Effective Pedagogical Practice in Mathematics & Numeracy

Cohort 1
Evaluation of Training Analysis
July 2022

Framework for **Numeracy** and **Mathematics**

Education Resources

South Lanarkshire Council's Strategy for Recovery

Within South Lanarkshire Council Education Resources, we are embarking on an ambitious strategy to support recovery in Numeracy and Mathematics.

Long-term strategy

Train all primary teachers and appropriate secondary teachers in the pedagogy of Maths Recovery.

To deliver this ambitious strategy, we are embarking on a programme of staff training based on **The Learning Framework in Number: Pedagogical Tools for Assessment and Instruction**, which will be delivered by the Maths Recovery Council. This will result in South Lanarkshire Council having its own team of accredited Maths Recovery trainers.

This process will take place over the next three years.

Once trained, our team of accredited Maths Recovery Trainers will deliver the 'Classroom Teachers Courses' to staff across South Lanarkshire, as well as The Learning Framework in Number.

Framework for Numeracy and Mathematics

Cohort 1

The first cohort of Teachers from across South Lanarkshire have completed the Framework in Number Training.

From an initial 20 participants, 17 complete the training.

There were 15 Primary and 2 Secondary practitioners, with 2 having ASN provision.

Of those, 13 are class teachers, 3 Principle Teachers and 1 Depute Head Teacher.

Schools were selected using a variety of criteria, which included Numeracy data, SIMD/ FME profile, locality and SIP priorities.

Participants were asked to complete a pre and post training questionnaire. The questionnaires were split into two main sections. Section 1 asked about their confidence in planning, delivering and assessing high quality learning experiences in the Maths Recovery Teaching Domains.

Section 2 explored the participants main Teaching approaches.

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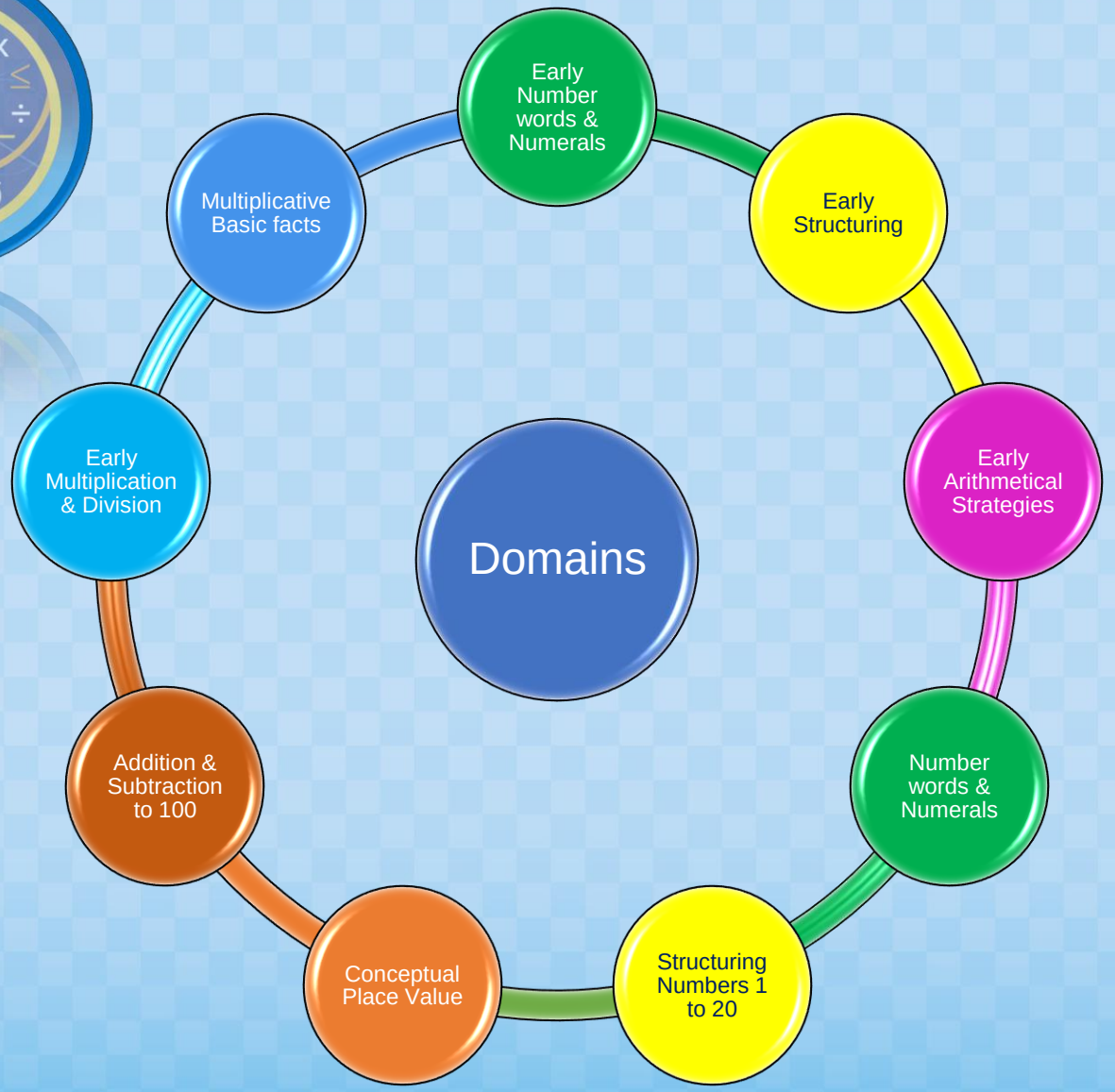

