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A review of South African primary school literacy interventions from 2005 to 2020

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Background: Learner performance in literacy in the primary education sector is in a state of crisis in South Africa. Whilst many more learners have physical access to education post-1994, the quality of education remains polarised along socio-economic lines. This article sets out to engage with current literature on literacy interventions implemented in South Africa in order to develop an understanding of the key features of interventions, which affect positive change.

Aim: This review provides an overview of the scope and type of primary school-level literacy interventions embarked upon in the last 15 years in South Africa. An analysis of some of the key findings on the impact of these interventions is provided.

Method: A systematic review was conducted using the key words 'literacy intervention' and 'reading intervention'. The selection of articles was further refined with a specific focus on primary school interventions in South Africa.

Results: The review focuses on specific literacy interventions where 'intervention' is defined as active and purposeful engagement to improve decoding, vocabulary, fluency and/or comprehension of primary school learners. This article reviews the documented literacy interventions and draws out some of the key features of successful interventions. It also makes broader reflective comments about what this exercise reveals about the state of literacy interventions in South Africa.

Conclusion: Interventions have generally been *ad hoc* and uncoordinated and have not wrought systemic change. Moving forward in a coordinated manner must be based amongst other things on learning from interventions that have been reviewed here.

Keywords: Education; literacy; literacy intervention; primary schools; South Africa.

Introduction

A key schooling challenge in South Africa is how to concurrently address the two problems of deep socio-economic inequality and poor overall performance in literacy learning. Fleisch, Pather and Motilal (2017a) usefully identified three waves of research on the literacy crisis in South Africa since 1994. The first wave focused on the legacy of apartheid in relation to racially based literacy inequalities. The second wave turned attention to factors in post-apartheid schools and classrooms that underpinned the dual problem of inequality and underachievement (e.g. Taylor, Van der Berg & Mabogoane 2013). The final wave attempts to understand underachievement by exploring the relationship between learners, teachers and resources. For example, Draper and Spaull (2015) argued that the underachievement in literacy is strongly correlated with low levels of oral reading fluency (ORF). Typically, literacy interventions implemented over the past 15 years have sought to strengthen the relationship and interface between learners, teachers and resources.

It is timeous to review published literature on the numerous literacy interventions that have attempted to address the literacy challenge in South Africa over this period. There has been a proliferation of such interventions, ranging from large-scale, statistically verified projects, through to longitudinal, smaller scale, in-depth interventions, to a wide range of experimental case studies (these predominate in the Review). Each serves its own purpose, whether to inform national policy, to evaluate the impact of donor funding, to demonstrate that literacy teaching in a particular school can be transformed, to test particular hypotheses or pedagogy, to gain insight into mechanisms of change or to fulfil the requirements of a Master's thesis. However, there is a paucity of literature that takes a step back and seeks to gain insight from an overview of published work on the aforementioned broad range of South African literacy interventions, with the aim of providing an analysis of differences, commonalities and respective impacts.

Whilst such reviews are rare, the World Bank has usefully conducted a couple of reviews: In 2015, Evans and Popova considered at least six systematic reviews or meta-analyses conducted between 2013 and 2015 and highlighted that they have divergent conclusions depending on their study samples and classification variance. The second, more recent World Bank review, examined 18 early grade reading interventions in four of its regions, including two USAID-funded interventions in sub-Saharan Africa (Graham & Kelly 2018). The International Initiative for Impact Evaluation (3IE) also published a far-ranging systematic review entitled 'The impact of education programmes on learning and school participation in low- and middle-income countries' (Snilstveit et al. 2016). This is the biggest systematic review of its kind; it included 59 studies from sub-Saharan Africa. Impact on specific literacy outcomes and on school participation rates were assessed in the review. The South African interventions reviewed by Snilstveit et al. (2016) included the subsidy provided by South Africa's 'No-Fee' Policy (Garlick 2013) and Child Support Grant (Eyal & Woolard 2014) and the 1995 English and Operacy Programme in KwaZulu-Natal (Mouton 1995). Another sub-Saharan Africa review was conducted by Conn and published in the *Review of Educational Research* in 2017. Based on her review of 12 types of literacy interventions drawn from 56 articles, she conducted a meta-analysis of impact evaluations. Her significant finding on the effect size of programmes that focus on teacher pedagogy and classroom instructional techniques is alluded to later in this article.

The review presented here aims to provide an overview of literature detailing primary school literacy interventions in South Africa in the period 2005–2020. It draws out the key findings from the impact evaluations of these interventions in the hopes of finding commonalities amongst successful interventions, pointing towards features of interventions, which can promote much needed systemic transformation.

Methods

This review considers selected published work on literacy interventions in primary schools in South Africa. The methodology of the review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al. 2009). The decision to define the geographic scope of the review as 'South Africa' informed the approach of conducting the search for published material in the Sabinet database. The search was conducted in all the SA ePublications on Sabinet. Sabinet is an online database that focuses specifically on journals from Africa. The keywords 'literacy intervention' and 'reading intervention' were used. The former search generated 178 articles and the latter, 76 articles (of which 24 were duplicates of articles from the 'Literacy Intervention' search). Inclusion criteria were set as follows: location, language of publication, publication date, level/phase of schooling, definition of an 'intervention' and publication type. The 230 articles were thus filtered by reading the title and/or abstract of each article to ensure that they met the following inclusion criteria: English-medium

articles published between 2005 and 2020, with a content focus on South African literacy interventions at primary school level (grades R – 7). In total, this exercise yielded 24 articles from the following Journals, as presented in Table 1.

