

# Mutual benefits of an experiential learning community project in South Africa: Perceptual skills development and learning support<sup>1 2</sup>

**Nkhensani Susan Thuketana, University of Pretoria, South Africa**

## ABSTRACT

*This paper draws on Kolb's experiential learning theory. Experiential learning can be used to create and verify knowledge or to analyse truths and belief systems. The experiences of third-year Bachelor of Education (BEd) students and the benefits of stakeholder engagement in the delivery of teacher training are highlighted in this paper. Although learners were the focal point of this community engagement project, both in-service and pre-service teachers benefitted in terms of skills transfer and upskilling. Special emphasis was placed on reading comprehension and the effects of the underdevelopment of perceptual skills on learning. The epistemological theoretical insights in this paper contribute to teaching practice, equipping in-service teachers with the skill to link perceptual skills development to learning. The project made use of participatory action research (PAR) underpinned by Kolb's interactive learning cycle of active experimentation, reflective observation, concrete experience and abstract conceptualisation. Two hundred and seventeen (217) student teachers, 20 Foundation Phase teachers and 300 learners from one school participated in this project. The results of this community engagement project revealed that community projects are essential in disseminating theoretical knowledge to in-service teachers, and thus, in sharing learning support strategies for children with special needs.*

**Keywords:** Community engagement, experiential learning; in-service teachers, mutual benefit, perceptual skills development, pre-service teachers: school readiness, teacher development

## INTRODUCTION

According to the Progress in International Reading Literacy Study (PIRLS), which is conducted every five years, 78% of children in South African Grade 4 classes lack reading comprehension skills (Zimmerman & Smit, 2014). Reading comprehension encompasses skills such as phonological awareness, word decoding, vocabulary, spelling, and handwriting, which are all considered prerequisites for children to be able to read and understand written text (Zimmerman & Smit, 2014; Nel, 2011). Children whose reading comprehension competency is not well developed have difficulty excelling academically (McClelland, Pitt & Stein, 2015) and being adept professionals (Ness, 2016). In this regard, Kivunja (2015) reiterates that

1 There was no competing interest that may have induced the author to write this article. However, the paper reports on the work funded by the Department of Higher Education's Scholarship of teaching and learning programme.

2 Date of submission 30 May 2019  
Date of review outcome 2 September 2019  
Date of acceptance 3 March 2020

the world of the 21st century requires a population with information, literacy, social and communication skills for survival.

In support of the above, Wickramasinghe et al. (2019) state that countries everywhere require an accountable citizenry – that is, they must be able to make transparent decisions, among others. It is evident that a workforce without these core skills would remain underprivileged, which would be detrimental to national progress. In many African countries, children's ability to acquire reading comprehension skills that are necessary for progress at schools is impeded by a number of factors, most notably socioeconomic factors, a lack of conducive and stimulating environments, and structured developmental opportunities for them (Murray-Kolb et al., 2014).

The interaction of the realities in a South African context results in most children in the Foundation Phase starting school without the necessary competencies to be able to learn, therefore being labelled as children with learning difficulties. Cortiella and Horowitz (2014) refute this claim and state that learning difficulty is neurological in origin, as children with learning difficulties struggle to store, process, and retrieve information as required. Nevertheless, the above authors agree that children from a disadvantaged environment are at risk and call for early identification of specific learning difficulties and support.

In South Africa's inclusive classrooms, consisting of children with diverse cognitive abilities, Donohue and Bornman (2015) and Forlin (2010) found that teacher attitudes impacted on the learning abilities of learners with special needs. They recommended a holistic assessment of the environment, including children's cognitive abilities, to garner the support needed. Although the underdevelopment of perceptual skills greatly affects reading comprehension in children, the skill is underrepresented in research.

The South African school curriculum prescribed in the Curriculum and Assessment Policy Statements (CAPS) states that children in schools should be able to read and write fluently at the end of Grade 3 (Department of Education, 2009). However, Grilli et al. (2016) point out a worrying factor: according to the PIRLS, children in Grade 4 still have not acquired reading comprehension skills. Spaul (2015) investigated teacher content knowledge and the unavailability of resources in schools in order to determine real factors contributing to learners' inability to develop reading comprehension skills. The findings confirm that teachers' poor content knowledge is a causal factor and recommend the retraining of in-service teachers, among other things. However, retraining of teachers may not be practicable. It is from this perspective that authors such as Thompson et al. (2013) recommend an upskilling and reskilling approach to deal with in-service teachers' inadequate skills and knowledge.

This paper reports on a community project implementing such an approach with pre-service teachers in their third-year teacher training programme. The aim was twofold: firstly, to offer students hands-on experience in assessing perceptual skills development in children and the effects of the underdevelopment thereof, focusing specifically on reading comprehension; secondly, to investigate in-service teachers' knowledge of perceptual development and their understanding of the effect of underdevelopment of these skills when learning. The process lent itself to sharing theoretical knowledge with in-service school teachers. The interface between in-service and pre-service teachers does not only have the potential to initiate a scientific debate on the insufficient knowledge of in-service school teachers but may also (among other things) influence the way teachers support learners with learning difficulties in their classrooms.

