

TEACHERS' UNDERSTANDING AND IMPLEMENTATION OF THE NATIONAL CURRICULUM FOR PHYSICAL DEVELOPMENT IN THE RECEPTION YEAR

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ABSTRACT

This study explored Grade R teachers' understanding and implementation of early childhood physical development practices, based on the Revised National Curriculum Statement (RNCS). A case study, which entailed a focus group discussion, non-participant observations and document analysis of Grade R was conducted at a pre-primary school. Taxonomic and thematic analyses revealed that participants understood early physical development as a precursor to academic functioning. Teaching practices offered varying opportunities to learn within a whole-school approach to Physical Education (PE). Participants perceived various shortcomings in terms of non-specificity, participative versus quality performance approach, lack of age appropriate norms, irregularities with certain aspects of the Grade R curriculum and insufficient guidance for teachers. Participants reported limited reliance on the RNCS to inform their implementation of physical development practices. Further research is recommended, focusing on engaging critically with the physical development section of the RNCS for Grade R and comparing teaching practices in varying contexts. Additionally, there is a need for teacher training in early childhood PE, as well as assistance and dissemination of information

Key words: National Curriculum; Early childhood; Harrow's taxonomy; Physical development; Physical Education.

INTRODUCTION AND RATIONALE

Early childhood is a crucial period in which the foundation for lifelong learning is established (DoE, 2001; Willenberg, 2005; Lerner & Johns, 2009). Physical development is central to the early learning experience, impacting on cognitive development and academic achievement (Jordan-Black, 2005; Son & Meisels, 2006; Santhanam *et al.*, 2008). Numerous studies have documented the increasing inactivity of children and the associated health risks (Hills *et al.*, 2007; Sollerhed & Ejlertsson, 2008), thus turning the focus of research in physical development to the school context, where children are exposed to physical developmental activities through Physical Education (PE).

Studies show that PE is often seemingly inadequately implemented in schools, having a low status internationally (Hardman, 2008; Sherman *et al.*, 2010) as well as in South Africa (Du Toit *et al.*, 2007; Amusa & Toriola, 2008). This is often due to a lack of consensus among

professionals regarding the aims and purposes of PE (Van Deventer, 2007). Research has generally focused on primary and high school contexts (Du Toit *et al.*, 2007; Smith & Parr, 2007), thereby not adequately addressing the early childhood phase of schooling and the purpose of PE as it pertains to early physical development as a foundation for further academic achievement. Current literature calls for research into physical development in the early childhood phase of schooling (Fredericks *et al.*, 2006; Longhurst, 2006).

Furthermore, research around physical development in schools often focuses on its implementation (Van Deventer, 2004, 2009; Du Toit *et al.*, 2007) and not on the curriculum, which informs implementation practices, namely the Revised National Curriculum Statement (RNCS). The RNCS is currently under review with the aim of improving its implementation. With this in mind, a need for research that explores specific sections of the RNCS, including physical development in Grade R (the lowest grade bearing formal curriculum in early childhood), seems to exist. Indeed, the need for effective physical development programmes in early childhood has often been raised in literature (Fredericks *et al.*, 2006; Longhurst, 2006; Hills *et al.*, 2007; Wessels *et al.*, 2008).

Current research on Grade R has mostly been in response to concerns with the state of literacy levels of South African children (De Witt *et al.*, 2008; Fleisch, 2008). There is also concern in terms of the numeracy levels of South African children (Carnoy *et al.*, 2008; Fleisch, 2008). Yet, limited research could be found pertaining to the physical development section of the RNCS for Grade R, despite the fact that physical development provides the building blocks for mastering literacy and numeracy skills such as reading, writing (Cheatum & Hammond, 2000; Goddard-Blythe, 2000; Ayres, 2005; Santhanam *et al.*, 2008) and mathematics (Goddard-Blythe, 2005; Jordan-Black, 2005; Fredericks *et al.*, 2006; Son & Meisels, 2006). Therefore, the current scarcity of literature in this area of enquiry, together with the concerns discussed above, confirm that this area of research requires further attention.