Participants were asked if they were:

- Very Confident
- Somewhat Confident
- Not Confident at all

in planning, delivering and assessing high quality learning experiences in each of the Teaching Domains

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Results

	Pre-training		
	Very confident	Somewhat confident	Not confident at all
Early Number Words & Numerals	11.8%	70.6%	17.6%
Early Structuring	0.0%	88.2%	11.8%
Early Arithmetic Strategies	17.6%	70.6%	11.8%
Number Words & Numerals	11.8%	82.4%	5.9%
Structuring Numbers 1 to 20	17.6%	70.6%	11.8%
Conceptual Place Value	17.6%	70.6%	11.8%
Addition & Subtraction to 100	23.5%	70.6%	5.9%
Early Multiplication & Division	23.5%	64.7%	11.8%
Multiplicative Basic Facts	29.4%	58.8%	11.8%

Pre Training Average

Very Confident – 16.98%

Somewhat Confident – 71.9%

Not confident at all – 11.13%

Post Training Average

Very Confident – 66.69%

Somewhat Confident – 33.31%

Not confident at all – 0%

	Post-Training		
	Very confident	Somewhat confident	Not confident at all
Early Number Words & Numerals	70.6%	29.4%	0.0%
Early Structuring	70.6%	29.4%	0.0%
Early Arithmetic Strategies	70.6%	29.4%	0.0%
Number Words & Numerals	82.4%	17.6%	0.0%
Structuring Numbers 1 to 20	76.5%	23.5%	0.0%
Conceptual Place Value	70.6%	29.4%	0.0%
Addition & Subtraction to 100	70.6%	29.4%	0.0%
Early Multiplication & Division	47.1%	52.9%	0.0%
Multiplicative Basic Facts	41.2%	58.8%	0.0%