## BACKGROUND OF THE STUDY

Having identified the factors impacting reading comprehension, this section discusses the development of perceptual skills and then merges these skills to highlight the effect of a lack of such skills on reading comprehension. Perceptual skills underlie a child's ability to read, write, learn and behave appropriately.

The brain plays a key role in the development of perceptual skills, which is the process of taking in and processing visual and auditory information and responding accordingly (Durso, Rawson & Girotto, 2017). Grossman, a neuroscientist (2015), points out that brain injury (as well as the side of the brain injured) determine, among other things, the type of perceptual skill that is affected in children. This paper does not discuss brain functioning in depth, but concentrates on the development of perceptual skills and the effect it has on learning.

The literature reports on many types of perceptual skills, such as visual memory, figure-ground discrimination, and form constancy and visual discrimination (Joubert, Bester & Meyer, 2008). What sets these apart is their manifestation during learning. In his study, Goswami (2015) reports that while investigating skills such as visual processing and offering early intervention for children with special needs may improve their reading ability and quality of life, he questions the authenticity of the research results of many studies. Goswami (2015) recommends a combination of longitudinal studies, training of teachers and testing cognitive systems of children in order to improve the credibility of the results. Goswami (2015) also acknowledges the absence of studies reporting on factors affecting reading comprehension in typically developing children. In his argument, he states that the lack of a base to work from renders results of studies of children with special needs obsolete. In different circumstances, Karmiloff-Smith (2018) argues that genes and environmental factors also contribute to developmental disorders and the inability to read. With this in mind, the following section discusses the skills required for reading comprehension.

In a study on the relationship between phonological awareness, Rapid Automatized Naming (RAN) and reading, Song et al. (2016) found phonological awareness and an inability to decode words to affect reading comprehension. Song et al. (2016) opine that a holistic assessment, including cognitive functions required for reading comprehension, should be conducted before stating that this relationship was an outright cause. In a longitudinal study, van Steensel et al. (2016) analysed the effects of word decoding and metacognitive knowledge on reading comprehension for children in Grade 7. These authors found there was no significant effect on their literacy skills; however, they found the reading comprehension of Grade 9 learners to be below proficiency when prerequisite skills were underdeveloped. As these results were inconclusive, the authors recommended that multi-samples with a clear scientific basis must be provided to present clear causes of reading comprehension difficulties. Nevertheless, the underdevelopment of the necessary skills was assumed to be responsible for affecting reading comprehension.

In the multilingual South African context, many children in the Foundation Phase are taught in mother-tongue, but switch to English (which is their second or third language) in Grade 4 (Evans & Nthulana, 2018). Teachers in these schools use a translanguaging approach to teaching. While Makalela (2015) argues that multilingualism exacerbates reading comprehension challenges in children, Roskos and Newman (2014) believe that it has dire consequences for children with limited second language proficiency. The research was carried out involving children between the ages of 10 and 14 years in the Intermediate Phase. Regarding the research conducted with children in this age group, Suggate (2016) argues that phonetic awareness interventions are mostly beneficial for younger children.

Indeed, it is worth noting, as Silva and Cain (2015) reiterate, that early identification of the prerequisite skills may be beneficial for children in the Foundation Phase. Furthermore, the above authors hold that the level of these skills depends on the availability of teachers with professional competency to identify any lack of the required skills and systematically planned remedial strategies. In addition, Nel (2011) states that it cannot be disputed that the teachers will also need to have the capability to differentiate the curriculum for the benefit of children with heterogeneous abilities. Winch (2014) is yet another author who highlights the significance of early screening and intermediation. In short, it cannot be disputed that the early identification of deficiencies and the continuous assessment and remediation of literacy abilities are some of the strategies to improve reading comprehension.

The dearth of teacher skills to address reading comprehension issues in a diverse South African context has long been a matter of concern. Zimmerman and Smit (2014) argue that the lack of teacher training contributes to illiteracy and the social exclusion of many South African citizens; likewise, Maringe and Moletsane (2015) note that the lack of teacher skills to remedy reading comprehension challenges perpetuates children's inability to read and write as adults.

Zimmerman and Smit (2014) also consider important that the skills needed for reading are taught during children's early education years. A longitudinal study conducted on children between four and six years of age confirmed improved reading comprehension when literacy skills were assessed and remedied in children's Foundation Phase years (Silva & Cain, 2015; Kendeou et al., 2009). Additionally, Lepola et al. (2016) found that reading literacy contributed to reading fluency, and, therefore, to reading comprehension, in children whose lack of prerequisite skills was identified early in their school years. Nel (2011) postulates the importance of using multi-theories and assessment strategies to develop a functional model to remedy challenges associated with reading comprehension.

It is because of teachers' inability to identify the underdevelopment of perceptual skills and to understand its effect on learning that the community engagement project was initiated. Within the abovementioned context, the researcher sees Higher Education Institutions (HEIs) as key collaborators in continuously engaging student teachers in community service projects aimed at upskilling in-service teachers to improve teaching and learning. Soini, Piettarinen and Pyhalto (2016) also support continuous training for in-service teachers to enable them to keep up with renewed demands in their classrooms. The collaboration will not only produce teachers that are 'fit for purpose' (Richmond, 2017), but also reduce discrepancies between learners' needs and the training that pre-service teachers receive.

