope to start a Math Recovery® class in our building next year.
- **Muskegon:**
 - All of it.
 - I will be able to facilitate students' own strategies rather than just giving them strategies.
 - I am meeting them at their level with math and able to give them the necessary tools so they can access the same curriculum as peers while providing necessary supports to build understanding and fluency.

18. Teachers were asked, “**What were the strengths of this workshop?**” (*Sum of responses is greater than 100% because some participants provided more than one response.*)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Positive comments about the facilitators (amazing, great, knowledgeable, helpful, non-judgmental, patient, organized, professional, etc.)	9	1	12	9	31	34%
Activities/assessments to help us discover what level/construct of understanding our students are at	5	5	5	4	19	21%
We were given or we tried hands-on games and/or engaging activities	4	4	3	6	17	19%
The materials we were given in general or for assessments	4	3	5	3	15	16%
Applicable content	1	2	8	4	15	16%
Miscellaneous*	3	2	7	3	15	16%
Collaboration with other teachers or districts	1	1	5	5	12	13%
Videos of teacher-student interactions	5	1	2	3	11	12%
It was well-organized	1	1	2	4	8	9%
Time for discussions/dialogue	2	--	3	1	6	7%
Practice time (in general)	4	--	--	1	5	5%
Practicing assessments with actual students	--	2	2	--	4	4%
Clear explanations and guidelines for the assessments	--	2	2	--	4	4%
Time to “dig deep” or gain a deeper understanding of how kids learn math	2	1	--	--	3	3%
The safe or non-threatening environment	--	--	--	2	2	2%
The sessions were engaging or interactive	--	--	2	--	2	2%

Miscellaneous:

- **Calhoun:**
 - Learning constructs.
 - The perception of students’ learning.
 - Providing teachers with on-going support.
- **EUP:**
 - Research.
 - A coach/Math Recovery® specialist.
- **Mason:**
 - On site assistance during implementation. An instructor that promptly responds to testing questions whether via phone, in person, or by email.
 - Most levels (grades) covered.
 - The taping of our assessments.
 - Overall pace was good.
 - It also gave me a better understanding of how to understand student thinking.
 - Progressing through the stages. Books that are designed to guide.
 - Time to plan.
- **Muskegon:**
 - It was located in a convenient location.”
 - Four days.
 - I enjoyed how it was very hands-on.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Positive comments about the facilitators (amazing, great, knowledgeable, helpful, non-judgmental, patient, organized, professional, etc.)	10	5	9	10	34	30%
The materials we were given in general or for assessments	8	6	7	8	29	26%
Applicable content	3	5	2	5	15	13%
Practicing assessments with actual students	4	4	2	5	15	13%
Activities/assessments to help us discover what level/construct of understanding our students are at	4	--	4	7	15	13%
We were given or we tried hands-on games and/or engaging activities	2	--	5	6	13	12%
Collaboration with other teachers or districts	2	3	3	3	11	10%
Videos of teacher-student interactions	2	4	3	2	11	10%
Time for discussions/dialogue	3	2	1	2	8	7%
Miscellaneous*	4	2	--	--	6	5%
It was well-organized	3	1	2	--	6	5%
Practicing time (in general)	1	--	2	2	5	4%
Clear explanations and guidelines for the assessments	1	1	--	2	4	4%
Time to “dig deep” or gain a deeper understanding of how kids learn math	2	1	1	1	5	4%

Miscellaneous:

- **Calhoun:**
 - The pacing of the workshop was great.
 - Ability to practice diagnostics and differentiated learning games.
 - Not enough time to really learn all this has to offer.
 - It was very thorough.
- **EUP:**
 - It has shown me ways that I can help my students.
 - Amount of support.

19. Teachers were asked, “Do you have any questions that were not answered?”

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
No response, no, or not yet	18	14	25	17	74	81%
I will after I try to implement this in my classroom	3	2	2	2	9	10%
Yes*	3	--	2	3	8	9%

Questions and comments from those who said “Yes”:

- **Calhoun:**
 - Just hoping for follow-up.
 - Complete implementation.
 - I just need more hands-on time to really see the levels and how to link them to increase learning.
- **Mason:**
 - How will I create a great experience for my students in my class using this? I am a bit overwhelmed!
 - Still a little worried about differentiating as a management issue.
- **Muskegon:**
 - Is there a certain amount of time that needs to pass between assessments for an individual student?
 - Still would value hearing how assessments should be used with classroom setting. Everyone or just those suspected to be in need?
 - I am still processing the organization of materials in the classroom and how to mesh strategies with curriculum effectively.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
No response, no, or not yet	24	24	18	24	90	80%
Yes*	7	--	4	7	18	16%
I will, after I try to implement this in my classroom	1	--	--	3	4	4%

