

East Dunbartonshire Council Educational Psychology Service

Title

Closing the poverty related attainment gap: Using Learning Journals to engage parents at the early level, with a particular focus on numeracy.

What did we ask?

The study aimed to address three key questions:

- Do Learning Journals increase parental engagement in relation to numeracy in a primary school context?
- Does increased parental engagement through Learning Journals improve pupils' attainment in numeracy at the early level?
- What are the barriers to parental engagement in relation to numeracy?

What is the evidence base?

There is a clear link between socioeconomic deprivation and academic attainment, with children from deprived backgrounds failing to reach levels of attainment similar to children from more affluent homes (Organisation for Economic Co-operation and Development, 2007). Early numeracy and mathematical understanding is a strong predictor of children's attainment through school and beyond yet attainment in mathematics and numeracy is decreasing across Scotland, particularly amongst pupils from areas of deprivation (The Scottish Government, 2015; Duncan & Magnusson, 2011).

Much of the attainment gap in numeracy can be attributed to parental socioeconomic background and learning experiences (Siegler & Ramani, 2008). Positive parental attitudes to mathematics and a rich home learning environment promote the development of mathematical competencies in the early years yet evidence suggests that parents from

deprived backgrounds may lack knowledge of what mathematical concepts their children should be learning or how these can be taught at home (Skwarchuk, Sowinski & Leferve, 2009; Cannon & Ginsberg 2008). Therefore, interventions which prioritised daily learning conversations, cooperative or collaborative learning, and increased levels of child interaction and engagement were most effective in increasing attainment in numeracy (Slavin, Lake & Groff, 2009).

Supporting families from disadvantaged backgrounds to meaningfully engage with educational establishments has historically been challenging. While parents are interested in their child's progress and achievement, anxiety, personal experience, levels of attainment, and a lack of confidence around mathematics may hinder meaningful engagement with establishments (Desforges & Abouchaar, 2003). Evidence has demonstrated that technology can be an effective method of engaging parents and sharing information in order to develop pupils' home learning environment (Grant, 2009; Lewin & Luckin, 2010).

Learning Journals is an online system for tracking and monitoring pupils' progress in the early level of the curriculum. It provides a secure online space for school staff and parents to share information on pupils' learning, progress and the curriculum through the upload of pictures, videos and comments. Learning Journals are widely used in nurseries but there is little evidence to demonstrate their efficacy in engaging with parents in the primary school context.

What did we do?

A mixed-method design was employed to gain a rich picture of the experiences of families in relation to the research questions. A purposive sampling method was used, and the participating mainstream primary school was selected due to its location in an area of socioeconomic deprivation and an identified need to develop the school's parental engagement strategy.

The families of 22 Primary 1 pupils, each living in Deciles 1 to 3 as defined by the Scottish Index of Multiple Deprivation (SIMD) (2015b), were invited to participate. 11 families agreed to participate following an initial invitation. A rolling engagement methodology was used to recruit additional parents and a further 10 parents were recruited through the course of the study via text messages, letters and parents evenings.

Participating families were provided with a username and password to access their own child's Learning Journal. Participants who did not have access to the required resources at home were provided with access to computers within the school and video cameras.

A parents' event was held at the school to explain the purpose and the nature of the study. At this event, an overview of the development of numerical skill and an introduction to Learning Journals were delivered by the researchers.

Over a six-week period, class teachers uploaded photographs, videos and written information regarding the topics covered in class to the pupils' Learning Journals on a twice weekly basis. Examples of activities that could be completed at home were also uploaded. Parents were encouraged to upload comments, photographs or videos describing what their child had been doing at home.

The 11 parents who signed up to the study at the initial stages were asked to complete a questionnaire prior to, and on completion of the intervention. The questionnaire used a five-point Likert scale to measure parents' views of numeracy and engaging with school. Parental confidence in numeracy, and helping their child with number were also measured.

Information from parents who did not initially sign up for the study was gathered through semi-structured interviews conducted at parents' evenings in the school at the end of the

intervention period.

Pupil attainment in numeracy was measured using the City of Edinburgh Baseline Assessment of Achievement in Literacy and Numeracy pre- and post-intervention. Pupils' views were gathered using an interactive post-box activity led by the researchers.

Qualitative data gathered from questionnaires and semi-structured interviews was transcribed then analysed using Braun and Clarke's (2006) six-step approach. Numerical data was analysed using a range of statistical tests, where possible.

What have we found so far?

Parental Engagement

21 of a possible 22 families participated in the study and accessed their child's Learning Journal, demonstrating an increase in parental engagement.

Pre- and post- intervention questionnaires received from parents who agreed to participate in the initial stages of the study (N=11) demonstrated significant increases in relation to:

- perceived importance of maths in Primary 1;
- parental confidence in helping children learn about number;
- parental knowledge of daily activities to support children in learning about number;
- knowledge of where to seek support in helping children learn about number.

Parents were asked "What did you like about Learning Journals?" Responses indicated three key themes: an increased understanding of pupils' learning, an increase in confidence in supporting children's learning at home, and increased understanding of home learning.

In response to "What would make it easier to use Learning Journals?", one key theme emerged: having support from school staff to set up access to the Journals.

Parents who participated at a later stage of the study (N=10) were asked "What prevented you from signing up for Learning Journals?". Four main themes emerged: uncertainty about expectations of the study, access to technology at home, a lack of time to complete tasks at home and lack of confidence in mathematics. Responses to "What would've helped you to sign up for a Learning Journal?" generated two main themes emerged from parents' responses: having staff support the process of signing up sign up, and having

access to ICT at home.

Attainment in Numeracy

Pre-intervention data demonstrated:

- Approximately half of pupils' scores (N=9) fell within the 'below average' range for their chronological age in relation to number recognition, counting, estimating, and basic addition and subtraction.
- Pupils from SIMD 1 and 2 were more likely to fall within the 'below average range' than pupils from SIMD 3.

Comparison of pre- and post-intervention scores demonstrated:

- A significant increase in attainment for pupils from all SIMD deciles following the introduction of Learning Journals;
- The greatest increase in attainment was amongst pupils from SIMD 2;
- The gains made by pupils with a 'below average' pre- intervention score were significantly greater than those already performing within the average range.

Pupils' Views

Data gathered from pupils' demonstrated:

- increased enjoyment of numeracy activities and mathematical learning;
- increased enjoyment of working with parents;
- Learning Journals and the use of technology was highly valued.

Summary

The findings of the current study suggest that Learning Journals are effective in increasing engagement amongst parents who would otherwise be unlikely to engage. Participants valued Learning Journals, reporting that the opportunity to develop an understanding of their child's learning and to access strategies to use at home impacted positively upon their approach to supporting their child.

Following the introduction of Learning Journals an increase in pupils' attainment in numeracy was found, with the greatest gains amongst pupils from SIMD 2 and those performing within the 'below average' range prior to intervention. This indicates that Learning Journals are effective in addressing the poverty related attainment gap. However, technology alone is not sufficient to engage parents and must be combined with support from highly skilled, empathetic staff to ensure the success and sustainability of interventions.

What do we plan to do next?

In the 2017 – 2018 session:

- Alternative measures and sources of information will be considered to triangulate the results of the current study and consider the wider impact of Learning Journals on parental engagement and attainment;
- Learning Journals will be extended into Primary 2 to identify whether the gains are sustained long term;
- Learning Journals will be introduced to the families of nursery pupils to increase parental engagement during transition from nursery to Primary 1;
- The findings of the current study will contribute to the development of numeracy assessment and interventions across the local authority in line with local and national numeracy strategies.

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