PURPOSE

The purpose of this paper is to report on a study exploring how Grade R teachers, at a selected pre-primary school, understand and implement early childhood physical development practices, based on the RNCS. In this context, the study aimed at describing Grade R teachers' understanding of physical development and exploring how these understandings inform their daily classroom practices. Furthermore, Grade R was considered against the backdrop of existing literature on early physical development and the participants' interpretation of the RNCS.

THEORETICAL FRAMEWORK

Physical development as a concept incorporates a myriad of complex, interrelated processes and, as such, lacks a consistent and clear definition or description. If each word of the concept is analysed, the word *physical* implies "of the body" (Swannell, 1984:425), while the word *development* indicates a "stage of advancement" (Swannell, 1984:158). To say that physical development entails the advancement of the body in stages is a most rudimentary and primarily inadequate definition of the concept, as the question inevitably arises as to what is encompassed when referring to the body or physical aspects of an individual? It could,

therefore, be argued that a single definition of physical development cannot encompass the intricacies of the variety of processes implied by this concept.

Many studies have highlighted the impact of isolated competencies of early physical development on later learning difficulties and cognitive development (Fredericks *et al.*, 2006; Son & Meisels, 2006; Pienaar *et al.*, 2007; Lerner & Johns, 2009). Yet, the lack of integration of these isolated competencies into physical development as a whole implies that it is often difficult to track the path of development from the original competency to the resulting learning difficulty and underlying cognitive skill. Anita Harrow's (1972), taxonomy of psychomotor learning provides a framework for describing and organising the processes of physical development, thereby facilitating insight into the pathways between early physical development competencies and related cognitive skills.

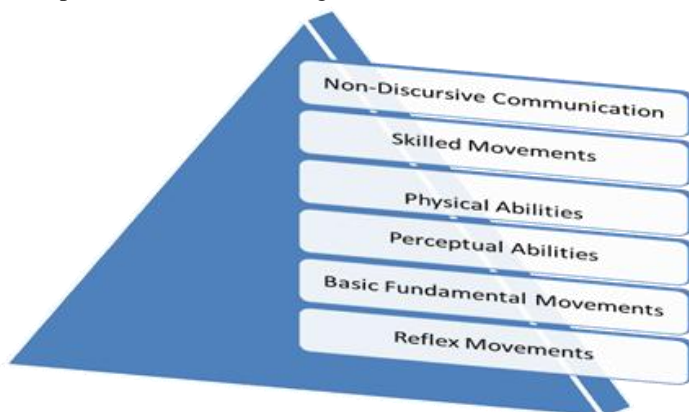


FIGURE 1: HARROW'S TAXONOMY OF PSYCHOMOTOR LEARNING

Source: Adapted from Harrow (1972:32)

Taxonomies of learning are regarded as "hierarchical ways of classifying possible learning outcomes" (Killen, 2007:82) on a continuum from the lowest to the highest level of observable behaviour (Harrow, 1972). Harrow's (1972), taxonomy of psychomotor learning (hereafter referred to as Harrow's taxonomy), is an adapted version of the previously unpublished psychomotor domain of Bloom's taxonomy of learning which in turn, entails cognitive, affective and psychomotor domains (Bloom, 1956; Killen, 2007). The psychomotor domain of learning is "concerned with the control of body movements and physical actions" (Killen, 2007:81).

Harrow's taxonomy is designed to assist educators and curriculum developers to formulate a meaningful sequential curriculum by categorising observable movement into six hierarchical levels (Harrow, 1972). The hierarchical nature of this taxonomy was chosen as the theoretical framework for the study for its appropriateness in exploring curricula associated with early physical development, which entails progressively more challenging physical activities (Hills *et al.*, 2007).

The first of the six levels, *reflex movements* comprises involuntary movements, which form the base for all other movement (Cheatum & Hammond, 2000). Harrow (1972) includes examples of flexion, extension, stretch and postural adjustments. The second level comprises

basic fundamental movements of which three types are distinguished, namely locomotor, non-locomotor and manipulative movements (Gallahue & Cleland-Donnelly, 2007). Locomotor movements enable the child to get from one place to another (such as crawling, creeping, sliding, walking, running, jumping, hopping, rolling and climbing), while non-locomotor movements require the child to move parts of the body around an axis (such as pushing, pulling, swaying, stooping, stretching, bending and twisting) (Gallahue & Cleland-Donnelly, 2007). Manipulative movements form part of fine motor skills, which involve control of the small muscles of the fingers and wrists (Woodfield, 2004; Lerner & Johns, 2009).