All articles were copied into a journal folder and key elements of each of the 24 articles were captured on an Excel spreadsheet. These elements were: location of intervention (province, as well as specific locality and whether urban or rural); object/aims of intervention; methodology; theoretical framework/perspective; intervention strategies; assessment tools used; types of interventions (teacher professional development, in-class, resource provision, small group, after-school, parallel, parent-focused); intensity/regularity of intervention (weekly, twice-weekly, daily); duration of intervention; scale of intervention (pilot, small-scale, large-scale); phase of intervention (early childhood development/ grade R, grades 1–3, grades 4–7); focus of intervention (reading skills, reading fluency, appreciation, comprehension); language of intervention; and key findings on the impact of intervention.
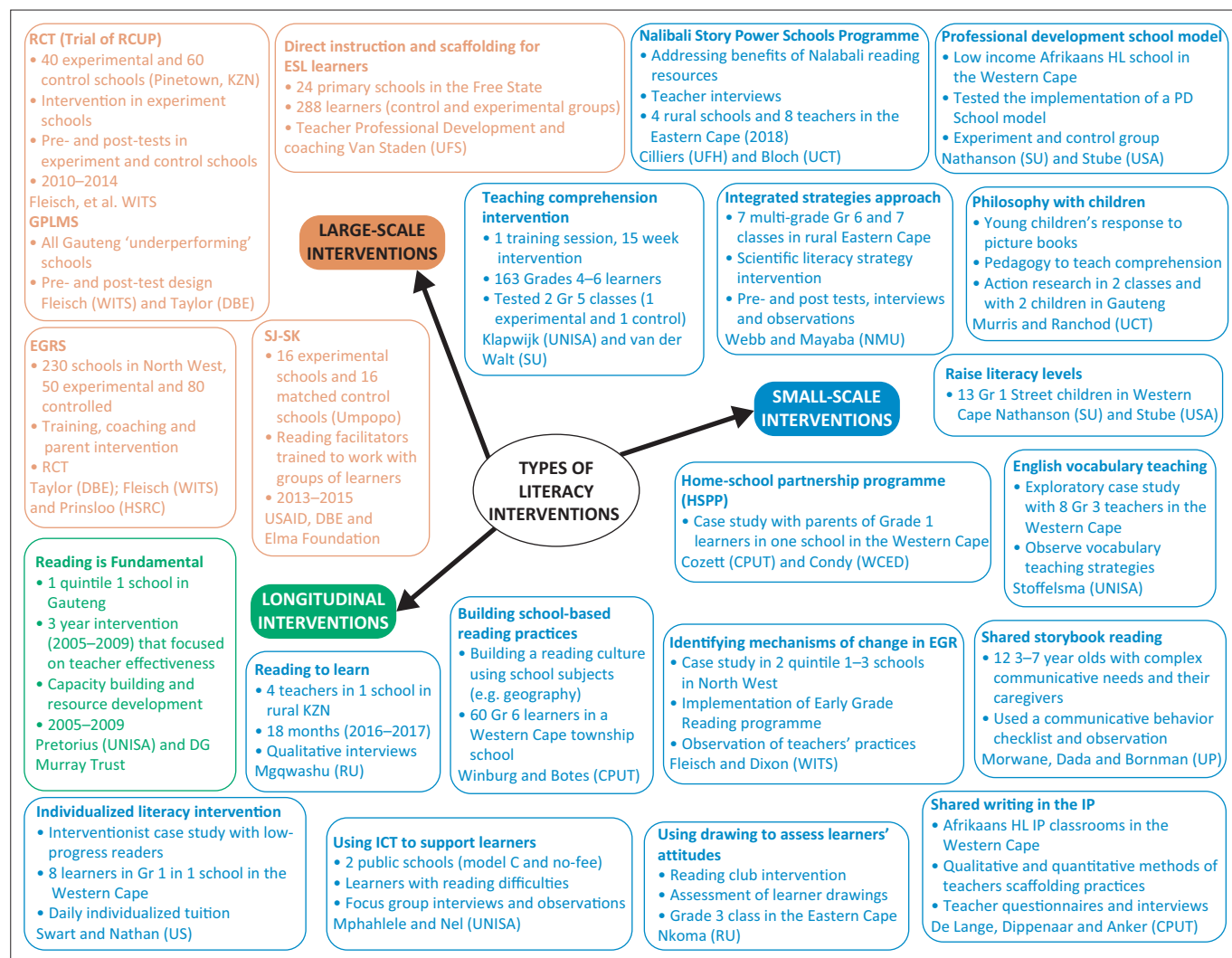
After reading the 24 articles and analysing them in relation to our research question on the spreadsheet, we had a series of meetings to discuss the analysis and emergent themes. As explained here, this search was restricted to peer-reviewed journals that are included in the Sabinet database. This is a limitation because there is undeniably valuable work on literacy interventions that is published in conference proceedings, policy briefs, book chapters, donor reporting and in other international journals. These fall outside the scope of this review.

Review of findings

The notion of literacy is understood for the purposes of this article to be in line with the Simple View of Reading (SVR) model of reading (Catts 2018) and thus encapsulates primary school learners' competence in decoding, vocabulary, fluency and/or comprehension of language. The term 'intervention' implies an active and purposeful engagement (not just observation or secondary research) with an intention to change the status quo. Literacy interventions thus usually include a component that attempts to monitor and evaluate

TABLE 1: Number of articles relevant to the inclusion criteria from all journal articles accessed using the keywords 'literacy intervention' and 'reading intervention'.