### EXPERIENTIAL LEARNING AS THE CONCEPTUAL FRAMEWORK

Experiential learning is conceptualised differently in the academic literature. Roodhouse and Mumford (2010) call it work-based learning, Peach and Matthews (2011) and Sharlanova (2004) conceptualise it as Work Integrated Learning (WIL), and Kolb (2014) calls it experiential learning (EL). What seems common among these authors is that the strategy aims to integrate theory and practice for students in different fields of study, thereby enhancing workforce competency. Ferns, Campbell and Zegwaard (2014) declare the strategy to be the future of learning, as it offers students opportunities to work alongside experienced staff, and to draw on the economic, cultural, environmental and social practices of those communities. This paper was premised on Kolb's experiential learning (EL) as the conceptual framework. According to Kolb (2014), EL is widely applied in beginner teacher education to provide opportunities for pre-service teachers to learn the principles of the teaching profession in real-life school settings. In this particular case, the key consideration is co-sharing of experiences between pre- and in-service teachers to identify the underdevelopment of perceptual skills in children and the effect thereof.

The ultimate aim of this community engagement project was the mutual benefit to all participating stakeholders. The project was explicitly designed to support practical understanding of the effects of the underdevelopment of perceptual skills on learning at Foundation Phase level. It was assumed that student teachers would benefit by practically learning how to assess perceptual skills development in real-life contexts. Furthermore, exposure of student teachers to research-based intervention strategies would support children experiencing barriers to learning in inclusive classes which could benefit teachers at school.

A baseline assessment was conducted with Foundation Phase teachers at school to establish their understanding of the impact of the underdevelopment of perceptual skills on reading comprehension skills. The body of this paper will critically examine the extent to which the expected mutual benefit of the WIL

project was achieved. The results of this scrutiny will contribute to future practice and the improvement of both community engagement projects and teacher training programmes.

### THEORETICAL PERSPECTIVE ON EXPERIENTIAL LEARNING

The theoretical background underpinning this paper is Kolb's experiential learning (EL) theory (Kolb, 1984). The theory suggests that learning is not linear but cyclical – a 'process whereby knowledge is created through the transformation of experience' (1984: 38). Authors differ with regard to the theoretical base of Kolb's theoretical framework. In 1993 already, Hopkins (1993: 48) asked: 'How can we know what experiential learning is when we do not have a coherent theory of its main constitutive component experience?' In support, Austin and Rust (2015) criticised EL for its lack of theoretical foundation. On the other hand, authors such as Scogin et al. (2017) hold the theory in high esteem for its 'firm theoretical base'. Nevertheless, these authors are firmly grounded in Kolb's (1984: 41) statement that '[k]nowledge results from the combination of grasping and transforming experience'.

Kolb's EL theory posits that individuals/children learn differently and that they benefit optimally when a learning style compatible with their learning needs is employed. Furthermore, the theory holds that individuals/children are either visual, auditory or kinesthetic learners. Willingham, Hughes and Dobolyi (2015) dispute these claims and state that until relevant evidence is presented, this claim still lacks validity. They further argue that the learning ability and style of children in different classrooms have yet to be distinguished for these claims to be accepted.

It is from the perspective above and the interactive learning styles, encompassing concrete experience, reflective observation, active experimentation and abstract conceptualisation, that EL was selected as the lens through which this community project was conceptualised. This paper does not aim to ascertain which of the learning styles is better than the other, but to illustrate the outcomes of socially and culturally based practical experiences in decontextualising learning and pedagogy. Furthermore, although it is not the aim of this paper to develop theories through which community projects may be conceptualised, it may prompt debate in this regard.

The reality is that schools in many countries, including in South Africa, comprise linguistically, culturally, cognitively and socially diverse learners (Alexander, 2016). Hence, the preparedness of student teachers for the envisaged realities is key. Since this project aims to benefit all stakeholders, no attempt will be made to demarcate who benefited the most or the least from this stakeholder involvement.

In this community project, student teachers were exposed to a concrete experience where they assessed perceptual skills development hands on while in-service teachers were watching. This stage was abstract for in-service teachers and is called reflexive observation, in the sense that they begin to link the underdevelopment of perceptual skills to the learning difficulties that learners present in class. It was also during this stage that students and in-service teachers met to discuss assessment results and to challenge perceptions regarding perceptual development. As teachers watched the student teachers performing the exercises, they started planning for the exercises that they would conduct with the excluded learners. In this cyclic and iterative process, students and teachers began to form an idea of perceptual skills development. In Kolb's theory (1984), this stage is called 'abstract conceptualisation'.

### RESEARCH QUESTIONS

The research questions below were posed at the beginning of the research project. The first question was aimed at directing the project to ascertain whether the mutual benefits were harnessed by all participants. The second question was posed in focus groups interviews during the baseline assessment to both pre- and

in-service teachers. For in-service teachers, it was meant to assess their comprehension of perceptual skills development and how it affects learning. Whereas, for pre-service teachers, it was meant to verify the understanding of theoretical knowledge learned in class, to provide an assessment platform for perceptual skills development and to share the skill with in-service teachers.

