Creating positive futures

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Special thanks to:
Photobox Group
Man Charitable Trust
Bruderhof Community
Professor Carl Hughes
Dr Stacey Hunter
Kaydee Owen
Joshua Payne
Abigail Marchant
Philippa Marchant
Simon Marchant
Ruth Aylward
Executive Summary

XLP’s literacy and numeracy project (XL-LAN) is based on a precision teaching approach called SAFMEDS that has proved to be effective in targeting deficient subject areas and rapidly improving both knowledge and fluency. At the heart of the approach is the learner capturing their own results on a table and plotting them on a learning chart. In this way, the learner goes at their own pace and competes with themselves to improve.

The project has reached 551 learners in its 18 month pilot stage, working with over 30 schools, pupil referral units, mentoring networks, community groups and educational charities.

The SAFMEDS approach uses flashcards, kindly printed by Photobox Group, which cover 63 numeracy and 57 literacy topics, aligned to the National Curriculum specifications for Key Stage 1 and 2. The content of the cards has been validated by educational specialists and Bangor University Psychology Department. Bangor University are partners on the project and have recently completed an independent evaluation.

The results of the independent evaluation concluded that learners made significant gains in both their literacy and numeracy skills throughout the course of the intervention.

At the beginning of the project, students using the numeracy cards were able to answer an average of 26% of questions correctly (within 60 seconds), which increased to 52% by the end. For literacy, correct scores increased from 13% to 47%, for learners enrolled on the programme.

The evaluation also revealed that irrespective of age, learners had developed new strategies to answer questions, had improved their mental recall of facts, and had shown progression through using SAFMEDS packs. Furthermore, learners reported that they were making fewer mistakes in their classwork as a result of using the cards. Students also commented on how the sessions had helped to improve their confidence.

The XL-LAN pilot was run in partnership with Bangor University and their independent evaluation is the basis of this end of pilot review.
Creating positive futures

About XLP

XLP is creating positive futures for young people living in the inner city and making a serious and sustainable impact on poverty and educational failure.

Our vision is to see young people choosing to stay in school and succeed; choosing not to be involved in gangs, crime or anti-social behaviour; choosing to set goals for the future and to work hard to achieve them.

We work holistically with young people in their schools, on their estates, and with their families. We do this through a range of projects such as educational support work in schools, after-school clubs, mentoring, community buses, arts, sports, summer camps, and access to training and employment.

Where we work

XL-LAN is one of a range of projects we run to deliver the following outcomes:

- Young people with a raised sense of self-worth, self-esteem and increased educational achievement, which helps them positively contribute to society.
- Young people with fresh goals and the desire to work hard to achieve them, and who are able to make wise life choices.
- Young people with positive attitudes and behaviours towards their communities: their families, peers, local residents, teachers and the police.
The Need

Many of the young people we work with struggle at school with poor levels of literacy and numeracy at a foundational level, which is a barrier to their success across all subjects in secondary education and beyond.

Alongside poor academic achievement, this barrier can lead to frustration and low self-confidence that can find an outworking in difficult behaviour and disruption.

We believe literacy and numeracy skills are key to a young person making wise choices and achieving a positive future. The XL-LAN project targets those at risk of not achieving good levels to provide support and intervention to equip and encourage them to do so.

In London

40% of the city’s children did not achieve the expected standard in reading, writing and mathematics at the end of primary school*

Inner city London has the highest rate of free school meals in England, with 23% of primary school pupils and 28% of secondary school pupils eligible**

Lewisham, Islington and Camden (boroughs XLP operate in) are among the top five boroughs in London for permanent exclusions for secondary school aged pupils**

Half of pupils attending school in inner city London have English as an additional language**

“I think it has helped my confidence because at the start of year 4 I wasn’t that confident. It makes me confident to answer questions in class.”

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SAFMEDS is a precision teaching approach that proved to be effective in targeting deficit subject areas and rapidly improving both knowledge and fluency.