Journal titles	Articles generated	Relevant articles
African Journal of Research in Mathematics, Science and Technology Education	2	1
Journal for Language Teaching	43	1
Per Linguam: A Journal of Language Learning	30	8
Perspectives in Education	7	3
Reading and Writing – Journal of Reading Association of South Africa	16	3
South African Journal of Childhood Education	5	3
South African Journal of Education	10	4
The Independent Journal of Teaching and Learning	1	1

RCT (Trial of RCUP)
- 40 experimental and 60 control schools (Pinetown, KZN)
- Intervention in experiment schools
- Pre- and post-tests in experiment and control schools
- 2010–2014
Fleisch, et al. WITS
GPLMS
- All Gauteng 'underperforming' schools
- Pre- and post-test design
Fleisch (WITS) and Taylor (DBE)

Direct instruction and scaffolding for ESL learners
- 24 primary schools in the Free State
- 288 learners (control and experimental groups)
- Teacher Professional Development and coaching Van Staden (UFS)

Nalibali Story Power Schools Programme
- Addressing benefits of Nalabali reading resources
- Teacher interviews
- 4 rural schools and 8 teachers in the Eastern Cape (2018)
Cilliers (UFH) and Bloch (UCT)

Professional development school model
- Low income Afrikaans HL school in the Western Cape
- Tested the implementation of a PD School model
- Experiment and control group
Nathanson (SU) and Stube (USA)

LARGE-SCALE INTERVENTIONS

Teaching comprehension intervention
- 1 training session, 15 week intervention
- 163 Grades 4–6 learners
- Tested 2 Gr 5 classes (1 experimental and 1 control)
Klapwijk (UNISA) and van der Walt (SU)

Integrated strategies approach
- 7 multi-grade Gr 6 and 7 classes in rural Eastern Cape
- Scientific literacy strategy intervention
- Pre- and post tests, interviews and observations
Webb and Mayaba (NMU)

Philosophy with children
- Young children's response to picture books
- Pedagogy to teach comprehension
- Action research in 2 classes and with 2 children in Gauteng
Murris and Ranchod (UCT)

EGRS
- 230 schools in North West, 50 experimental and 80 controlled
- Training, coaching and parent intervention
- RCT
Taylor (DBE); Fleisch (WITS) and Prinsloo (HSRC)

SJ-SK
- 16 experimental schools and 16 matched control schools (Umpopo)
- Reading facilitators trained to work with groups of learners
- 2013–2015
USAID, DBE and Elma Foundation

SMALL-SCALE INTERVENTIONS

Raise literacy levels
- 13 Gr 1 Street children in Western Cape Nathanson (SU) and Stube (USA)

TYPES OF LITERACY INTERVENTIONS

Home-school partnership programme (HSPP)
- Case study with parents of Grade 1 learners in one school in the Western Cape
Cozett (CPUT) and Condy (WCED)

English vocabulary teaching
- Exploratory case study with 8 Gr 3 teachers in the Western Cape
- Observe vocabulary teaching strategies
Stoffelsma (UNISA)

Reading is Fundamental
- 1 quintile 1 school in Gauteng
- 3 year intervention (2005–2009) that focused on teacher effectiveness
- Capacity building and resource development
- 2005–2009
Pretorius (UNISA) and DG Murray Trust

LONGITUDINAL INTERVENTIONS

Building school-based reading practices
- Building a reading culture using school subjects (e.g. geography)
- 60 Gr 6 learners in a Western Cape township school
Winburg and Botes (CPUT)

Identifying mechanisms of change in EGR
- Case study in 2 quintile 1–3 schools in North West
- Implementation of Early Grade Reading programme
- Observation of teachers' practices
Fleisch and Dixon (WITS)

Shared storybook reading
- 12 3–7 year olds with complex communicative needs and their caregivers
- Used a communicative behavior checklist and observation
Morwane, Dada and Bornman (UP)

Reading to learn
- 4 teachers in 1 school in rural KZN
- 18 months (2016–2017)
- Qualitative interviews
Mgqwashu (RU)

Individualized literacy intervention
- Interventionist case study with low-progress readers
- 8 learners in Gr 1 in 1 school in the Western Cape
- Daily individualized tuition
Swart and Nathan (US)

Using ICT to support learners
- 2 public schools (model C and no-fee)
- Learners with reading difficulties
- Focus group interviews and observations
Mphahlele and Nel (UNISA)

Using drawing to assess learners' attitudes
- Reading club intervention
- Assessment of learner drawings
- Grade 3 class in the Eastern Cape
Nkoma (RU)

Shared writing in the IP
- Afrikaans HL IP classrooms in the Western Cape
- Qualitative and quantitative methods of teachers scaffolding practices
- Teacher questionnaires and interviews
De Lange, Dippenaar and Anker (CPUT)

GPLMS, Gauteng Primary Language and Mathematics Strategy; RCUP, Reading Catch Up Programme; EGRS, Early Grade Reading Study; SJ-SK, siyaJabula siyaKhula kaMhinga Learner Regeneration Project; ESL, English Second Language; CPUT, Cape Peninsula University of Technology; ICT, Information and Communications Technology; DBE, Department of Basic Education.

FIGURE 1: Mindmap of literacy interventions reviewed.

impact. Globally, one of the most common types of literacy intervention is 'early grade reading interventions'. The World Bank Education Global Practice Group Research Report (Graham & Kelly 2018) defines these as:

> [I]nterventions that employ a combination of five components: at a minimum, they must train teachers to teach reading using simplified instructional techniques and evidence-based curricula. In addition, they typically include in-class coaching and the provision of instructional guidelines, instructional materials, or tools for student assessment. (p. 2)

Across these 24 articles, a total of 21 specific interventions are considered and assessed. See Figure 1 for a mindmap of these interventions. They can be categorised as either small-scale case studies or large-scale interventions. Unsurprisingly, 17 of the interventions were small-scale. They generally piloted literacy ideas or sought to test mechanisms to improve literacy. One of the interventions, called 'Reading is FUNdamental', was subjected to an in-depth longitudinal review by Pretorius, amongst others. This intervention features in four of the articles, two of which deal with comprehension in the Intermediate Phase

and two of which deal with Foundation Phase literacy as a basis for transitioning to Intermediate Phase comprehension.

The four large-scale interventions emerging from the systematic review were (1) the Reading Catch Up Programme (RCUP), (2) the siyaJabula siyaKhula kaMhinga Learner Regeneration Project (sJ-sK), (3) an intervention generally known as the Early Grade Reading Study (EGRS), which trialled and compared three different intervention models ('the three models') and (4) a 'direct instruction and scaffolding for English Second Language (ESL) learners' intervention in the Free State.