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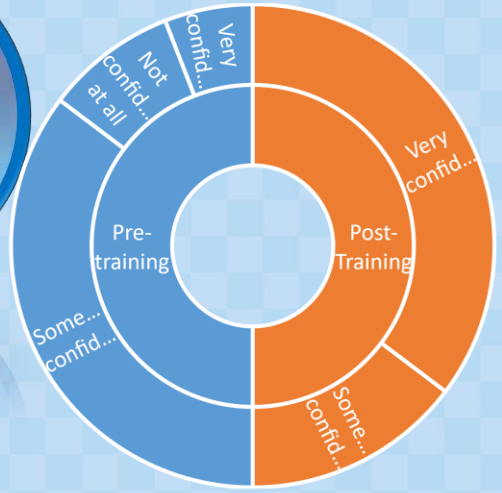
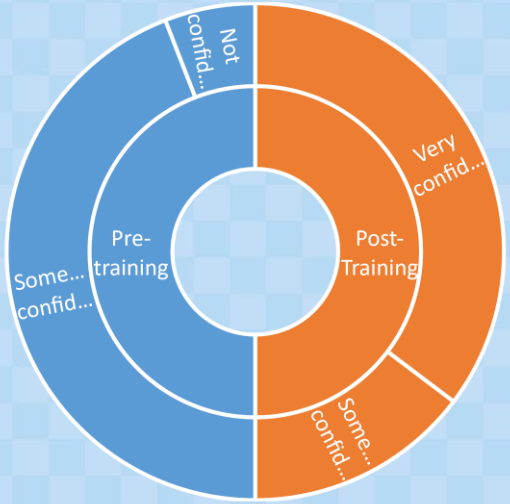
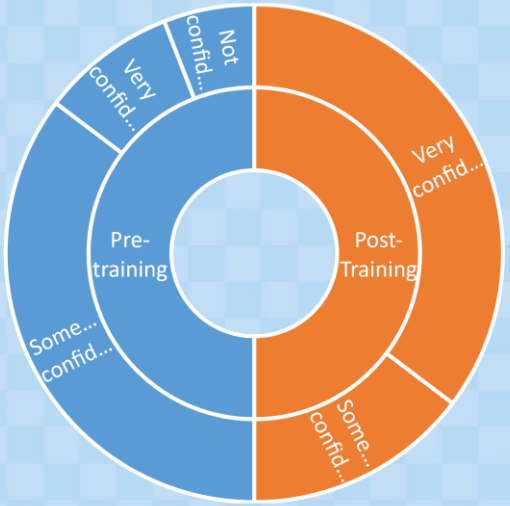
Early Number Words & Numerals