Questions and comments from those who said “Yes”:

- **Calhoun:**
 - I’m still not entirely sure how to make it all work best for my kids (small group-wise). I have to have some good observations of workshops in action. I will plow ahead anyway, but I think observations of classrooms using Math Recovery® would be helpful.
 - I still wonder what this will exactly look like in my classroom, but I know that we have more hours of support available.
 - I still struggle with how to implement.
 - How to implement it!
 - Should I teach skip counting in 4th grade to students who can’t do it?
 - Set up.
 - Just worried about meshing with curriculum which was discussed but will be difficult.
- **Mason:**
 - How can I fit these activities into my very packed math hour? Our engage curriculum is so packed full. We need to do a survey of it for selective reduction.
 - I have lots of questions. AVMR fills my head with lots of ideas.
- **Muskegon:**
 - I am still pondering how to fit this all in to my schedule.
 - The Google Doc created on day 10 was helpful but a completion of that form would be beneficial.
 - More focus on Math Recovery® related to STEP. Views on intervention out of classroom and best ways to run a program.
 - Too many to count.
 - How can the knowledge be effectively shared with colleagues?
 - Do you have a class for parents to take?

Appendix: Items from the Math Recovery® Book

1. Immediate goals (one week – two months). (*Sum of responses is greater than 100% because some participants provided more than one response.*)

2.

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Conduct screening or diagnostic tests for grouping students	20	10	12	4	46	49%
Gather resources or review materials to implement AVMR	4	6	6	6	22	24%
Implement AVMR in whole group instruction activities	5	5	4	4	18	19%
Organize or integrate the AVMR contents into my activities or curriculum	--	2	4	6	12	13%
Implement math workshops with struggling or small group students	1	3	3	3	10	11%
Planning when to use them in school year or to meet student needs	--	3	3	2	8	9%
Miscellaneous*	--	--	3	1	4	4%
Work on mental strategies with games	--	--	--	1	1	1%

Miscellaneous:

- **Mason:**
 - Aid my teaching partner in identifying where students struggle to help guide her in their math lessons.
 - Give feedback to teachers.
 - Talk to principal about implementation.
- **Muskegon:**
 - Become more familiar with topics covered.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Conduct screening or diagnostic tests or assessment for grouping students or determine constructs	10	17	10	12	49	44%
Implement math workshops with struggling or small group students	7	2	6	6	21	19%
Implement AVMR in whole group instruction activities	7	3	2	8	20	18%
Organize or integrate the AVMR contents into my activities or curriculum	2	5	4	3	14	13%
Work on mental strategies with games	4	1	2	1	8	7%
Miscellaneous*	1	1	--	4	6	5%
Gather resources or materials to implement AVMR	2	1	1	--	4	4%
Planning when to use them in school year or to meet student needs	1	-	1	--	2	2%

Miscellaneous:

- **Calhoun:**
 - To try to get my students to a construct.
- **EUP:**
 - To use Math Recovery® in my classroom more next year.
- **Muskegon:**
 - Become more skillful at choosing activities which match the learners' next step/goals.
 - Improve my students' math performance.
 - I have tested my students in January. I have 55% at Construct 2. I need to move them to Construct 3. I have a child still at Construct 1. I need to move him to 2-3 at least.
 - Progress monitoring all students to establish a construct and then track growth.

3. What materials do you need to meet these goals? (*Sum of responses is greater than 100% because some participants provided more than one response.*)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Screener and diagnostics materials or testing kits	19	9	17	4	49	53%
Office supplies or materials for games/activities	3	4	9	10	26	28%
Lesson plans or AVMR books and materials	3	3	8	6	20	22%
Time	1	1	6	--	8	9%
Computer or Internet access or online resources	--	2	3	2	7	8%
Miscellaneous*	--	--	5	2	7	8%
Bundles and sticks	1	2	--	2	5	5%
Whiteboard and marker or counters	2	1	2	--	5	5%
Data from previous year	2	2	--	1	5	5%
None or have everything needed to begin	1	1	--	1	3	3%

Miscellaneous:

- **Mason:**
 - Permission slips for assessing and testing.
 - Permission slips for parents.
 - Math curriculum scope and sequence charts.
 - Tubs for storage.
 - Collaboration with colleagues, help with assessing and ESD support.
- **Muskegon:**
 - Chart for sharing/shared strategies.
 - Organizers for materials.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Office supplies or materials for creating games/activities	11	2	11	10	34	30%
Screener and diagnostics materials or testing kits	9	10	6	8	33	29%
Lesson plans or AVMR books	4	1	5	6	16	14%
Time	5	5	1	3	14	13%
Bundles and sticks	7	3	1	2	13	12%
None or have everything needed to begin	2	4	2	2	10	9%
Whiteboard and marker or counters	2	1	--	1	4	4%
Miscellaneous*	--	1	--	2	3	3%
Student data from previous year	1	--	--	--	1	1%
Printer, computer or Internet access or online resources	1	--	--	--	1	1%

Miscellaneous:

- **EUP:**
 - I need to organize manipulatives. Pull out/find more hands-on activities (discovery).
- **Muskegon:**
 - The students' current construct activities meant for each student to move them along the continuum.
 - Help with the Construct 1 child. I will divide Construct 2 group into smaller groups based on their struggles within construct.