The RCUP was an 11-week programme that evaluated the approach adopted in the Gauteng Primary Language and Mathematics Strategy (GPLMS)[1] in a randomised control trial by Fleisch et al. (2017b). It was implemented in 40 experimental and 60 control schools in Pinetown,

KwaZulu-Natal. It focused on providing teachers with scripted lesson plans, instructional coaches and literacy resources. sJ-sK was implemented from 2013 to 2015 in 16 experimental schools and matched control schools in Limpopo. It involved training reading facilitators to work with groups of 10 learners. The three intervention models of EGRS were implemented from 2015 to 2017 in 230 North West Schools (each intervention was implemented in 50 schools, i.e., 150 experimental schools and 80 control schools). The three models were: a structured learning and centralised training programme, a structured learning and on-site coaching programme and a parental support programme. The Free State intervention focusing on direct instruction and scaffolding for ESL learners was implemented in 24 randomly selected schools. From each of these schools, 12 Gr 4–6 learners with below-grade reading performance participated, totalling 288 learners.

Each of these large-scale interventions were evaluated in different ways with different degrees of statistical verification (including Randomised Control Trials (RCTs), quasi-experimental design and using pre-test post-test experimental and control groups). This means that the interventions differ in how effectively they measure causality and therefore with how much confidence we can say that the specific interventions led to the impact attained (relative to possible other influences). This issue of demonstrating causality is the holy grail of designing and implementing impactful interventions, which can be rolled out more broadly. As discussed in the section on impact, although there are statistical mechanisms for measuring impact, few of even these large-scale interventions, could demonstrate significant causal impact.

Some general observations about all 21 interventions are now provided.

Provincial spread of literacy interventions

The bulk of the interventions considered in this review were implemented in Gauteng (5) and the Western Cape (7). Three interventions were implemented in the Eastern Cape, with the balance shared between the remaining provinces (with the exception of the Northern Cape, where none of the interventions took place). This provincial spread is in line with our expectations because Gauteng and the Western Cape have the strongest educational administrations and have delivered the best educational results over the past 5 years (Department of Basic Education 2020). Similarly, this pattern reflects a broader phenomenon that most civil society interventions in South Africa, across all sectors, are concentrated in these provinces. Amongst other things, this is in line with industrialisation, urbanisation and the concentration of economic activity and the services sector. Of the 21 interventions, only three had a specifically rural focus.

Schooling phases covered by interventions

The interventions under consideration in the selected studies cover ECD/Grade R (3), the Foundation Phase that spans Grades 1–3 (9) and the Intermediate Phase, which entails Grades four to seven[2] (7). Two of the interventions traversed the Foundation and Intermediate Phases.

In terms of the spread of interventions across the education phases, there is the relatively high concentration on the Intermediate Phase. They are focused on catching-up the skills that were not learnt by Grade 4 and mediating the language transition from home language instruction to English as the Language of Learning and Teaching (LoLT). Perhaps the relative predominance of Intermediate Phase interventions can be explained, at least in part, as a response to the disturbing Progress in International Reading Literacy Study (PIRLS) 2006 and pre-PIRLS 2011 findings, regarding the inability of Grade 4 and 5 learners to read for meaning, or what Janks (2011) refers to as 'reading to learn' (Van Staden & Bosker 2014). In order to be able to read to learn, children must be able to decode text relatively fluently and accurately; this is a prerequisite for learning higher order literacy skills such as the comprehension of text and assimilation of knowledge communicated in text. The difficulties involved in making this transition from 'learning to read' to 'reading to learn' are compounded by the change in the LoLT that most South African learners experience when they progress into Grade 4.

The example of the Department of Basic Education's RCUP intervention is instructive in affording us a window into the mindset that catch-up programmes could work. This was initially targeted at Grade 4 level in schools, which performed sub-par in the 2008 Systemic Evaluation for Grade 3 literacy. One of the key findings of the evaluation of the intervention was that it should have taken place prior to Grade 4. The follow-up EGRS intervention in North West Province took this recommendation on board; it was targeted at Grade 1 level. One sees this 'catch-up' type thinking reflected in many of the educational interventions of government, across the age and phase spectrum. For example, every year it prioritises interventions at Grade 12 levels, with a particular emphasis on poorly performing schools. The ubiquitous 'winter' and 'spring' schools are examples in this regard. Commentators such as Spaull and Pretorius (2019) have been critical of this 'band-aid approach', instead urging that government should focus its resources on building strong educational foundations. Equally, there is an argument that careful and strategic targeting of interventions is necessary in order for them to have a marked impact, rather than the blanket targeting of the weak under-resourced schools and learners. Work by GADRA Education, an education NGO based in Makhanda, formerly known as Grahamstown, demonstrates demonstrates the benefits of targetting relatively strong rather than relatively weak learners from no-fee schools (McCann, Talbot & Westaway 2021). There is further discussion of the participant-selection issue in the following section.

Focus of interventions

The Grade R interventions attempted to support parents/caregivers and promote shared storybook reading. The

2.Grade 7 is often included in research in the Intermediate Phase as it is located in primary schools.

Foundation Phase interventions generally focused on developing early literacy skills and attaining ORF. The Intermediate Phase interventions tended to have a comprehension focus. A number of the interventions recognised the important linkages between ORF and comprehension. Pretorius's (2012) 'Butterfly effects' article usefully reflects on her 5-year longitudinal literacy intervention. She explores the relationship between phonemic awareness, word recognition, ORF and reading comprehension. She concludes that '[O]ral reading fluency, which is the culmination of automatised decoding skill, was a predictor of learners' ability to engage with text and construct meaning from it' (Pretorius 2012:90). This issue is discussed further in the 'Pointers for successful interventions' section.

The interventions generally targeted poorly resourced Quintile 1–3 schools.[3] Quite a few of the interventions specifically target low-progress learners, for example, Mphahlele and Nel's (2018), using Information and Communications Technology (ICT) as as support strategy for learners experiencing difficulties, Van Staden's direct instruction and scaffolding for ESL learners and Swart and Nathanson's (2011) individualised literacy intervention for low progress FP readers and writers.