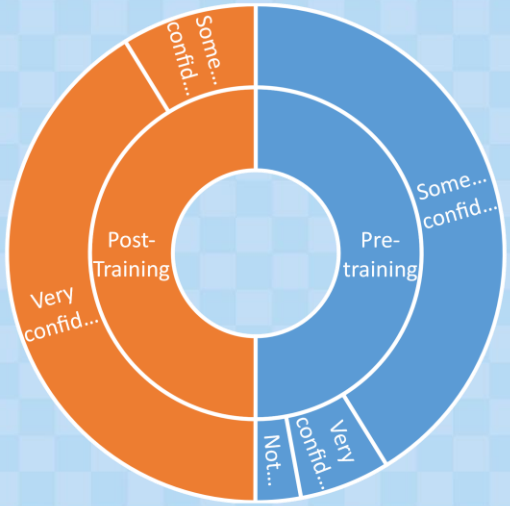
Early Structuring



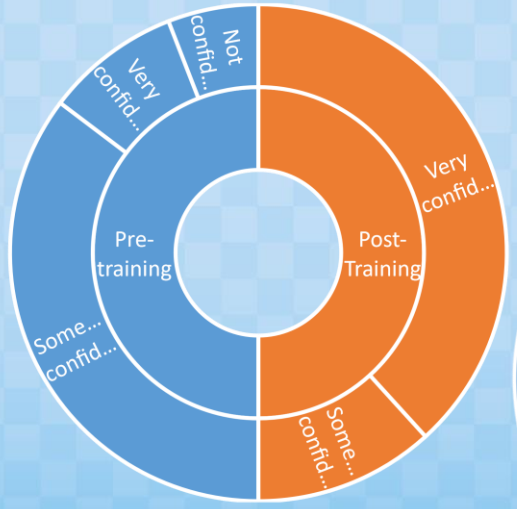
Early Arithmetic Strategies



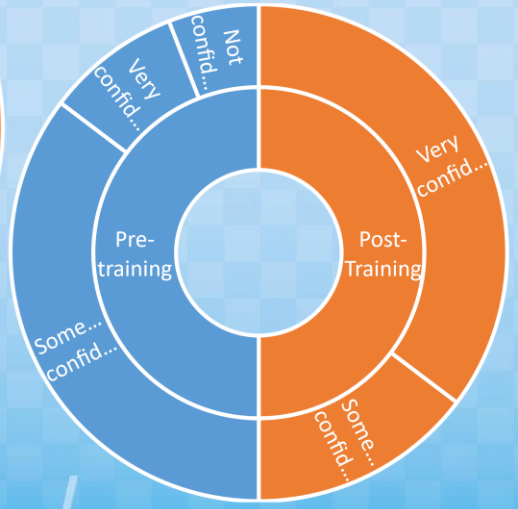
Number Words & Numerals



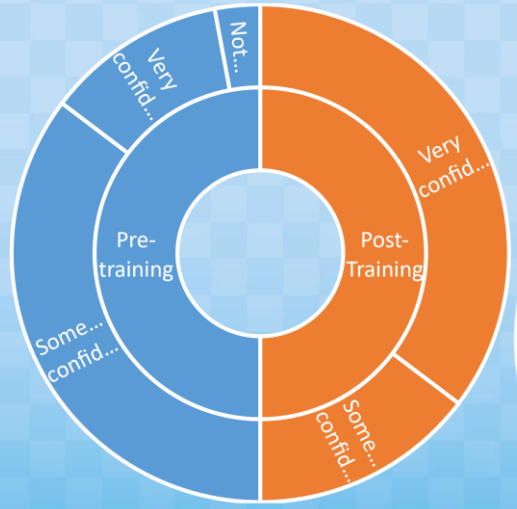
Structuring Numbers 1 to 20



