

Knowledge Exchange Seminar Series (KESS)

...is a forum that encourages debate on a wide range of research findings, with the overall aim of promoting evidence-based policy and law-making within Northern Ireland



Better Reading for Better Outcomes-

Working Collaboratively to Narrow the Attainment Gap

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Literacy Skills

- Literacy levels and educational attainment serve as indicators of the knowledge and skills that a population possesses.
- **Individual-** Literacy and other skills gained through education provide fundamental tools for life-long learning; they also enhance opportunities for economic participation and social engagement.
- **Society/community** Improved literacy and educational attainment bolster human capital resources and economic growth.
- They are also linked to social welfare and poverty reduction



The Picture for Disadvantaged Students

- By KS2 boys, pupils receiving FSM, disadvantaged, SEN pupils, and the ethnic groups Gypsy/Roma, traveller of Irish heritage, Pakistani and Black Caribbean all have the lowest attainment in numeracy and literacy (Department for Education, 2017).
- In N.I., the percentage of pupils receiving FSM achieving level 2 in English and Math has increased from 27.7% in 2007-8 to 41.3% in 2014-15. The percentage not entitled to FSM has also increased by approximately the same proportion (61.6 – 73.7%) (Programme for Government Consultation Document, 2016).
- Therefore, although educational outcomes are slowly improving, the attainment gap between disadvantaged children, and those who are well off remains.



Barriers to existing approaches

- Most approaches 'work' for the majority of learners
- Most approaches therefore *increase* the gap
- The Matthew Effect 'advantage begets further advantage ' or —' to them that hath shall more be given'
- Reducing the gap for the most disadvantaged in NI is a significant challenge



Systematic Phonics Instruction

- Empirical research shows that phonics based interventions are the most effective for increasing literacy skills of disadvantaged children.
- Results on the effectiveness of commercially available phonics based programmes currently invested in by schools in the UK is inconsistent, with effects ranging from moderate to none.

*Costs range from £108 to £205 per pupil (DfE, 2017)



Computer Assisted Instruction

- CAI is used to describe specific computer applications in education such as simulation, drill and practice, and tutorials offered as independent activities or supplementary to general classroom instruction (Cotton, 1991).
- NRP, (2000), has outlined the effectiveness of computer assisted instruction (CAI).
- Singleton (2009) and Linehan et al. (2011) report that the use of computers increases student motivation by providing fast-paced, individualized lessons while offering students the ability to make more numerous and different kinds of responses, not otherwise available through conventional teaching methods.



Considerations...

- However, the methodological quality of the research on CAI to enhance literacy for struggling readers is mixed.
- Many of the studies reviewed had several limitations, such as a weak or absent comparison group, insufficient information about the sample and outcome measures, as well as small sample sizes that made it difficult to generalize the findings.
- Research shows that some interventions have had a somewhat positive effects, while others (particularly those with limited teacher involvement) have shown less positive effects (Dynarski et al., 2007; Setter & Hughes, 2010).



Headsprout Early Reading and Comprehension

- 1. 'More in less time' (non reader to fluent reader in 30 hrs of instruction)
- 2. Reduced errors
- 3. Mastery criterion
- 4. Guided practice
- 5. Cumulative review and application



Headsprout Early Reading and Comprehension

2017 CODiE Award Winner -Best Reading/English/Language Arts Instructional Solution

2017 BESSIE Award Winner - Early Learning, Reading Website 2016 CODiE Award Winner - Best PreK / Early Childhood Learning Solution

Experimental evaluations of Headsprout© to date: (Layng, Twyman & Strikeleather, 2003; 2004; Huffstetter et al. 2010; Grindle, Hughes, Saville, Huxley & Hastings, 2013; Tyler, Hughes, Beverley, & Hastings, 2015; Storey, McDowell & Leslie, 2017).

*Cost is \$199 for a class of 32 children (\$6.21 per child)



HER Research UK/Ireland- Storey, McDowell & Leslie 3-year study.

Aim- evaluate the effectiveness of this program with at-risk populations in Northern Ireland and to compare the effectiveness of this program with literacy interventions that are currently used within our education system.





Evaluating the efficacy of the Headsprout Reading Program with Children who have Spent Time in care

Sept 2012	Looked-After Children	General School Population	Attainment Gap
KS1	71%	94%	23%
KS2	45%	83%	38%
KS3	34%	79%	45%

- Pre- Post-test Control Group Design.
- N=8 (Participants paired based on reading performance and grade level) between the ages of 6 and 8
- All children were fully adopted and had spent at least one year in care prior to this.
- Measures used; Diagnostic Indicators of Basic Early literacy Skills (DIBELS) and Word Recognition and Phonics Skills Test (WRAPS).



Results- Mean ORF scores for treatment and control participants at pre-test and post-treatment





Results- Mean WRA for treatment and control participants at pre-test and post-treatment.





A Comparison of Two Reading Intervention Approaches as Supplementary Instruction for Children "At-Risk" of Reading Failure

Pre- Post-test control group design.

The Oper University

Ulster

N=30. Primary School Boys between the ages of 5 and 6 receiving free school meals with low reading ability.