All except for three of the interventions have a Teacher Professional Development thrust. Two of the exceptions had a parent/caregiver focus and the other focused on an individualised literacy intervention for slow progress FP learners. These 18 interventions generally displayed a combination of the following aspects: training workshops, in-classroom coaching and the provision of scripted lesson plans, literacy resources (one advocating the use of ICT as a support strategy) and/or assessment tools. These components are aligned with those advocated by the World Bank, namely teacher training (utilising evidence-based curricula), the provision of instructional guidelines, follow-up coaching, the provision of instructional materials and the provision of tools and training for learner assessment.

There is a consensus that large once-off teacher training workshops have limited success (Ayvaz-Tuncel & Çobanoǧlu 2018; Loyalka et al. 2019), although many interventions still retain these as a key component, or starting point, of the intervention. Active in-class coaching is deemed to have better prospects of success (Prinsloo & Harvey 2016; Taylor et al. 2017), especially if it takes place over a duration of at least 2 years (Kotze 2019). Fleisch et al. (2017b) concluded that the effectiveness of one-on-one instructional coaching may be dependent on the personal and professional characteristics of individual coaches. Interestingly, in their review of literacy coaching programmes for primary school teachers in the United States, Kraft, Blazer and Hogan (2017) found that although their findings:

> [A]ffirm the potential of coaching as a development tool, further analyses illustrate the challenges of taking coaching programs to

scale while maintaining effectiveness. Average effects from effectiveness trials of larger programs are only a fraction of the effects found in efficacy trials of smaller programs. (p. 547)

One intervention, the EGRS 'three models', was designed to test the effectiveness of large-scale training workshops in comparison with more intensive classroom-based coaching, amongst other things. It found, after 2 years of the programme, that learners in classrooms where teachers benefited from on-site coaching by professionals were approximately 40% of a year of learning ahead of students in the schools that received no intervention (Taylor et al. 2017).

Impact of the interventions

Many interventions used externally administered 'Early Grade Reading Assessment' (EGRA) testing to gauge their impact. Early Grade Reading Assessments are conducted orally with individual learners, which is advantageous for young learners, although time-consuming and costly. According to Piper (2009:2), the South African EGRA instrument consists of four major individual assessment components: letter sounds, high frequency words, reading a short locally relevant passage of a few sentences and simple comprehension questions related to the passage. The EGRA subtests have demonstrated sufficient reliability and validity in nearly 30 years of research (Davidson & Hobbs 2013, cf. Prinsloo & Harvey 2016:4). Very few of the reviewed interventions capacitated teachers to use such assessments as tools in their classrooms on a sustainable basis. However, one intervention did focus on using a cloze procedure test (which measures comprehension) and the Burt Word Reading Tests, to enable teachers to measure learners' reading-related abilities (Klapwijk 2013). Van Staden (2011) and Pretorius (2012) used similar cloze procedure tests in their projects to test comprehension. Klapwijk (2013) argued convincingly that enabling teachers to obtain a measure of reading ability through the active use of such tests is crucial to effective instruction, classroom management and assessment.

Graham and Kelly (2018:2) acknowledged that the interventions they reviewed had significant and/or substantial impact on at least one of the four EGRA reading subtests. There is debate about what constitutes sufficient impact to demonstrate a successful intervention. Graham and Kelly (2018) argued for a target of an effect size that equates to at least a year's worth of schooling. None of the articles considered in this review found evidence suggesting that any of the interventions met this standard. Others, such as Evans and Yuan (2020), in their review of hundreds of interventions in low- and middle-income countries, calculated a median effect size of 0.1 standard deviations on learning. Practically speaking, this means that there is only a 0.53 probability that a person from an experimental group would score higher than a person from a control group in the sample, if both were chosen at random.

Prinsloo and Harvey (2016) assessed the impact of both sJ-sK and the EGRS 'three models' using EGRA testing. They found significant, albeit small, impact in both interventions.

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3. These are referred to as overcrowded, high need schools (Nathanson 2014), high poverty schools (Pretorius & Lephalala 2011), no-fee, Q1, high poverty, modestly functioning, poor performing schools (Currin & Pretorius 2010), township schools (Winburg & Botes 2005) and deep rural schools (Webb & Mayaba 2010).

The actual impact was not, however, quantified in the reviewed article, which focuses more on the use of the EGRA tool, and was only a midline evaluation of the EGRS I intervention.

It is generally in the interests of the design and implementation teams of interventions to establish significant impact. One of the advantages of interventions subjecting themselves to academic scrutiny is that this provides independent evaluation. That is to say, the evaluation team is different and independent of the implementation team. For example, a team led by Fleisch, conducted a randomised control trial of the RCUP in 40 treatment and 60 control schools in the Pinetown District of KwaZulu-Natal. From this exercise, Fleisch et al. (2017a) concluded that the RCUP had no substantial or educationally meaningful programme impact.

Interventions should be subjected to thorough, reliable assessments. In this regard, Fleisch et al. (2017a:2) reflected on the limitations of Pretorius and Lephalala's (2011) impact evaluation of Reading is FUNdamental, which include weakness in its 'methodological rigour, sample equivalence and analytic approach'. Fleisch et al. (2017a:2) do, however, acknowledge value in illustrative counterfactuals based on 'prototype pilot intervention pre-and post-test studies with "rough" or illustrative equivalent control groups'. Pretorius and Lephalala (2011) asserted that the intervention had resulted in substantial gains (with a large effect size) in the English comprehension of Grade 6 participants.

On the basis of the difficulties that are integral to addressing literacy challenges, Graham and Kelly (2018) argued that:

> [E]arly grade reading interventions are not a guaranteed means to improve reading, and they rarely lead to fluency over a short span of time, but they are a mostly reliable means to make significant improvements in literacy over a short period of time. (p. 1)

They conclude that literacy interventions thus make a 'significant contribution to addressing illiteracy, but are only a partial solution' (Graham & Kelly 2018:3).