The third level of *perceptual abilities* refers to the detection and interpretation of sensory stimuli by higher brain centres enabling the child to respond and adjust to his/her environment (Harrow, 1972; Stephenson *et al.*, 2007). Perceptual abilities include kinaesthetic discrimination, involving the child's body image, awareness of how the body moves, its position in space and its relationship to objects in the surrounding environment (Harrow, 1972; Cheatum & Hammond, 2000). Bilaterality, laterality and dominance form underlying competencies of kinaesthetic awareness (Harrow, 1972; Gallahue & Cleland-Donnelly, 2007). Visual, auditory and tactile discrimination, as well as coordinated abilities, also form part of perceptual abilities (Harrow, 1972; Cheatum & Hammond, 2000).

The fourth level comprises *physical abilities* that form the foundation for highly skilled movement and require endurance, strength, agility and flexibility. The fifth level refers to *skilled movements*, which infer a degree of efficiency or mastery when performing a learned, complex physical task and are characteristic of sport, recreation and dance (Harrow, 1972). Finally, the sixth level involves *non-discursive communication*, ranging from exploration of movement and postures to dance choreographies (Harrow, 1972).

METHODOLOGY

The meta-theoretical paradigm of interpretivism (Terre Blanche & Durrheim, 2006; Cohen *et al.*, 2007), together with the qualitative methodological paradigm (Berg, 2004; Durrheim, 2006), facilitated the study's approach to the enquiry. While interpretivism places emphasis on understanding individual interpretations of the world (Cohen *et al.*, 2007), qualitative enquiry seeks to gain rich, detailed information in terms of these individual interpretations (Berg, 2004; Durrheim, 2006). A case study was conducted at a purposefully selected private pre-primary school comprising a total of 182 learners, of which 48 were in Grade R. The selected pre-primary school belongs to a South African group of private schools, which benchmarks students' progress in further grades through internationally accredited school assessments. In 2003, this group of schools embarked on an initiative to enhance the RNCS by involving all staff in collectively brainstorming an improved curriculum (including the physical development section) for their own use, starting at Grade R and addressing what the Group regards as limitations in the current RNCS. Thus, in addition to following the RNCS for Grade R, the selected participants have critically engaged with the curriculum with a view to improving it and therefore have experience in working with the curriculum as a policy.

The staff at the selected school appeared extensively trained and knowledgeable about literature regarding early physical development, for various reasons. Firstly, the school is an internationally accredited 'Investors in People' member, meaning that a sizeable budget is set

aside each year for the further training of staff who are mandated to attend at least four external training events per year. Secondly, professionals in fields related to physical development have provided staff with in-house training relating to early childhood physical development. Finally, the school has a small teacher's resource library where staff members are able to refer to books and articles pertaining to physical development in early childhood.

The participants selected for the study were 5 staff members who were directly involved in implementing the PE programme, comprising the school principal (who carried out some classroom teaching activities), 2 Grade R class teachers and 2 Physical Developmental Education (PDE) specialists. Focusing on a selected, small number of participants allowed for in-depth enquiry into the teachers' understanding, approach and practices in early physical development. Data was collected via the following strategies as recommended by Creswell (2003), as well as Ryan and Lobman (2007).

Analysis of the data was twofold: utilising taxonomic as well as thematic analyses. This combination allowed for thematic analysis to provide further insight into taxonomies (Pope *et al.*, 2006). The taxonomic analysis enabled classification of the data reflecting participants' understanding and implementation of physical development practices according to the 6 levels of Harrow's (1972) taxonomy. The thematic analysis thereafter provided further insight into the data itself, thereby facilitating the interpretation of data.