- What are the benefits derived from stakeholder involvement in community projects conducted with student teachers studying a Learning Support module?
- How does the underdevelopment of perceptual skills affect reading comprehension in children in the Foundation Phase?

## RESEARCH METHODOLOGY

Qualitative research, using a participatory action research approach, was employed in this project. This research design was premised on Paulo Freire's (1998) view that *reflection without view is sheer verbalism*. The idea is that reflection by teachers at the school and by student teachers would result in mutual enrichment of the teaching experience. According to Morales (2016) and Alexander (2016), reflection is part of participatory action research, and community participation reduces inequalities and improves peoples' lives.

### *Research design: Participatory action research (PAR)*

An interpretivist paradigm was used as proposed by Creswell (2013) which involved conducting research engaging in-service teachers' views regarding their understanding of perceptual skills development. These detailed responses were collected and analysed. The co-construction and co-sharing of assessment strategies between pre- and in-service teachers were developed during the research project. PAR characterised by the collaboration of the researchers, community-based organisations and the ability to appraise the entire research process (Morales, 2016). Most importantly, the roles of the different participants in the research process was clearly designated, and the idea was to carefully determine whether the intended outcomes were reached or not.

Mayan et al. (2016) opine that PAR bridges the gap between theory and practice through stakeholder participation. They further state that the process is not linear, but involves a cyclical and systematic method of planning, taking action, observing, evaluating and critically reflecting prior to planning the next cycle of the project. In this study, the process was aimed at integrating new insights into participating in-service teachers' knowledge of the effect of the underdevelopment of perceptual skills on learning.

### *Selection of research sites and participants*

A school was purposefully selected as the unit of analysis for this community project. The criteria for inclusion were, firstly, that the school had to be located in a semi-rural area, as factors related to the socioeconomic status of communities (among others) affect perceptual skills development. Secondly, the school had to be close to the university because of the cost of transporting the participating students. Thirdly, learners at the school had come from diverse economic and cultural backgrounds. Hence it was assumed that learners who would avail themselves would have varied levels of perceptual skills development.

Participants consisted of 217 student teachers clustered into 10 groups, 20 in-service teachers, nine Foundation Phase classes with between 26 to 35 learners, the lecturer of the module that the pre-service teachers were enrolled for as the researcher and the facilitator of the research process, and two research assistants. Pre-service teachers were expected to both provide resources and use the theoretical knowledge learned in class to assess perceptual skills development from learners at the schools on a weekly basis.

Each student was allocated two learners. Twenty learners (20) were excluded from participating in student assessments. However, since assessments were play based, the learners were allocated to the research assistants, who used other resources than those used by student teachers to assess the learners included in the project. The excluded learners were deliberately left under the impression that they were doing the same assessments as the assessed learners. The reason for excluding 20 learners from the initial assessment with student teachers was that in-service teachers could then use these learners to assess perceptual skills development after concrete observation of student teachers' assessments. In-service teachers' assessments were facilitated by the researcher after the community project had been concluded.

#### *Data collection strategies*

Strategies for data collection as discussed by Fusch and Ness (2015) were used in this community engagement project. The project commenced with baseline semi-structured focus group interviews with teachers at the school to ascertain how they perceived perceptual skills development and its effects on learning. Subsequently, assessments were conducted by student teachers, with teachers at the school observing, and both groups making notes in their reflective journals. After the sessions, pre-service and post-service teachers met to discuss the findings of assessments conducted and to link perceptual skills to learning difficulties whenever necessary.

#### *Focus group interviews*

Two sets of focus group interviews comprising 20 teachers from the Foundation Phase (Grades 1-3) were conducted using a research schedule with five questions. The initial focus-group baseline assessment with the teachers took place at the school and ran for an hour. The second focus group interview with in-service teachers took place at the school after the project had ended to establish the benefit of the project to the participating teachers.

#### *Learner assessments*

The assessments of learners ran for 11 consecutive weeks, for an hour at a time. The assessments were conducted at the schools and teachers were expected to observe how student teachers conducted the assessments. Both the teachers and the student teachers recorded the findings of the assessments in reflective journals provided by the researcher. Following the weekly assessments, a meeting was held between class teachers and student teachers to discuss the findings of the assessments. The resources that students made were used on a weekly basis to conduct assessments and exercises aiming to improve the underdeveloped perceptual skills in children and linking the skills to learning difficulties, particularly reading comprehension in this case.

According to Joubert, Bester and Meyer (2008), a psycholinguistic view incorporating the convergence of perceptual skills and language development was key to identifying points of intervention. Holistic observations, including the inability of children to make decisions, were made for the purpose of suggesting interventions in this community engagement project (Thuketana & Lieshof, 2018).