Based on this review we would concur that the interventions under consideration have had some positive impact and they do provide pointers to successful approaches, models or pedagogies, but are not making a significant dent on South Africa's literacy challenges outlined in the introduction.

It is acknowledged here that an intervention needs to be very robustly designed to measure causal impact. The focus in this 'Impact' section has thus been on the large-scale and longitudinal interventions reviewed, as most of the smaller scale qualitative studies were not appropriately designed to accurately measure impact. The article argues, however, that even though measuring causal impact is vital for national policy development, there is still a valuable role for smaller local interventions, which test mechanisms for improving literacy levels in specific contexts. We concur with Fleisch and Dixon (2019) who argued that it is important to identify mechanisms of classroom practice change, which randomised control trials do not reveal. Valuable lessons can be learnt from all interventions, including the smaller-scale ones and some of these are discussed in the following section.

Pointers for successful interventions

Teaching pedagogies

It is generally agreed that appropriate teaching approaches and pedagogies are vital for effective literacy learning (Alexander 2007, 2015; Hoadley 2012). Conn (2017), for example, in her meta-analysis of impact evaluations in sub-Saharan Africa, which looked at 12 different types of educational interventions, found that 'programmes that alter teacher pedagogy or classroom instructional techniques had an effect size approximately of 0.30 standard deviations greater than all other types of programmes combined' (Conn 2017:863). From the far-ranging 3IE Systematic Review, '[P]rogrammes using structured pedagogy to change the classroom environment had the largest and most consistent positive effects on learning' (Snilstveit et al. 2016:2). The focus here is not on saying one pedagogical approach is preferable to another one, for example, 'Reading to Learn' versus 'Philosophy for Children (P4C)', but rather on identifying underlying approaches or pedagogical characteristics that foster the impact of literacy interventions.

This review draws attention to the tendency that stronger learners benefit more than weaker learners from interventions. These 'rich-get-richer and poor-get-poorer' patterns of reading achievement have been identified by Stanovich (1986:354). In what he calls the Matthew effects in reading, the increased reading experiences of those 'who crack the spelling-to-sound code early thus have important positive feedback effects'. Fleisch et al. (2017a, 2017b) found that the impact of the RCUP in Pinetown, KwaZulu-Natal, was generally better for the mainly Zulu home language learners, with stronger initial English proficiency. On the other end of the performance spectrum, Pretorius (2012) found that learners in the lowest percentile who participated in the 'Reading is FUNdamental' intervention showed little improvement in comprehension ability. This reality of uneven learner benefit raises the fraught, controversial issue of participant selection amongst other issues.[4] Should one, for example, focus selection on stronger participants that are more likely to benefit (to get more impact from a focused investment)? This will, by implication, potentially leave weaker learners even further behind.

The notion that ORF is a necessary but not sufficient requirement for comprehension is reinforced in this review. Pretorius (2012:90) is unequivocal that ORF 'is a predictor of learners' ability to engage with text and construct meaning from it'. Some articles suggest a nuanced and interactive relationship between decoding and comprehension and stress the need to specifically teach comprehension strategies, even in the Foundation Phase. In other words, ORF is a necessary,

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4. It also raises many other issues regarding the pacing of the the curriculum, whether the curriculum starts at the correct level in Grade R, the school-readiness of learners, whether the curriculum targets the correct aspects of literacy and language teaching, whether the interventions are pitched at the right level.

but not sufficient condition, for comprehension. Murris and Ranchod (2015), for example, argued that 'learning to read' and 'reading to learn' cannot be separated. Van Staden (2011) in her intervention in the Free State with ESL readers highlights the interrelatedness of prior knowledge, vocabulary knowledge and reading comprehension. She argues for using specific reading comprehension strategies such as predicting, questioning, making inferences and summarising or retelling stories in English.

Related to the given issue, it does seem clear that the challenges involved in learning vary and change as children move into school and then later transition from the Foundation to Intermediate Phase. As children progress into their Intermediate Phase years, a number of the reviewed articles recommend that literacy teaching should be integrated into content subjects. For example, Winburg and Botes (2005) made some interesting recommendations for working-class pre-teens who do not experience a reading culture at home. They found that this group is more likely to develop a reading culture around school-based interests (e.g. Geography and Science topics), than through sustained stand-alone literacy teaching. Their findings suggest that this is especially true for weak readers. Exciting events and outings are also identified as opportunities for initiating such reading practices. Webb and Mayabbe (2010:35) demonstrated that the utilisation of an 'integrated strategies approach' to promoting scientific literacy, 'which includes the reading, talking, planning, doing, writing, arguing and presenting aspects of scientific investigations', built the general literacy skills of Grade 6 and 7 learners in the rural context of the Tyumie Valley (close to Alice in the Eastern Cape).

At a broader level, Pretorius and Lephalala (2011) have demonstrated that in-class interventions that are implemented within the formal school timetable generally have significantly more impact in boosting participants' literacy competencies than voluntary after-school programmes.

In order to be effective, literacy teaching should be as individualised to particular learner's needs as possible. This is sometimes referred to as the need or imperative to teach the learner rather than merely covering the curriculum. Prinsloo and Harvey (2016) highlighted the need for one-on-one reading instruction and individual oral reading assessments to be conducted. They also found that the appointment of Reading Assistants in classrooms can be valuable. Fleisch et al. (2017b) qualified a blanket advocacy of one-on-one instructional coaching with the note that its effectiveness may be dependent on the personal and professional characteristics of individual coaches. The individualised approach is a common theme across Nathanson's articles (Nathanson 2009, 2014, 2018, Swart & Nathanson 2011). Her 2014 article stressed that teachers should work with children in small groups so that they can get to know their individual reading needs. Specifically, she suggests that one practical way in which this can be performed is by pre-service teachers assisting a class teacher

to enable small-group work stations, each with its own stimulating learning activity, related to the overall literacy goal, to be utilised in the classroom. This way of structuring classroom activities makes instruction more individualised, thereby enabling children to take increased ownership of their own learning, paving the way for improvements across the spectrum of learners. She also argues that this approach leads to increased teacher confidence in his or her teaching ability based on witnessing learner advances. Stoffelsma (2019:1) also argued for 'more interactive and in-depth instruction', specifically in teaching English vocabulary to Grade 3 township learners.