TABLE 1: DATA COLLECTION AND DOCUMENTATION STRATEGIES

Source	Type	Documented	Explored
Document analysis	Public documents	Electronic and hand-written notes	The physical development section of the RNCS for Grade R
Focus group discussion	Semi-structured	Audio recorded and transcribed, as well as field notes and member checking	Participants' accounts of their understanding and implementation of physical development practices and the Grade R RNCS
Observations	Observation as context-of-interaction	Field notes	Participants' physical-developmental practices in the school setting

Trustworthiness was approached by striving to adhere to the quality criteria of credibility, transferability, dependability, confirmability (Lincoln & Guba, 1985) and authenticity (Guba & Lincoln, 1989). As part of the research process, member checking (Gillham, 2000) of emerging focus group themes was employed, thick descriptions of the case and participants were offered (Rubin & Babbie, 2010), triangulation (Stake, 2000; Berg, 2004) and crystallisation strategies (Janesick, 2003; Maree & Van der Westhuizen, 2009) were utilised and an audit trail established (Patton, 2002).

Ethical considerations in this study entailed acquiring informed consent in writing from the school and participants (Berg, 2004; Strydom, 2005). The integrated guidelines of privacy, confidentiality and anonymity were upheld in the research process (Strydom, 2005;

Wassenaar, 2006). Throughout, the participants were treated with respect and trust (De Vos *et al.*, 2005). Following the above-mentioned, ethical considerations further facilitated the protection of harm to the participants (Boeije, 2010).

RESULTS AND FINDINGS

The results of the study are summarised in Figure 2 and discussed.

Twofold data analysis	
Taxonomic (Understanding and implementation)	Level 1: Reflex movements Level 2: Basic fundamental movements Level 3: Perceptual abilities Level 4: Physical abilities Level 5: Skilled movements Level 6: Non-discursive communication <i>A whole-school approach to physical development</i>
Thematic	Theme 1: The impact of modern lifestyle on early physical development Theme 2: Current inadequacies of physical education in schools Theme 3: Keeping informed and educated in early physical development Theme 4: The role of early physical development in academic performance Theme 5: Physical development as a social and emotional experience Theme 6: Concern about the current physical development curriculum Subthemes: 6.1: Non-specificity of the physical development curriculum 6.2: Need for quality performance versus participation 6.3: Need for age-appropriate developmental norms 6.4: What, why, how and when of the curriculum 6.5: Irregularities across the Grade R curriculum 6.6: Guidance for new or inexperienced teachers 6.7: Limited reliance on the curriculum to inform teaching

FIGURE 2: RESULTS OF THE STUDY

TAXONOMIC ANALYSIS (Teachers' understanding and implementation of physical development practices based on Harrow's Taxonomy of Psychomotor Learning).

The study's results indicate that although participants implemented physical development practices at all 6 levels of Harrow's (1972) taxonomy, their understanding of early physical development encompassed 5 of the 6 levels. An element pertaining to physical development in the sixth level of Harrow's (1972), taxonomy, namely non-discursive communication, was not mentioned by participants until they encountered an assessment standard in the Grade R curriculum which referred to elements of this level: "*Performing expressive movements using different parts of the body... We haven't really discussed that. That's more covered in music, dance and drama*". Thus, by encompassing Harrow's (1972), 6 levels of the taxonomy of psychomotor learning, participants seemingly displayed a thorough, in-depth understanding of the elements and sub-areas of early physical development.

Overall, participants' understanding of the elements, purposes and current concerns related to early physical development seemed to be in-depth, reflecting current empirical research. However, participants reported that they felt their thorough understanding of physical development was not evident amongst professionals at many other schools. They explained that the additional training, research and regular collaboration with other professionals, which they undertook, enhanced and deepened their understanding of physical development in early childhood. This enhanced understanding of physical development was reflected in participants' implementation practices at the school.

The study's findings indicate that early physical development practices implemented by the participants incorporated all 6 levels of Harrow's (1972) taxonomy, thereby encompassing most of the elements of early physical development. Practices were, seemingly, both direct and unstructured. Direct practices included, for example, PE rings, daily morning reflex exercises, weekly rings with exercise balls and structured activities. More unstructured practices involved providing and facilitating physical development and skills through free play, exploration and problem-solving both in the classroom, during outdoor free play and in moving between venues within the school. Thus, participants seemingly implemented physical development practices in a way that could encourage participation in a variety of activities.

The participating school followed a whole-school approach to the implementation of early physical development practices, including the assistance of non-academic staff, specialist practitioners and parents. Timperio *et al.* (2004) argue for a whole-school approach to physical activity interventions as the most effective means of facilitating physical development. The school incorporates specialised programmes such as the Wilbarger Deep Pressure and Proprioceptive Technique (Wilbarger & Wilbarger, 1991) and exercises from the Institute for Neuro-Physiological Psychology (Goddard-Blythe, 2005). This whole-school approach to physical development implies that the learners have opportunities to engage in activities that could promote physical development. These opportunities are integrated into the school day, easily accessible and varied in approach.