After the 11 weeks, a follow-up focus group interview was conducted with teachers at the school. The aims were, firstly, to ascertain whether the teachers' conceptualisation of perceptual skills and how their underdevelopment manifested in learning had improved, and, secondly, to determine whether teachers had mastered the skill of using the resources to assess perceptual skills development and to identify its effect on learning.

To follow up the focus group interviews with in-service teachers, the researcher randomly assigned two learners to the teachers at the school from those excluded from students' assessments. Each teacher was expected to assess and record their findings, and to present for discussion with the lecturer/project

coordinator the identified learning barriers/difficulties identified and associated with perceptual skills development in the allocated learners.

#### *Focus group interviews with pre-service teachers*

After every visit to the school, reflections were submitted to the lecturer by pre-service teachers. At the end of the assessment period, focus group interviews were conducted with student teachers to ascertain the gains from the community project conducted at the school.

#### *Photographs*

The consent of the parents and the assent of the learners were obtained, and student teachers were encouraged to take photographs of the perceptual skills assessment exercises conducted using the resources they had provided. The photographs were used to present the project at the University Social Responsibility (USR) week where all community engagement projects of the University were showcased. In order to comply with the ethical rules of the study, learners' faces were not revealed.

#### *Ethical considerations*

Permission to conduct the research project was issued as part of the module requirement for community engagement at the University of Pretoria. Ethical clearance from the ethics committee and permission from the dean were sought and provided. The ethical clearance and permission were issued on condition that the data would be handled with confidentiality, including the identities of all participants. Furthermore, the data would be safely stored in the Department of Early Childhood Education for a duration of 15 years.

#### *Data analysis*

The saturated data collected were transcribed, coded, categorised and inductively hand analysed according to the emerging themes as identified by Gunawan (2015) and Saldana (2015) from the baseline focus group interviews, observing in-service teachers assessing learners and the reflections of data sets captured in research journals by both in- and pre-service teachers. Descriptive data analysis, as elucidated by Nowell et al. (2017), is incorporated in this paper. Sutton and Austin (2015) and Mackenzie et al. (2012) indicate as a limitation a tendency by researchers to exclude parts of data from different stages in PAR for the purpose of steering the findings to their advantage. Furthermore, Mackenzie et al. (2012) opine as a limitation the time aspect in PAR. However, this paper presents empirical data as captured from different data sets and sources by means of the services of research assistants to analyse the data. The richness and accuracy of the data presented enhanced the trustworthiness at the end of the project.

#### *Trustworthiness*

The interpreted data from different data sources were triangulated and member-checking was conducted (Gunawan, 2015) with the help of the research assistants. The credibility and conformability of the data were ensured in this project. Consequently, the data collected guaranteed reliability in answering the research questions.

## **FINDINGS AND DISCUSSIONS**

The findings and discussions below are presented according to the research questions asked, keeping in mind the results of in-service teachers' baseline interviews, and the observations of and reflections on all the participants.

#### *In-service teachers' baseline interviews*

The results of the baseline focus group interviews with in-service teachers from the school varied considerably. The teachers' conceptualisation of perceptual skills development was vague as stated by



Donohue and Bornman (2015), Forlin (2010), Spaul (2015) and they were, therefore, unable to identify its manifestation during learning (Lepola et al., 2016; McClelland et al., 2015). Three teachers explained the concept as follows:

Perceptual skills are children's understanding of the content that is taught in the classroom.

Perceptual skills are the skills that children need to have to be able to understand teachers in the classroom.

Perceptual skills are learners' ability to explain what is taught in the class.

Although in-service teachers were of the view that learners with learning difficulties such as difficulties related to reading, writing and language comprehension were found in different classes, they could not link these difficulties with the underdevelopment of perceptual skills (Song et al., 2016). One of the teachers said,

I ended up thinking the struggling learners were acting or were attention seekers as I did all I could to support them but they could not improve.

Interestingly, during the active experimentation phase, teachers could ascribe learning difficulties in children to the underdevelopment of specific perceptual skills. At the end of the project, the teachers had a clear understanding of the concept and how it manifests in learning. Furthermore, they were able to use the resources that students provided to assess learners and conduct exercises to improve perceptual skills development.

The in-service teachers' attainment of the skill to identify the underdevelopment of perceptual skills and assign the effect to a specific learning difficulty was confirmed during the observation and discussion stage. The teachers could use the relevant resources and associate learning issues to the underdevelopment of specific perceptual skills.

Of the 20 learners assessed by in-service teachers, five had one or a combination of two perceptual skills difficulties. Five learners battled with fine motor skills and had difficulties with handwriting. Six learners struggled with visual discrimination, form constancy and visual analysis, and synthesis. The learners struggled with b/d, n/u, f/t confusion, which affected sound and word recognition. Three of the learners also experienced difficulty with visual analysis and synthesis: they would see the word 'cat' and read it as 'dog'. Two of these learners also had trouble segmenting words and joining them, e.g. bed – b-e-d and dog – d-o-g. It was interesting to note that five of the children discussed above struggled with reading, writing and had reading comprehension issues. This supports the assumption that the underdevelopment of perceptual skills affects reading comprehension in children (Lepola et al., 2016).