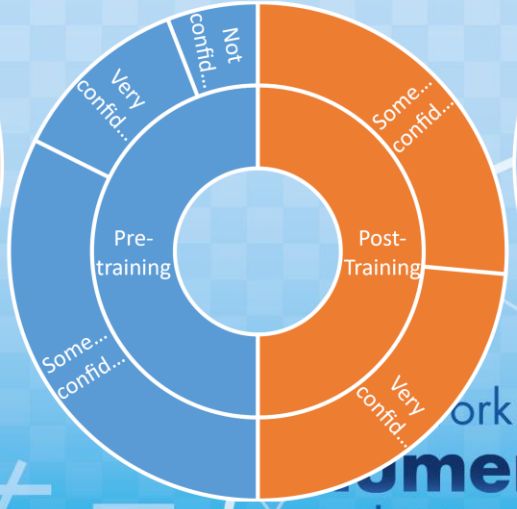
Conceptual Place Value



Addition & Subtraction to 100



Early Multiplication & Division



Multiplicative Basic Facts

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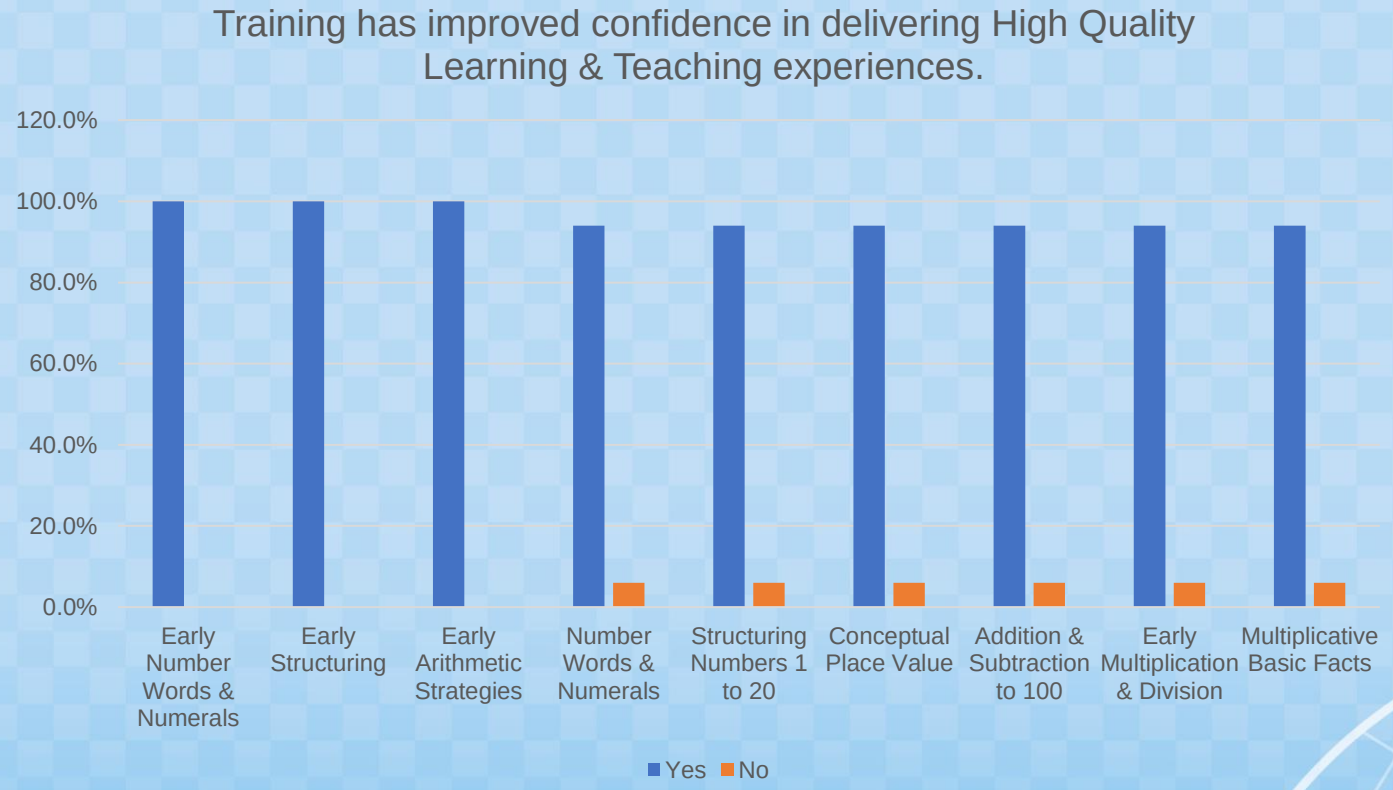
Overall Confidence levels