Phonics Early Reading Assessment (PERA) administered pre- and post-test to obtain a measure of PrePhonics Awareness and Word Recognition

Assembly



Results- Individual change from Pre- to Post-treatment in Pre-Phonics and Word Recognition Scores





Analysis

- ANOVA demonstrated that there was a significant effect of training ($F_{1,27}$ =17.80, p<0.001) for scores on the PrePhonics Assessment and a significant interaction between group and training ($F_{2,27}$ =28.16, p<0.001).
- Across both measures, the Headsprout[™] group had a significantly lower mean pre-test score(*M*=41.50, *SD*=7.79) than the Reading A-Z[™] group (*M*=50.10, *SD*=9.31); *t*(17)=-2.24, *p*<0.05.
- In the PrePhonics measure the Headsprout[™] group had a significantly higher mean post-test score(*M*=62.00, *SD*=5.75) than the Reading A-Z[™] group (*M*=48.20, *SD*=13.98); *t*(18)=2.89, *p*<0.05.
- Across both measures the Headsprout[™] group had a significantly lower mean pre-test score (*M*=41.50, *SD*=7.79) than the control group (*M*=52.30, *SD*=8.03); *t*(18)=-3.05, *p*<0.01 and a significantly higher mean post-test score(*M*=62.00, *SD*=5.75) than the control group (*M*=51.20, *SD*=8.31); *t*(16)=3.38, *p*<0.005.



A comparison of Headsprout Early Reading with SENCO delivered literacy instruction

• Pre- Post-test control group design.

The Oper University

Ulstei

- N=33. Primary School Children between the ages of 7 and 9 with mild learning difficulty receiving supplementary literacy support.
- Phonics Early Reading Assessment (PERA) administered pre- and post-test to obtain a measure of Word Recognition and Sentence Reading.

Assembly



Results

- ANOVA demonstrated a significant interaction between group and training ($F_{1.30}$ =55.14, p<0.001) for Word Recognition Scores.
- The Headsprout group had a significantly higher mean post-test score(*M*=99.41, *SD*=7.13) than the Control group (*M*=78.27, *SD*=8.70); *t*(30)=7.55, *p*<0.001.
- ANOVA demonstrated a significant interaction between group and training (*F*_{1,30}=14.44, *p*<0.05) for Sentence Reading Scores.
- The Headsprout group had a significantly higher mean post-test score(*M*=97.53, *SD*=8.64) than the Control group (*M*=88.67, *SD*=9.85); *t*(30)=3.33, *p*<0.05.



Better Reading for Better Outcomes

- Over the past decade, a new form of research-practice collaboration has emerged- *design research*.
- Working together, practitioners and researchers design, test and refine interventions to improve practice and refine theoretical principles. (Coburn & Stein, 2010).
- The overall goal of this research project is therefore to investigate the feasibility of implementing evidence based, computer assisted instructional (CAI) packages in primary schools in NI, to target reading skills of the most disadvantaged pupils, and narrow the attainment gap.

'MORE IN LESS TIME'



Aims-

- Evaluate the effects of existing CAI literacy programmes, combined with the use of empirically validated behavioural change interventions in providing effective literacy interventions.
- Incorporate staff and parent training to provide a home-school support platform
- Establish School to School collaboration (schools from both communities)
- Establish 'Literacy Champions' in each school to take ownership of and support the project.
- The project aims to evaluate the impact of CAI, in a way that will be implemented, evaluated and supported in the school going forward, without long term support by researchers



Progress to date.....

Funding through DfE- Northern Ireland Progamme for Government is supporting a full time PhD student.

- Phase 1 A mixed method design to investigate teachers' understanding and experience of evidence based practice relating to literacy-The initial study is underway and is in collaboration with colleagues from Bangor University and University of Warwick. An online survey has been created and will be disseminated to a large number of primary and special needs schools across the UK and Ireland.
- gather information on teaching professionals' current knowledge and understanding of evidence based practice in their schools and their experience of evidence-based practice relating to literacy.



- Phase 2 Development of information, training and support package for teaching staff and parents- a training and support package for school staff and parents will be designed. The aim of this package will be to teach participating staff and parents of pupil participants, how to understand and identify different levels of 'evidence' relating to best practice in education. In addition, training will focus on how to implement and support a CAI literacy programme across the school for pupils most at risk.
- Phase 3 Implementation of literacy interventions in schools incorporating evidence based CAI packages-This phase involves the experimental element of the project in the form of a pilot feasibility trial across 6-8 schools, with each school having identified at least 30 pupils in primary 2-5, receiving FSM and demonstrating difficulties in literacy.



Phase 4 - Analysis and dissemination of results & applications for funding- This phase will consist of distilling the results of the project into a package of support for schools and parents, and disseminating the results of the project to ensure maximum circulation of results, through a) Journal Publication, b) Conference Presentation, and c) Professional networks

If initial results are positive, applications for funding will be made to support larger scale evaluations of school based CAI in NI.

Our hope is that this project will provide opportunities for informing policy and expansion of stakeholder understanding and adoption of evidenced based interventions in the United Kingdom and Ireland.





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