4. What support(s) do you need to meet these goals? (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Time to plan games and assessment activities	10	5	7	6	28	30%
Someone or collaborative teams to help make games or help during activities	6	3	9	4	22	24%
Professional development or Math Recovery® coach support	2	3	8	4	17	18%
None or have everything needed or unsure	5	3	3	2	13	14%
Administration/ESD or student support or parent consent	1	3	5	2	11	12%
Resources and books from the training	3	3	3	1	10	11%
Budget and materials to get games made	--	--	2	3	5	5%
Psychological aspects such as patience and motivation	4	--	--	--	4	4%
Miscellaneous*	2	--	1	--	3	3%

Miscellaneous:

- **Calhoun:**
 - Flexibility.
 - 2nd grade math test scores (MAP).
- **Mason:**
 - Follow up date to make sure I'm teaching the right things and using useful strategies.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Time to plan games and assessment activities	17	5	5	14	41	37%
Someone or collaborative teams to help make games or help during activities	7	5	5	8	25	22%
Professional development or Math Recovery® coach support	5	9	4	4	22	20%
None or have everything needed or unsure	2	4	6	2	14	13%
Resources and books from the training	3	2	1	2	8	7%
Budget and materials to get games made	7	--	--	--	7	6%
Administration/ESD or student support or parent consent	1	--	2	1	4	4%
Miscellaneous*	--	--	2	3	5	4%
Psychological aspects such as patience and motivation	1	--	--	--	1	1%

Miscellaneous:

- **Mason:**
 - Math Recovery® activities and multiplication/division/place value activities and masters.
 - Quiet area in which to assess substitute to teach my everyday lessons.
- **Muskegon:**
 - Construct 1 will meet with a grandma helper 3-4 times per week. I will give her games to help him learn to track his count and begin working with partially screened collection.
 - Refresher of Splat URL and how to best use/play it whole group.
 - Knowing that each game created fits under desired construct.

5. What could get in the way? List some obstacles to accomplishing your goals. (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL	EUP	MAS	MUS	Total (93)	
	(24)	(17)	(29)	(23)	No.	%
Time (lack of, timing)	16	10	16	12	54	58%
Miscellaneous*	5	3	6	7	21	23%
Other required assessments need to be done	6	2	4	--	12	13%
Student behavior management	5	2	2	3	12	13%
Curriculum alignment	3	4	2	2	11	12%
Budget, money or materials	1	--	3	3	7	8%
Lack of helpers around the classroom	--	1	2	2	5	5%
Old habits of daily routines	--	2	1	2	5	5%
Nothing	--	2	--	--	2	2%
Weather such as snow days	--	--	--	--	--	--

Miscellaneous:

- **Calhoun:**
 - Unfamiliar with the material because of the one-time use/practice.
 - How to assess individuals with a large class.
 - Rigidity and inflexibility of authority involved.
 - If I was unable to receive the necessary data/information about a student.
 - They are not at the construct level I chose to start with.
- **EUP:**
 - Administration.
 - Getting a good spot to assess (the hallway can be busy).
 - Unsigned permission slips.
- **Mason:**
 - Mandatory testing dates and scheduling conflicts.
 - Limited access to materials needed.
 - Overly assessed students.
 - Permission slips not returned.
 - Lack of recording device.
 - Technology challenges.
- **Muskegon:**
 - Kids' prior knowledge.
 - Lack of planning.
 - Twenty-eight students in class.
 - Not understanding where they are at and what to do next.
 - Teaching doesn't feel confident.
 - As I am teaching first grade, it is hard to think about these strategies.
 - Places to store everything.