The holistic approach of the school is also extended to the nutritional needs of children, where the school endeavours to provide a healthy mid-morning snack, as well as a nutritious lunch for children who remain for after-school care. An unhealthy diet may be a significant contributor to childhood obesity in addition to physical inactivity (Burdette & Whitaker, 2005; Veugelers & Fitzgerald, 2005). In addition, children bring their own water bottles to school and are encouraged to drink water regularly during the day.

THEMATIC ANALYSIS (Situating teachers' understandings of early physical development within current literature and the RNCS for Grade R).

Participants' understanding of the various purposes and roles of physical development correlated with empirical research. They expressed the role of physical development in encouraging a healthy lifestyle (Anderson *et al.*, 2005; Loland, 2006; Hardman, 2008), enhancing social and emotional skills (Anderson *et al.*, 2005; Bart *et al.*, 2007; Hills *et al.*, 2007) and as a potential foundation for the development of academic skills and functioning

(Fredericks *et al.*, 2006; National Joint Committee on Learning Disabilities, 2006; Son & Meisels, 2006).

Additionally, participants displayed an understanding of current challenges and questions as reflected in empirical research, relating to the physical development of young children, such as childhood obesity (Van Deventer, 2004; Du Toit *et al.*, 2007; Hardman, 2008; Sollerhed & Ejlertsson, 2008), inactive lifestyles of children (Du Toit *et al.*, 2007; Hills *et al.*, 2007; Hardman, 2008) and inadequacies in school PE (Du Toit *et al.*, 2007; Amusa & Toriola, 2008; Van Deventer, 2009) as a vehicle for physical development: *"...you've got to look at the quality, or the work that the PE teachers are presenting...we've all had the experience of 'here's a ball, go kick it around'. So if you haven't got a constructive Phys. Ed lesson that has a set objective that is a part of their programme, what is the value of what those kids are doing in that lesson that's once a week, for half an hour?"*

Findings of the study indicate that participants had many concerns with the physical development section of the RNCS for Grade R. Firstly, participants seemed to be of the opinion that the physical development curriculum does not adequately specify exactly what is required of a child in terms of observable movements, leaving the curriculum open to subjective interpretation by teachers. It was argued that the curriculum required only participation of children rather than quality performance. Teachers argued that while participation in physical development activities has health benefits for the child, participation alone is not sufficient to develop the foundational physical skills necessary for academic functioning.

Participants further maintained that the curriculum needed to be based on age-appropriate developmental norms. It was postulated that basing the physical development curriculum on developmental norms would specify the 'what, why, how and when' of the curriculum. Therefore, emphasis would be placed on what observable movements teachers should look out for, why they need to observe those specific movements, how the child could perform the movements in terms of the expected quality of movement and when it is developmentally age-appropriate for a child to be expected to perform a specific movement.

Additionally, participants reported potential irregularities across the Grade R curriculum itself, stating that the other learning areas are far more comprehensive and specific in detailing what exactly is required from children. Thus, when compared to the rest of the Grade R curriculum, participants found the physical development section to have insufficiencies, both for themselves, and more especially, for newly qualified or inexperienced teachers for whom the curriculum seemingly does not provide extensive substance and guidance: *"Unless you have a teacher with enormous experience, they are actually not going to know what they're looking for"*. Participants' concerns with the physical development section of the Grade R, RNCS seemed to impact on the extent of their use of the curriculum to inform their teaching practices: *"I certainly don't think we are reliant upon the curriculum to determine what we're teaching because it certainly isn't anywhere near the amount of information that we would require, to provide a comprehensive programme"*.

Participants were seemingly not reliant on the RNCS to inform their understanding and implementation of physical development practices. This is due to participants' reported

concerns with what they perceived as the limited scope of the curriculum (as discussed above) and their argument that the curriculum is not comprehensive enough for the physical development programme implemented at the school.