Framework for Numeracy and Mathematics

Teaching Approaches

Key

- Desirable
- Undesirable

I teach in an enquiry-based manner, with children thinking hard to solve challenging problems.

I use direct teaching, transmitting knowledge.

I assess continuously through teaching, always revising my understanding of the learner's knowledge.

I use assessment for summative purposes at fixed points in time.

I teach just beyond the 'cutting edge' of a learner's current knowledge.

I match my teaching or tasks to the curriculum rather than the learner's knowledge or performance.

I use my understanding of learner's numerical strategies, to help them to develop more sophisticated ones.

I tend to focus on procedures and learners getting correct answers.

I make intensive observations of learners whilst teaching, and continually adjust my teaching as a result of these observations.

I keep to my planning and timing of a pre-planned course rather than making adjustments based on pupil responses.

I start from learner's intuitive, verbal strategies, and base the development of written methods on these.

I start with direct teaching of standard, written methods.

I focus on learners developing verification strategies when solving problems and to have intrinsic satisfaction from this.

I am satisfied if a learner has one method to solve a problem and they get the correct answer.

Framework for Numeracy and Mathematics

Results

Teaching Approach	Pre-training score	Post-training score
I teach in an enquiry-based manner, with children thinking hard to solve challenging problems.	4.82	5.71
I use direct teaching, transmitting knowledge.	5.29	4.41
I assess continuously through teaching, always revising my understanding of the learner's knowledge.	6.06	6.35
I use assessment for summative purposes at fixed points in time.	5.76	5.71
I teach just beyond the 'cutting edge' of a learner's current knowledge.	4.76	5.59
I match my teaching or tasks to the curriculum rather than the learner's knowledge or performance.	3.41	2.94
I use my understanding of learner's numerical strategies, to help them to develop more sophisticated ones.	5.18	5.88
I tend to focus on procedures and learners getting correct answers.	3.65	2.47
I make intensive observations of learners whilst teaching, and continually adjust my teaching as a result of these observations.	5.12	5.94
I keep to my planning and timing of a pre-planned course rather than making adjustments based on pupil responses.	3.29	2.12
I start from learner's intuitive, verbal strategies, and base the development of written methods on these.	5.24	5.53
I start with direct teaching of standard, written methods.	3.06	2.29
I focus on learners developing verification strategies when solving problems and to have intrinsic satisfaction from this.	4.53	5.41
I am satisfied if a learner has one method to solve a problem and they get the correct answer.	4.12	3.41

Participants used a scale of 1 to 7.
1 = Never
7 = Always

Ideally we are looking for the '**Green**' approaches to **increase** and the '**Orange**' approaches to **decrease**.