On a different note but equally important (especially in the context of COVID-related lockdown hastening the onset the Fourth Industrial Revolution) is the role of ICT tools and communication devices in promoting literacy. In his international review, McEwan (2015) found that computer-assisted learning was associated with the highest impact on general learning outcomes. From our South African Review, Mphahlele and Nel (2018) argued ICTs work well in identifying learners' reading difficulties and reading levels and that they are useful tools in promoting the literacy development of those experiencing difficulties. However, there are numerous challenges involved in this strategy, including equitable access.

Language of learning and teaching (especially in English as second language contexts)

Volumes have been written on this topic, particularly in contexts where children are taught in a language other than their home language, and this article certainly does not aim to provide resolution on the issue of the best approach to teaching literacy in such contexts. Suffice to say, many of the reviewed articles grappled with this issue to a greater or lesser extent.

Nkomo (2018) stressed the importance of offering a bilingual programme and the need to scaffold reading in both English and learners' home language (in this case, isiXhosa). Pretorius (2012) grappled with the issue in more detail and found that being taught in one's home language in the Foundation Phase (in this case, Northern Sotho) enables better inference performance in their Home Language (HL) in the Intermediate Phase. However, she also found that this made no difference when it came to tasks requiring the perception of sequences and visual literacy. Where learners experienced greater exposure to English in the Foundation Phase, their performance was slightly better in English than in Northern Sotho.

Webb and Mayaba (2010) suggested that it is imperative that the influence of language be taken into account when attempting to develop scientific literacy. In their intervention aimed at rural isiXhosa Grade 6 and 7 multigrade classes, they encouraged teachers to code-switch in an attempt to ensure that learners understand the scientific concepts being taught. They found that using this 'integrated strategies' model for scientific literacy (which included teacher training

and big book resources) improved general literacy. Specifically, this approach improved reading skills in English, writing in isiXhosa and listening skills in both languages.

Parent involvement

A few of the reviewed articles mention the role of parents in the literacy development of their children. The Home-School Partnership Programme (HSPP), which Cozett and Condy (2016) examined, provides a descriptive case study of home, school and community collaboration. Currin and Pretorius (2010) identified parent involvement as one of the factors that contribute to school effectiveness. Although there is not much debate around the value of parent involvement, it is not seen as a game-changer intervention on a large scale. This is particularly so in a country such as South Africa where many parents have low literacy levels and are working in low-paying jobs with long-working hours (Careers24 2017). It is very difficult to foster parent involvement of an adequate scale and scope to fundamentally improve literacy rates of school children. This does not necessarily mean that if, and when, it can be achieved, it cannot result in big benefits.

Teacher professional development

Across reviews explored by Evans and Popova (2015), three classes of programmes are recommended (1) pedagogical interventions (including computer-assisted learning) which are geared to student skills, (2) repeated teacher training interventions, linked to other pedagogical interventions, (3) improving accountability through performance contracts or incentives. Interestingly (3) did not come up in any of the South African interventions reviewed (probably because of the stronghold of the SADTU teacher union in South African public education).

Pretorius et al. (2016:2) asserted 'that too many South African Foundation Phase (Grades 1–3) teachers do not know how to teach reading and are currently teaching reading in an *ad hoc*, unsystematic way'. The findings of the impact evaluations of the literacy interventions considered here reinforce that it is vital to address the quality of literacy teaching. Hence, the focus of virtually all of the interventions is on teachers' professional development and coaching for more effective teaching.

Fleisch and Dixon (2019) observed that a structured intervention, such as model 2 of the EGRS (which includes teacher coaching and scripted lesson plans around group guided reading) results in routinised behaviours being internalised in teachers and learners. However, they observed that '[*A*]lthough the processes of group guided reading are mostly followed, teachers' gaps in content knowledge indicate a lack of embodied/habituated understandings of this pedagogy' (Fleisch & Dixon 2019:9). This raises an observation around the status of teaching and the calibre of person that pursue teaching as a career. It has unfortunately come to be seen as a fall-back career path for those who are not academically strong, rather than attracting the keenest minds to educate the next generation (Fray & Gore 2018). How this perception can be changed in society remains a huge challenge.

The key finding in reflecting on recent literacy research and the impact of literacy interventions, revealed through this review, reinforces the maxim that '[*t*]eacher quality … [*is*] the single most important variable influencing pupil achievement in schools' (Darling-Hammond 2000 c.f. Van der Mescht 2018). Research has repeatedly demonstrated the importance of teacher quality for student achievement, beyond other school-level characteristics (Aaronson, Barrow & Sander 2007; Goldhaber 2002; Rivkin, Hanushek & Kain 2005; Rockoff 2004; cf. Garrett, Citkowicz & Williams 2019). Obviously addressing teacher quality is a long-term challenge, which is beyond the scope of this article. What the review did draw attention to, however, is that teacher quality can be honed through interventions to improve teaching practice. Any intervention that does not, either effectively directly address teacher professional development, or, provide complementary/supplementary teaching, in the interim, will not significantly impact literacy development of South African learners. Nathanson (2014) argued for a professional development school model, which uses education faculty staff and pre-service teachers to support teachers in dealing with the demands of overcrowded classrooms. Underpinning this is the imperative to building the capacity, skills and confidence of teachers to teach more effectively. This review reinforces the view that the quality of teaching is ultimately the fundamental variable that influences literacy development. The best and most cost-effective means of achieving this is still up for debate.