The SAFMEDS precision teaching approach was developed by Dr. Ogden Lindsley. Its effectiveness has been demonstrated by a number of academic studies. Bangor University is a partner on the project and a centre of excellence for this work in the UK. Research has shown the SAFMEDS procedure can be used to increase the speed and accuracy with which a learner can perform basic numeracy skills, such as number recognition and multiplication facts, as well as successfully developing basic literacy skills, such as sight word reading.

The acronym SAFMEDS refers to a specific learning procedure that uses cards and stands for:

Say All Fast a Minute Every Day, Shuffled
The Approach

1. **Check Equipment** – the learner takes out the contents of their pack: cards, timer, results table and learning chart.

2. **Prepare** – the learner shuffles their cards and makes sure they are all facing the right way.

3. **Start the Timer** – the timer is set to one minute and the learner begins.

4. **60 Seconds** – the learner holds the pack of cards, reads the question on the top card ‘in their head’, and says the answer ‘out loud’. They check their answer with the answer on the back of the card. Correct answers go on the ‘corrects’ pile, the incorrects on the ‘not yet’ pile.

5. **Record the Scores** – when the minute is up, the learner counts the number in the ‘correct’ pile and in the ‘not yet’ pile, and records it in their results table.

6. **Error Correction** – the learner goes through the ‘not yet’ pile without the timer to identify learning opportunities.

7. **Reshuffle** – the learner then combines the ‘corrects’ and ‘not yet’ piles and shuffles them in with the rest of the cards, ready to start again!

8. **Repeat** – repeat steps 2 to 7, twice more. The best score from the three trials is then marked on the learning chart. This process is referred to as a SAFMEDS session.

**The key is speed**: the learner needs to be encouraged not to worry about getting a few wrong in order to get through more cards (if they don’t know it after a second, put it into the ‘not yet’ pile).
The Outcomes

Over the 18 month period, our pilot surpassed our target number of learners worked with and professionals trained.

Professionals trained
Target 120
Actual 250

Learners worked with
Target 300
Actual 551

Our SAFMEDS collection contains 120 packs (63 numeracy and 57 literacy), which are aligned to the National Curriculum specifications for Key Stages 1 and 2. Each pack contains 60 cards and is labelled with a pack tag (e.g. E001/M001) to identify the topic it covers. The most popular numeracy packs have included: multiplication (M027, M039, and M014), addition (M019) and adding, subtracting & dividing fractions (M031). The most popular literacy packs have included: rhyming words (E003), identifying nouns, verbs & adjectives (E040), tense recognition (E015), missing letters for spelling practice (E057) and identifying passive & active sentences (E054).

“The cards give me a chance to challenge myself and even though I don’t know all of them, most of the time I can say OK I know some of these, and it gives me confidence.”
“My teacher tells us to do times tables, and I am always sad about it, but when I do SAFMEDS I feel better about it. It’s really fun and I have seen that I have got better. And now I know all my times tables.”
Researchers at the Collaborative Institute for Education Research, Evidence, and Impact at Bangor University have completed an academic evaluation of the XL-LAN project as of September 2018; the results of which are summarised here.

The analysis included results from 363 SAFMEDS packs, reflecting the progress of 263 learners (141 male and 122 female). 201 learners completed numeracy packs with an average frequency of 2 sessions per week, whilst 64 learners completed literacy packs with an average frequency of 2 sessions per week.

The analysis revealed that when using the numeracy cards, learners improved on average by 2.5 correct answers per session and when using literacy cards, learners improved by 2 correct answers per session. Learners completed between 6 and 7 SAFMEDS sessions in total.

When the analysis was split by year group, the results demonstrated that the literacy programme was most effective for year 7s and year 5s, who improved by 3.6 and 2.9 correct answers per session, respectively. The analysis revealed that the numeracy programme was most effective for year 9s, year 6s and year 7s who showed increases of 2.3, 2.2 and 2.1 correct answers per session, respectively. The results of this age analysis suggest that those transitioning from Key Stage 2 to Key Stage 3 may be most benefitted from the SAFMEDS resource.