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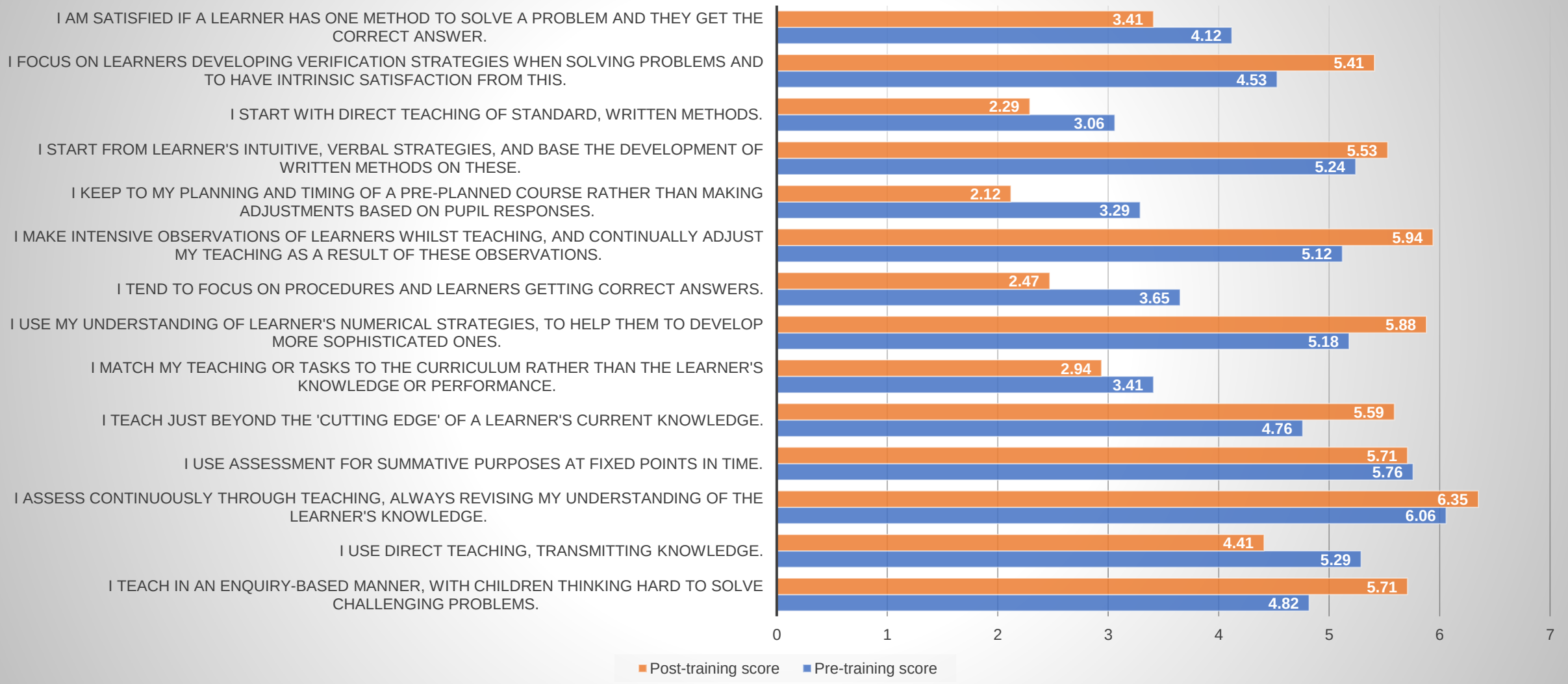
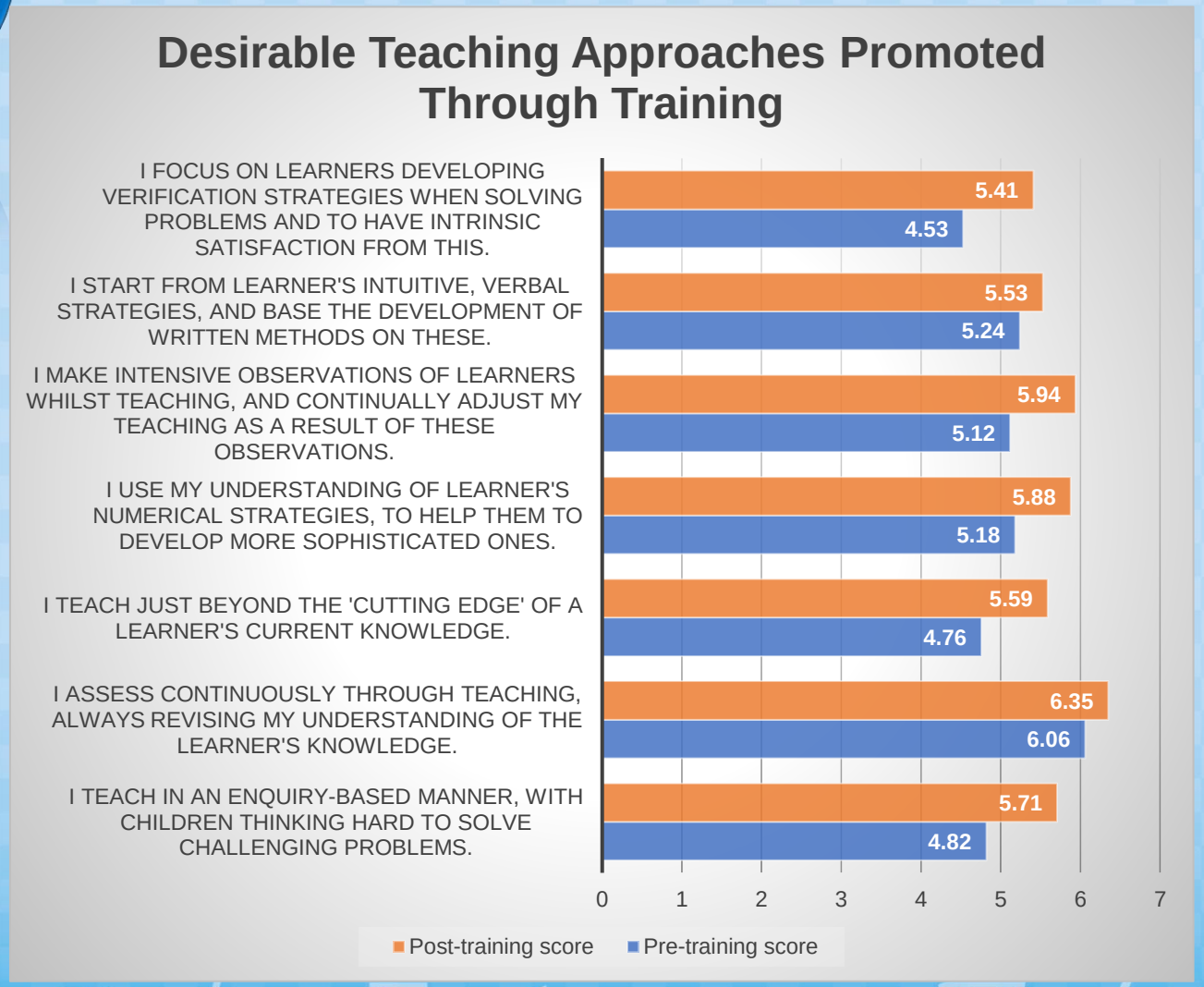
Teaching Approaches - Combined