Cohort 2	CAL	EUP	MAS	MUS	Total (112)	
	(32)	(24)	(22)	(34)	No.	%
Time (lack of, timing)	20	18	15	21	74	66%
Curriculum alignment or priorities	8	4	6	3	19	17%
Student behavior management such as absence	2	3	3	4	12	11%
Other required assessments need to be done	3	4	2	1	10	9%
Miscellaneous*	5	--	1	4	10	9%
Budget, money or materials	6	--	--	2	8	7%
Lack of helpers around the classroom	2	--	2	--	4	4%
Old habits of daily routines	2	--	--	2	4	4%
Weather such as snow days	3	--	--	--	3	3%

Miscellaneous:

- **Calhoun:**
 - Where to start. How to organize.
 - Lack of proper knowledge and practice, because it is new.
 - Teacher absences.
 - Buy in.
 - Large class size.
- **Mason:**
 - Issues that arise in classroom/obstructions.
- **Muskegon:**
 - Not being able to make the game kits up.
 - Information overload.
 - Large class sizes to reach all students and group them according to ability in manageable size group.
 - Working with some kids who have teachers who are not trained in AVMR.

6. How might you overcome these obstacles? (Sum of responses is greater than 100% because some participants provided more than one response.)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
I need planning and lesson preparation	9	6	16	7	38	41%
I collaborate with other colleagues or get help from parents	5	3	6	5	19	20%
Miscellaneous*	2	1	3	7	13	14%
I need to find time	5	4	2	1	12	13%
I discuss with administrative person	3	3	3	1	10	11%
I integrate Math Recovery® in Everyday Math lessons	2	1	1	--	4	4%
I find ways to gather resources or materials	1	--	1	1	3	3%

Miscellaneous:

- **Calhoun:**
 - Continued practice.
 - Logic and determination.
- **EUP:**
 - Flexibility when testing.
- **Mason:**
 - Observe other classrooms.
 - Wait and see if the schedule changes.
 - Try to solve technology challenges before I begin.
- **Muskegon:**
 - Practice procedures for number talks – expectations.
 - Highly structured room.
 - Thinking about how this relates to addition and that multiplication can be thought of as groups.
 - Communicate with parents.
 - Make decisions and implement new strategies as needed.
 - Lots of reflection.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
I need planning and lesson preparation	13	6	6	7	32	29%
I need to find time	5	8	6	11	30	27%
I collaborate with other colleagues or get help from parents	5	3	5	5	18	16%
Miscellaneous*	5	4	2	6	17	15%
I integrate Math Recovery® in Everyday Math lessons	7	1	2	--	10	9%
I discuss with administrative person	1	2	2	3	8	7%
I find ways to gather resources or materials	3	--	-	3	6	5%

Miscellaneous:

- **Calhoun:**
 - Continue to work on student behavior expectations.
 - Keep learning upbeat, try small activities before and after transitions for other subjects.
 - Find ideas on Pinterest, talk with [my facilitator].
- **EUP:**
 - I am not sure; I have to do these things.
 - Working over the summer to align curriculum. Working in group/partner/individual time to use information, games or assessment time.
 - Testing them when they are at school.
 - By getting really confident and good at just one of them.
- **Mason:**
 - Be open-minded and have a flexible schedule.
 - Make it a priority.
- **Muskegon:**
 - Ask [my facilitator] for help.
 - Summer.
 - When new things are added, something else needs to go away, we can't just keep adding, adding more.
 - Prayer. As I continue to research and review AVMR material it will come easier.
 - Something has to give. We can't keep adding to our list of activities to teach and not let go of some things.
 - Meet with students when they are at school.

7. What actions do you need to take to meet your goals? (*Sum of responses is greater than 100% because some participants provided more than one response.*)

Cohort 1	CAL (24)	EUP (17)	MAS (29)	MUS (23)	Total (93)	
					No.	%
Organize/review materials and gather resources to implement it	8	7	8	12	35	38%
Planning and restructuring math lessons	6	7	8	5	26	28%
Create time in my day to meet with students	5	4	4	3	16	17%
Collaborate or discuss with colleagues and administration	1	1	5	3	10	11%
Collect data	1	--	2	--	3	3%
Miscellaneous*	1	1	--	1	3	3%
Placing students in groups	1	1	--	--	2	2%

Miscellaneous:

- **Calhoun:** Be disciplined enough to follow through; **EUP:** Establish routine with it; **Muskegon:** Become more proficient in the process of these books.

Cohort 2	CAL (32)	EUP (24)	MAS (22)	MUS (34)	Total (112)	
					No.	%
Organize/review materials and gather resources to implement it	16	8	6	13	43	38%
Planning and restructuring math lessons	8	7	6	7	28	25%
Create time in my day to meet with students	4	5	4	4	17	15%
Get started	4	2	2	3	11	10%
Placing students in groups	2	1	3	3	9	8%
Collaborate or discuss with colleagues and administration	3	2	3	--	8	7%
Self-motivation and accountability	1	3	--	2	6	5%
Collect student data for planning	3	--	--	1	4	4%
Miscellaneous*	--	2	--	1	3	3%

Miscellaneous:

- **EUP:** Back off the curriculum while testing; Daily reading time this summer; **Muskegon:** More knowledge.