“When I didn’t use the cards I was really struggling, but my mum has said she has noticed I’m really improving since using them.”
"When I didn’t use the cards I was really struggling, but my mum has said she has noticed I’m really improving since using them."

As the table to the left illustrates, 34% of literacy learners increased the number of correct answers they gave by between 11 and 20 over the SAFMEDS intervention. For numeracy, 41% of learners increased the number of correct answers they gave by between 11 and 20. The statistics demonstrate the usefulness of the SAFMEDS resource in developing fluency in key literacy and numeracy skills, using a method that is fast paced and easy to learn.

The chart to the right shows that at the beginning of the numeracy intervention, learners were able to answer an average of 26% of the questions in the pack correctly in 60 seconds. This increased to 52% on their personal best session. At the beginning of the literacy intervention, learners were able to answer 13% of the questions correctly. By the end, they were able to answer 47% correctly in 60 seconds. The differences are statistically significant, demonstrating the effectiveness of the SAFMEDS resource in supporting young people’s education.

Bangor University also evaluated the results of 38 student interviews, which revealed learners enjoyed the SAFMEDS procedure and they recognised their skill progression throughout the course of the intervention.

The fast-paced nature of the resource appealed to learners and it created a sense of achievement to see their score increase from session to session. Students were also positive about the ‘error correction’ time, as it helped them to develop new strategies and improve their mental recall of facts. Students revealed that they were making fewer mistakes in their classwork as a result of SAFMEDS, demonstrating the transferable benefits of the programme.

Learners also felt that using the cards had helped to develop their confidence, as they were more able to raise their hand in class. Confidence in a subject is highly correlated with competence and attainment, highlighting the potential of the SAFMEDS resource in raising literacy and numeracy outcomes.

The change in percentage of correct cards “were statistically significant and robust, demonstrating a strong, consistent pattern of improvement for most learners.”

Independent External Evaluation by Bangor University

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Professionals’ Feedback

“Since 2016 the XL-LAN project has been supporting the learning of young people in London. The results here demonstrate that the use of SAFMEDS has helped learners to significantly increase their fluency of key literacy and numeracy skills. The numeracy data shows steady progress within the first 9 SAFMEDS sessions before progress becomes more variable; whilst the literacy data shows a steady increase throughout the programme. The data reflects that the learners were able to answer significantly more cards in each pack correctly after taking part in the SAFMEDS programme. Finally, nearly all of the supervisor-level data shows an increase in learners’ scores over time. Together, this data supports the effectiveness of the SAFMEDS procedure in education.”

“By providing learners with level-appropriate SAFMEDS packs they are presented with questions that set them up to succeed. Over time, they can visually see their scores improve towards mastery. Learners here reported that the sessions have made them more confident about answering questions in class. Additionally, learners reported that they were making fewer mistakes in their classwork as a result of the fluency-building practice. This further demonstrates some of the transferable benefits of a SAFMEDS programme.”

“A notable effect of using the SAFMEDS procedure was found to be skill development. The programme has helped many of the learners who were interviewed for this study to help develop their numeracy and/or literacy skills. Some of the learners were able to identify specific skills that they have been able to develop through frequent practice of the SAFMEDS procedure and through error correction.”
From the Classroom

“I’ve been so thrilled to see the way the cards have engaged my lowest attaining students in year 7, even in the last lesson on a Friday afternoon! These students generally do not enjoy reading and can struggle with a crippling lack of confidence. All students have made progress in their end of term assessments since starting the cards.”  
Tom, English teacher

“The repetition of key facts helped with memory and as their memory grew so did their confidence. This impact was seen as we covered other topics during class time. Because their number skills improved, their access to more challenging topics increased. The cards presented a very stimulating format for the students to develop the key building blocks of mathematics. I would highly recommend it.”  
Melanie, Maths teacher

“Students got really competitive and always wanted to improve on their previous score. The cards are user friendly and a great way for students to have fun while learning.”  
James, Maths teacher