and Mathematics



All ‘Desirable Teaching Approaches’ increased.

Average scores

Pre Training: 5.10

Post Training: 5.77

Difference: +0.67

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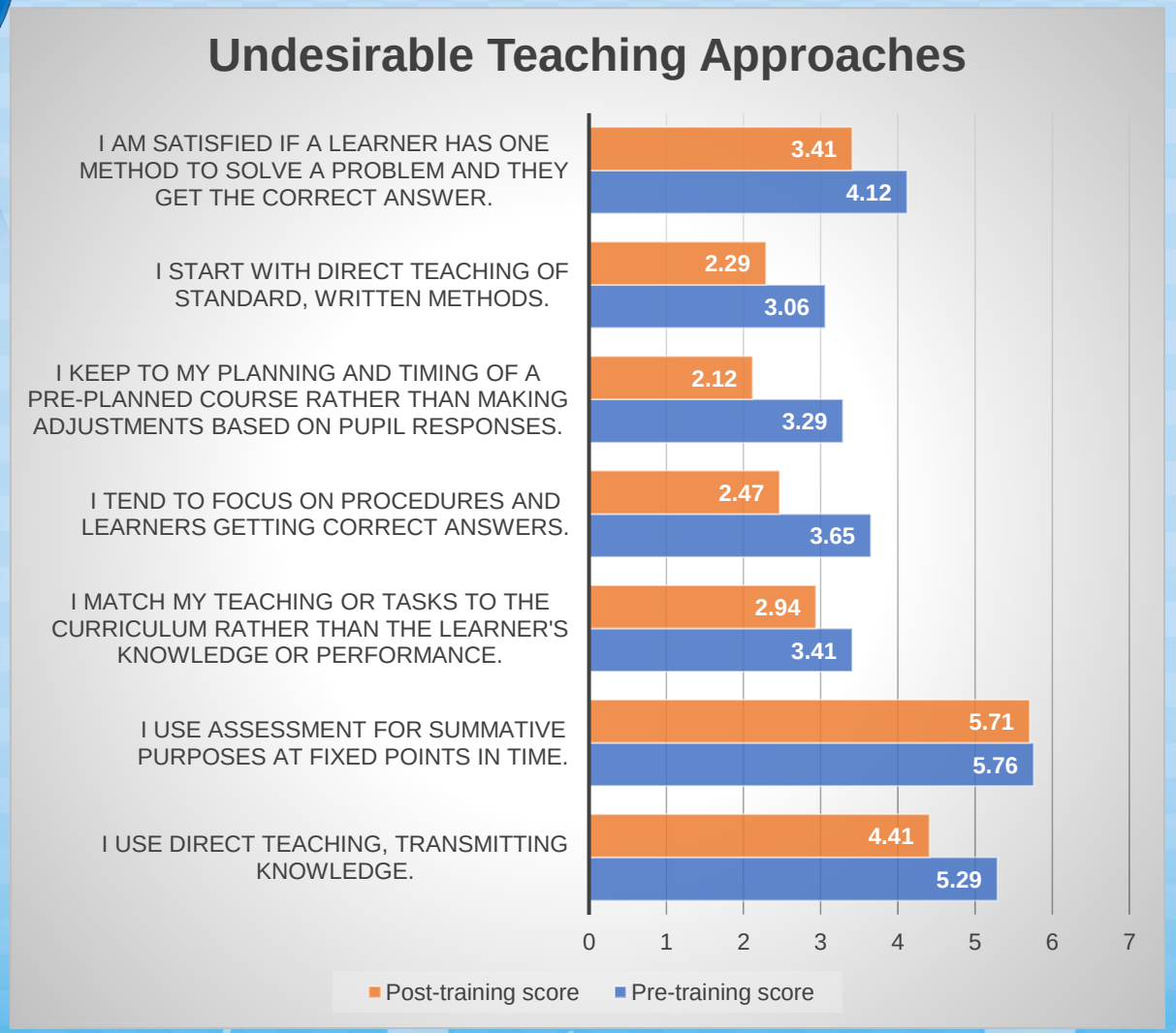

All ‘Undesirable Teaching Approaches’ decreased.

Average scores:

Pre Training: 4.08

Post Training: 3.34

Difference: -0.74

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Conclusion

The Training in ‘The Learning Framework in Number’ has improved the participants overall confidence in planning, teaching and assessing high quality learning experiences in all of the teaching domains.

This training has altered the teaching approaches most commonly used by participants to more desirable, enquiry based methods.

10 participants have indicated that they are keen to become one of South Lanarkshire Council’s first cohort of Maths Recovery Trainers.

16 Participants have stated that they are going to gain accreditation in this training.

2 Participants have expressed interest in developing appropriate training for ASN establishments.

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Comments

I have thoroughly enjoyed the training and have found that it makes you question, challenge and reassess current pedagogical practices

At this stage I will definitely commit to gaining accreditation and will make a decision about becoming a trainer at the beginning of next session.

Thank you very much! I thoroughly enjoyed the course and learned so much about pupil learning and the importance of strategy vs procedure. I plan to take all that I have learned forward when teaching S1 ASN this year.

I have thoroughly enjoyed this Maths Recovery training after having previously completed the purple book training. I can see the benefits of the intervention and look forward to working towards my accreditation in August.

Thoroughly enjoyed the course and learned so much. It has made me completely rethink my approach to maths. Next year I will be out of class helping to embed the Maths Recovery approach across our school.

I would be really keen to work towards accreditation next session and work with 2 pupils in the hope that I can go forward to develop further as a trainer.

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