School management and school effectiveness

In addressing teacher effectiveness, one cannot ignore the broader school management context, or what Currin and Pretorius (2010:44) called: 'factors contributing to school effectiveness'. They argue that these factors include: awareness, positive attitudes, ethos, resources, capacity, parent-involvement, leadership, school and classroom management, collaborative lesson planning, reading and writing homework. Currin and Pretorius (2010) recommended strengthening teacher support in the classroom, developing lessons and using learning and teaching support materials, which includes textbooks, time on task and the provision of learning. The provision of learning further includes readers for the learners, the capacity of leadership teams to perform their roles effectively, teacher confidence, resilience, self-belief and support for remedial teaching.

Discussion

Having considered some of the themes that emerge from the reviewed articles, we move towards the conclusion by raising broader reflective comments about what this exercise reveals about the state of literacy interventions in South Africa.

Many articles are not available in Sabinet Journals

The review search resulted in articles that considered 21 literacy interventions carried out in South Africa over the past one and a half decades. This is only a fraction of the total

number of such interventions recently implemented. For example, a couple of the more protracted small-scale interventions not considered here are various Wordworks programmes (2005 onwards) and the VW Early Grade Reading Project (2016–2019). Similarly, large-scale interventions such as the Systematic Method for Reading Success (2009) and the Nal'ibali Programme (2017–2019) have not been considered by articles published in Sabinet Journals. Sabinet focuses on research conducted in Africa. This means that the coverage of interventions in Sabinet Journals is poor.

It is noteworthy that many literacy interventions are driven by Non Governmental Organisation (NGOs) and are reliant on donor funding to be implemented. In many cases, donors are proponents of specific literacy approaches and their resources are used to implement interventions that fit within these approaches or agendas. NGOs don't always have the capacity and resources to document their findings in peer-reviewed journals. This is another reason for the dearth of coverage of literacy interventions in Sabinet Journals.

There are numerous negative consequences of this poor coverage of interventions. Firstly, it means that there are many interventions that have not been assessed in open-source peer-reviewed journals. Effectively this implies that professionals, activists and practitioners cannot easily access these assessments, if they exist at all. Secondly, this compromises the ability of the literacy community to be adequately informed about the full range and complement of literacy intervention. Thirdly, this failure inhibits the emergence of a community of good literacy practice in South Africa. Fourthly, in the context of decoloniality, it seems imperative that research on literacy be published in journals that are based in Africa.

In 2012, Hoadley, citing Deacon, Osman and Buchler (2009), highlighted the criticism that literacy research is generally 'small-scale, qualitative and lacking in methodological rigour' (p. 1). The current situation is still characterised by a proliferation of small-scale interventions using a range of assessment tools, meaning that 'insights thus derived are fragmented, regional … using multiple conceptualisations, measures and indicators' (Ebersöhn 2016:1). Based on this review, we concur with Ebersöhn (2016:1), that an 'intentional education research agenda to coordinate inquiries could inform design, conceptualisation, measurement, comparative value and data sharing'. The present situation is far from this, with provincial Education Departments and various donors and academic departments driving their own uncoordinated research agendas. Admittedly, the National Department of Education has recently published 'Research Agenda 2019–2023', which is a step in the right direction. It is doubtful, however, that it will be used to effectively to coordinate research and foster collaboration around literacy interventions.

A big gap highlitghted by this review is that there does not appear to be a forum for sharing important learning from the small-scale interventions happening in many localities.

Many uncoordinated interventions

The literacy crisis faced by South Africa is arguably its most pressing challenge. The 2012 National Development Plan (NDP), for example, suggested that education and employment were the priority issues facing the country. Labour market data indicate that there is a direct relation between levels of education and employability (OECD 2012). Moreover, there are compelling arguments that literacy is the foundation-stone of education (Draper & Spaull 2015; Gee 2015; The Education Hub 2020).

Despite the importance of the literacy challenge, this review has pointed to an inadequate response on the part of all role-players. Certainly, the South African government is currently too hamstrung to be able to confront the challenge on its own. It is thus imperative that NGOs, academics, community activists and functional pockets of the state apparatus should redouble their efforts to think together and work together to address local, provincial and national problems, pilot innovations that can inform emergent policy and take opportunities that present themselves. At minimum, those who embark on literacy interventions should ensure that adequate internal and external assessment and evaluation mechanisms are integral to design and implementation processes, whilst the university-based education research community should increasingly orient itself to the most pressing and urgent of all sectoral issues, namely literacy. With regard to the latter, every effort should be made to research literacy interventions and endeavour to publish findings such that they are accessible and easily usable.

Conclusion

The period under review in this study has been frustrating and disappointing for those engaging and working in the education sector in South Africa in general and in its literacy sub-sector specifically. Spaull characterises the years between 2011 and 2016 as a phase of 'stalling' (Spaull 2019). The disappointment of these years is most graphically illustrated by and reflected in the appalling PIRLS 2016 South African results (Howie et al. 2017). It is thus hardly a surprise that this systematic review has indicated that the response to the literacy crisis in South Africa has generally been *ad hoc*, uncoordinated and somewhat NGO/donor-driven. The flip side of this is that, in spite of a few attempts to make an impact on a large scale, with the National Education Collaboration Trust initiatives and the Read to Lead Campaign, the government has been unable and/or unwilling to deal effectively with pervasive literacy challenges. There is little evidence of large-scale, coordinated interventions implemented over sustained periods to make the required impact on national literacy levels. We are of course, also aware of recent large-scale interventions, such as Funda Wande, which have been piloted but not yet assessed (and therefore not published).

Moving forward in a coordinated manner must be based on learning from interventions that have been reviewed here

and elsewhere. From this review the following emerged as important: basic literacy interventions should take place in the Foundation Phase (i.e. before Gr4 or Gr5 when PIRLS reveals significant challenges with reading for meaning); teacher professional development, specifically related to effective literacy teaching, is needed; teacher focused in-class interventions of a duration of 2 years or longer are required for impact to be significant; more in-depth and interactive instruction is necessary as ORF is a necessary but not sufficient condition for comprehension; teachers require coaching in the skills to teach effectively; literacy teaching should be incorporated into content subjects; and ICT can support the development of literacy.

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