#### *Pre-service teachers' reflections*

Time was an issue during the community project (Mackenzie et al., 2012), as students only had 11 weeks to conduct assessments at school. However, they were able to apply theoretical knowledge taught in class, carry out the assessments and discover hands on the influence that the underdevelopment of perceptual skills has on learning. The theoretical background allowed pre-service teachers to plan for the community project and prepared them for the forthcoming responsibility as school teachers (Ferns et al., 2014). Remarkably, pre-service teachers could pin down the relationship between the underdevelopment of specific perceptual skills and reading comprehension (Kolb, 2014). As envisaged, the research-based strategies were transferred to in-service teachers at the school. During the discussions with in-service

teachers, it was confirmed how learning difficulty was associated with the perceptual skills identified during assessment. One of the student teachers mentioned that

It is interesting to link the theory that was taught in class to the real-life situation of learners with learning difficulties.

#### *In-service teacher's interviews at the end of the project*

A clear understanding of perceptual skills development was established following the participation of in-service teachers in assessments and interventions conducted by student teachers. In this regard, one teacher said,

Ah, this is why this learner has a problem with reading.

At the end of the community project, in-service teachers were able to assess the learners and use the resources that students had provided to give learners exercises to facilitate the development of perceptual skills. Interestingly, at the end of the community engagement project, the principal of the school realised the benefits the project had brought to the school. The principal said:

We have many problems presented by learners with learning difficulties. Some become frustrated, drop out of school and begin traumatising the communities. If universities could share with us strategies to help, it would help us understand children's learning challenges and offer the support they need.

As a result of children's poor socioeconomic backgrounds, Cortiella and Horowitz (2014) and Murray-Kolb et al. (2014) observe that many parents from these poor socioeconomic environments cannot afford the psychological and physiotherapeutic support that children need. The principal asked if the lecturer could arrange with students from the university studying the relevant modules to follow up the assessments with interventions. Unfortunately, this was not possible, as in South Africa students may not practise until they are registered with the Health Professionals Council (HPC). However, this should not deter universities from conducting community engagement projects in the future but should motivate them to act as anchor institutions and upskill teachers to the benefit of underprivileged communities.

## CONCLUSION AND RECOMMENDATIONS

In conclusion, the findings of the community project presented in this study confirm that in a South African context where skills shortages and teacher training issues are continuously under investigation, EL can be used as a skill-transfer strategy for in-service teachers in schools. Education is a societal matter. Therefore, combined efforts by multiple sectors to address the challenges in schools may be of mutual benefit to all stakeholders and may improve the sustainability of the intervention strategies applied. Based on the contention that the Scholarship of Teaching and Learning (SOTL) encompasses issues of discovery, integration, practice and teaching, this paper recommends that HEIs conduct community engagement projects to address skills shortage and to benefit schools in need.

This research paper described one collaborative effective strategy to upskill teachers in schools and to assist learners with learning difficulties due to perceptual development, to improve reading comprehension and to enhance implementation of the prescribed curriculum. Significantly, not only did the school benefit from the skills transfer predicted, but each of the 10 groups of students donated the boxes of resources to each class teacher who had participated, thus enabling the teachers to continue assessing the underdevelopment of perceptual skills in learners in their classrooms long after the project had been completed.

There is a strong case in South Africa to come up with strategies to upskill in-service teachers' pedagogic and content knowledge against the backdrop of the skills required to teach children on a spectrum of

abilities. This study found mutual benefit in the collaboration between in-service and pre-service teachers and recommends that HEIs collaborate with schools to share research-based strategies and identify teacher support needs for the benefit of learners in schools. It is hoped that the findings inform policy and practice on teacher requirements for improving learner outcomes. The study recommends that follow-up studies are conducted in deep rural areas to determine if socioeconomic factors and low literacy levels of parents contribute to the underdevelopment of perceptual skills. Furthermore, the study recommends that parents should be involved and trained in facilitating the identification of the learning difficulties that children experience, and that parents should work with schools to outsource relevant support from the Department of Basic Education.