“At first the children found the cards quite challenging but as their confidence grew they started to enjoy learning their fractions. Towards the end of term they set themselves challenges to beat their highest score. From a teaching point of view I found this project to be very successful, the children have really benefitted from the project.”  
Julie, Teaching Assistant

“SAFMEDS cards have helped my low ability year 7 class in a number of ways. A number of students have difficulties with speech and language and the cards have helped them to memorise and retain both the spelling and meaning of a range of words. Their progress in SAFMEDS has also had a positive impact on their writing, including improvements in spelling, grammar and syntax.”  
Elliot, English teacher
Learning and Development

The statistical and anecdotal findings from the 18-month pilot have provided insights to how best to develop the XL-LAN project going forwards.

**Having a strong lead**

*Learning:* The XL-LAN project was well-implemented within schools and organisations when an allocated staff member took a lead on co-ordination. Staff members who had less contact time with students were more likely to be available for meetings and responsive to emails. Senior staff members were able to drive the project effectively and ensure the rest of the department were delivering the sessions.

*Development:* More senior and specialist members of staff should be encouraged to become active leads in driving the project, as strong organisational skills are needed to facilitate the project well.

**Primary schools vs secondary schools**

*Learning:* Primary schools found SAFMEDS sessions easier to implement because of more student-teacher contact time throughout the school day, compared to secondary schools, where students may only see their subject teacher for an hour a week.

*Development:* More primary schools should be encouraged to use the intervention as the resource is easier to implement in primary schools’ lesson time. This means there is a higher chance of regular practice, which leads to better fluency among learners. In secondary schools, more XLP support can help address the problem of lack of time for student-teacher interaction.

**Ensuring regular SAFMEDS sessions**

*Learning:* Busy teaching staff, curriculum demands (including preparation for exams), students being withdrawn from lessons and extracurricular activities meant SAFMEDS sessions were not consistently delivered.

*Development:* To maximise the regular practice SAFMEDS requires, XLP should schedule weekly, rather than monthly, planned visits to help facilitate sessions. This would streamline the session and remove pressure from teaching staff. Furthermore, XLP can use weekly visits to provide more hands-on support with interpreting data and giving intervention advice, which proved difficult over email.

**Transitioning from Key Stage 1 to 2**

*Learning:* The greatest improvements were made by pupils in years 5, 6, 7 and 9, across literacy and numeracy. The cards seem to be most effective for those transitioning from Key Stage 1 to Key Stage 2.

*Development:* It is important that students moving on to secondary school feel confident and well-equipped in key literacy and numeracy skills so the project should continue to work with these age groups. It is important to target basic skills at early intervention level, so there is less of the curriculum to ‘catch up’ on.
Young people with additional needs

Learning: Young people with additional needs have thrived using SAFMEDS. The repetition and fast paced nature of the resource make it an accessible tool for autistic learners and those with attention deficits. For those with English as an additional language, the cards have built confidence in reading, writing and speaking.

Development: More young people with additional needs should be targeted when promoting the resource. A key advantage of the cards is that they can be used to address certain gaps in individual learning. This has helped to reduce anxiety and frustration that learners can experience when they are not able to keep up in class.

Students providing false scores

Learning: Students inflating their scores by cheating, as a result of laziness, embarrassment or boredom, became an issue among some learners. This tended to be a challenge in class-wide approaches, rather than in small groups or 1:1.

Development: Supervisors should use positive reinforcement, including reward systems, to encourage learners to give honest scores and harness an element of novelty, when the resource is used for a prolonged period of time.

Competition

Learning: Learners liked to compete against their own score from session to session. Whilst self-competition encourages learners to improve their performance, it is important that individuals do not begin to compete against one other. XLP observed this happening in a few classes, which could explain why students began to cheat, as they wanted to be seen to be out performing their peers.

Development: Those delivering SAFMEDS sessions should set individual targets for learners to achieve week-on-week and month-on-month. Not only would this help to minimise inter-student competition but would also help maintain levels of motivation. Through having smaller groups of learners, supervisors would have the time to set these targets.