## REFERENCES

- Alexander, G. (2016) Reflections on the state of multicultural education in historically white South African schools. *International Journal of Educational Sciences* 13(1) pp.118-128.
- Austin, M.J. & Rust, D.Z. (2015) Developing an Experiential Learning Program: Milestones and Challenges. *International Journal of Teaching and Learning in Higher Education* 27(1) pp.143-153.
- Cortiella, C. & Horowitz, S.H. (2014) The state of learning disabilities: Facts, trends and emerging issues. New York: National Center for Learning Disabilities, pp.2-45.
- Creswell, J.W. (2013) *Qualitative inquiry and research design: Choosing among five approaches*. 3rd ed. Thousand Oaks, CA: Sage
- Department of Education. (2009) Final Report: Report of the task team for the review of the implementation of the National Curriculum Statement. Pretoria: Government Printers.
- Donohue, D.K. & Bornman, J. (2015) South African teachers' attitudes toward the inclusion of learners with different abilities in mainstream classrooms. *International Journal of Disability, Development and Education* 62(1) pp.42-59.
- Durso, F.T., Rawson, K.A. & Giroto, S. (2017) Comprehension and situation awareness. In F.T. Durso, R.S. Nickerson, S.T. Dumais, S. Lewandowsky & T.J. Perfect (Eds.) *Handbook of applied cognition* 2nd ed. Chichester, UK: Wiley, pp.163-193.
- Evans, R. & Nihulana, I. (2018) Linguistic challenges faced by rural Tshivenda-speaking teachers when Grade 4 learners transition to English. TD: *The Journal for Transdisciplinary Research in Southern Africa* 14(2) pp.1-9.
- Forlin, C. (2010) Teacher education reform for enhancing teachers' preparedness for inclusion, *International Journal of Inclusive Education* 14(7) pp.649-654.
- Ferns, S., Campbell, M. & Zegwaard, K. (2014) Work-integrated learning. In S. Ferns (Ed.) *HERDSA guide: Work-integrated learning in the curriculum* Milperra, Australia: HERDSA, pp.1-6.
- Freire, P. (1998) *Pedagogy of Freedom: Ethics, Democracy and Civic Courage*. Rowman and Littlefield
- Fusch, P.I. & Ness, L.R. (2015) Are We There Yet? Data Saturation in Qualitative Research. *The Qualitative Report* 20(9) pp.1408-1416. <http://nsuworks.nova.edu/tqr/vol20/iss9/3> (Accessed 11 January 2019).

- Goswami, U. (2015) Sensory theories of developmental dyslexia: Three challenges for research. *Nature Reviews Neuroscience* 16(1) pp.43-50.
- Gunawan, J. (2015) Ensuring trustworthiness in qualitative research. *Belitung Nursing Journal* 1(1) pp.10-11.
- Grilli, L., Pennoni, F., Rampichini, C. & Romeo, I. (2016) Exploiting TIMSS and PIRLS combined data: multivariate multilevel modelling of student achievement. *The Annals of Applied Statistics* 10(4) pp.2405-2426.
- Grossmann, T. (2015) The development of social brain functions in infancy. *Psychological Bulletin* 141(6) pp.1266-1270.
- Joubert, I., Bester, M. & Meyer, E. (2008) *Literacy in the foundation phase*. Pretoria: Van Schaick.
- Karmiloff-Smith, A. (2018) Development itself is the key to understanding developmental disorders. In A. Karmiloff-Smith, S.C. Michael, T.M.H. Johnson (Eds.) *Thinking Developmentally from Constructivism to Neuroconstructivism: Selected Works of Annette Karmiloff-Smith* London and New York: Routledge, pp.97-117.
- Kendeou, P., Van Den Broek, P., White, M.J. & Lynch, J.S. (2009) Predicting reading comprehension in early elementary school: The independent contributions of oral language and decoding skills. *Journal of Educational Psychology* 101(4) pp.765-778.
- Hopkins, R. (1993) David Kolb's experiential learning machine. *Journal of Phenomenological Psychology* 24(1) pp.46-62.
- Kivunja, C. (2015) Exploring the pedagogical meaning and implications of the 4Cs "super skills" for the 21st century through Bruner's 5E lenses of knowledge construction to improve pedagogies of the new learning paradigm. *Creative Education* 6(02) pp.224-234.
- Kolb, D.A. (1984) *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Kolb, D.A. (2014) *Experiential learning: Experience as the source of learning and development*: FT Press. Upper Saddle River: New Jersey.
- Lepola, J., Lynch, J., Kiuru, N., Laakkonen, E. & Niemi, P. (2016) Early oral language comprehension, task orientation, and foundational reading skills as predictors of grade 3 reading comprehension. *Reading Research Quarterly* 51(4)-373-390.
- Mackenzie, J., Tan, P.L., Hoverman, S. & Baldwin, C. (2012) The value and limitations of participatory action research methodology. *Journal of hydrology* 474 pp.11-21.
- Makalela, L. (2015) Translanguaging as a vehicle for epistemic access: Cases for reading comprehension and multilingual interactions. *Per Linguam: a Journal of Language Learning/ Per Linguam: Tydskrif vir Taalaanleer* 31(1) pp.15-29.
- Maringe, F. & Moletsane, R. (2015) Leading schools in circumstances of multiple deprivation in South Africa: Mapping some conceptual, contextual and research dimensions. *Educational Management Administration & Leadership* 43(3) pp.347-362.

Mayan, M., Lo, S., Richter, S., Dastjerdi, M. & Drummond, J. (2016) Community-based participatory research: Ameliorating conflict when community and research practices meet. *Progress in community health partnerships: research, education, and action* 10(2) pp.259-264.

McClelland, E., Pitt, A. & Stein, J. (2015) Enhanced academic performance using a novel classroom physical activity intervention to increase awareness, attention and self-control: Putting embodied cognition into practice. *Improving Schools* 18(1) pp.83-100.

Morales, M.P.E. (2016) Participatory action research (PAR) cum action research (AR) in teacher professional development: A literature review. *International Journal of Research in Education and Science* 2(1) pp.156-165.

Murray-Kolb, L.E., Rasmussen, Z.A., Scharf, R.J., Rasheed, M.A., Svensen, E., Seidman, J.C. & Vasquez, A.O. (2014) The MAL-ED cohort study: methods and lessons learned when assessing early child development and caregiving mediators in infants and young children in 8 low-and middle-income countries. *Clinical Infectious Diseases* 59 (suppl\_4) S261-S272.

Nel, C. (2011) Classroom assessment of reading comprehension: How are pre-service foundation phase teachers being prepared? *Per Linguam: a Journal of Language Learning/Per Linguam: Tydskrif vir Taalaanleer* 27(2) pp.40-63.

Ness, M.K. (2016) Reading comprehension strategies in secondary content area classrooms: Teacher use of and attitudes towards reading comprehension instruction. *Reading Horizons: A Journal of Literacy and Language Arts* 49(2) pp.5-10.

Nowell, L.S., Norris, J.M., White, D.E. & Moules, N.J. (2017) Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods* 16(1) pp.1-10.

Peach, D. & Matthews, J.H. (2011) Work integrated learning for life: Encouraging agentic engagement. HERDSA. *Research and Development in Higher Education* 34 pp.227-237.

Richmond, G. (2017) The power of community partnership in the preparation of teachers. *Journal of Teacher Education* 68(1) pp.6-8, doi.org/10.1177/0022487116679959

Roodhouse, S. & Mumford, J. (2010) HE@ Work: three year longitudinal employee learning attitudes survey of large private businesses, 2008-2010. *Industrial and Commercial Training* 42(6) pp.319-329.

Roskos, K. & Neuman, S.B. (2014) Best practices in reading: A 21st century skill update. *The Reading Teacher* 67(7) pp.507-511.

Saldaña, J. (2015) *The coding manual for qualitative researchers*. London: SAGE.

Scogin, S.C., Kruger, C.J., Jekkals, R.E. & Steinfeldt, C. (2017) Learning by experience in a standardized testing culture: Investigation of a middle school experiential learning program. *Journal of Experiential Education* 40(1) pp.39-57.

Sharlanova, V. (2004) Experiential learning. *Trakia Journal of Sciences* 2(4) pp.36-39.

Silva, M. & Cain, K. (2015) The relations between lower and higher level comprehension skills and their role in prediction of early reading comprehension. *Journal of Educational Psychology* 107(2) pp.321-331.

Soini, T., Pietarinen, J. & Pyhältö, K. (2016) What if teachers learn in the classroom? *Teacher Development* 20(3) pp.380-397.

Song, S., Georgiou, G.K., Su, M. & Hua, S. (2016) How well do phonological awareness and rapid automatized naming correlate with Chinese reading accuracy and fluency? A meta-analysis. *Scientific Studies of Reading* 20(2) pp.99-123.

Spaull, N. (2015) Schooling in South Africa: How low-quality education becomes a poverty trap. *South African Child Gauge* 12 pp.34-41.

Suggate, S.P. (2016) A meta-analysis of the long-term effects of phonemic awareness, phonics, fluency, and reading comprehension interventions. *Journal of learning disabilities* 49(1) pp.77-96.

Sutton, J. & Austin, Z. (2015) Qualitative research: Data collection, analysis, and management. *The Canadian journal of hospital pharmacy* 68(3) pp.226-231.

Thompson, D., Bell, T., Andreae, P. & Robins, A. (2013) The role of teachers in implementing curriculum changes. In *Proceeding of the 44th ACM technical symposium on Computer science education*, pp. 245-250. ACM.

Thuketana, N.S. & Westhof, L. (2018) Group work during visual art activities to reduce indecisiveness. *South African Journal of Childhood Education* 8(1) pp.1-10. <https://sajce.co.za/index.php/sajce/article/view/447>.

Steensel, R., Oostdam, R., Van Gelderen, A. & Van Schooten, E. (2016) The role of word decoding, vocabulary knowledge and meta-cognitive knowledge in monolingual and bilingual low-achieving adolescents' reading comprehension. *Journal of Research in Reading* 39(3) pp.312-329.

Van Steensel, R., Oostdam, R., Van Gelderen, A. & Van Schooten, E. (2016) The role of word decoding, vocabulary knowledge and meta-cognitive knowledge in monolingual and bilingual low-achieving adolescents' reading comprehension. *Journal of Research in Reading* 39(3) pp.312-329.

Wickramasinghe, V., Wickramasinghe, G.L.D., De Silva, C., Chandrasekara, R. & Jayabandu, S. (2019) Practice of workforce flexibility—internal, external, numerical and functional flexibility. *Performance Improvement Quarterly* 31(4) pp.355-379.

Willingham, D.T., Hughes, E.M. & Dobolyi, D.G. (2015) The scientific status of learning styles theories. *Teaching of Psychology* 42(3) pp.266-271.

Winch, C. (2014) Know-how, knowledge and professional education. In M. Young & J. Muller (Eds.) *Knowledge, expertise and the professions*. London: Taylor.

Zimmerman, L. & Smit, B. (2014) Profiling classroom reading comprehension development practices from the PIRLS 2006 in South Africa. *South African Journal of Education* 34(3) pp.1-9.