Instead, participants endeavoured to seek guidance for their physical development practices from various alternative sources, such as gaining additional training, keeping informed on research in the field of early physical development, referring to their teacher's resource library and collaborating with other professionals: *"I think we are relying more on developmental norms given to us by O.T. (Occupational Therapist), physiotherapist and from various child developmental books, than we are relying on this (the RNCS). Even our reports are not based on this curriculum (for the physical development section).*

DISCUSSION

This study indicates that the school staff participating in this study possessed an in-depth and comprehensive understanding of physical development in early childhood, thereby affirming the research assumption in this regard. Their comprehensive understanding of physical development informed an implementation of teaching practices that were integrated into a variety of learning opportunities, following a whole-school approach to learning. Another research assumption that teachers' understandings of physical development in early childhood serves to inform their teaching practices, was also supported.

Although the RNCS is a document formulated to guide and inform teachers' understanding and implementation of early physical development practices, the participants found it inadequate in such a role and not comprehensive enough for the school's implementation practices. The research assumption that the RNCS informs teachers' understandings of physical development would appear not to be supported in this study. Furthermore, the assumption that the participants interpret the physical development section of the Grade R, RNCS according to their understandings of early physical development was not affirmed, since teachers' understandings of physical development reportedly fuelled their concerns, instead of their engagement with the RNCS when interpreting it.

The overall assumption that the participants would base their physical development implementation practices on the RNCS was not confirmed, since the RNCS reportedly had little influence on the in-depth understanding and thorough implementation of physical development practices by the participants. Instead, participants reportedly turned to other sources of guidance and information in order to enhance their teaching practices. This study concludes that for the selected school, school staff's in-depth understandings of physical development in early childhood and their comprehensive, whole-school approach to the implementation thereof, seemed to be neither informed, nor guided, by the physical development section of the RNCS for Grade R.

CONCLUSION

This study set out to explore how Grade R teachers at a particular pre-primary school understood and implemented physical development practices based on the RNCS. What emerged from the study was that the curriculum appeared to fall short as a valuable resource for the teachers at the selected school, and consequently, their facilitation of physical

development seemingly had little to do with guidance by the curriculum. As a result, further questions were raised regarding the effectiveness of the curriculum itself.

Questions were also raised as to the possible similarities and differences regarding understanding and implementation of physical development practices in schools within varying contexts across the country. What this study highlights, however, is that physical development plays a vital, if not central, role in the young child's overall development and future academic achievement. This should be regarded as a central component of the Grade R curriculum. If Hardman's (2008) call for improving the relevance and quality of PE in the curriculum is to be heeded, then the Grade R curriculum needs to be critically engaged with a view to embracing the primary purpose of physical development in early childhood as a precursor to learning and academic achievement. The goal of critically engaging with the Grade R curriculum is of particular relevance when taking into consideration the Education Department's (Department of Basic Education, 2010) goal of having 90% of five year olds in Grade R programmes by 2014.

RECOMMENDATIONS

When considering recommendations, it is pertinent to note the inherent limitations of this study. The high socio-economic status of the school, together with the small number of participants, to a certain extent limited the transferability of the results. The nature of case study design does not facilitate the implementation of changes in varying contexts (Opie, 2004). Research based on case study design is limited to suggesting recommendations based on the findings of the study, which can be an impetus for further study on the topic (Edwards, 2001). The findings of this study do not facilitate implementation of changes to the RNCS, but rather endeavours to stimulate debate and further investigation into the topic of enquiry.

Further research into the understanding and implementation of early physical development practices at schools, in various contexts and socio-economic circumstances could provide valuable insight into practices surrounding early physical development in larger populations. Within-case as well as across-case analyses could be useful in this regard, to compare understanding and practices surrounding early physical development and PE in different schools.

Pivotal to further research in early physical development is the need for further enquiry into the physical development section of the RNCS for Grade R. Future research could explore possible differing interpretations of the Grade R physical development curriculum by teachers who may be informed by varying depths of understanding in early physical development. Furthermore, research could explore how the physical development section of the Grade R, RNCS might currently be utilised by teachers to varying extents, depending on the availability of alternative resources to inform their teaching practices.

Future curriculum research focusing on enhancing or changing the curriculum needs to include teachers themselves. Involving teachers in curriculum change is regarded as a contentious challenge, since curriculum developers often regard teachers as conveyors of the curriculum rather than designers thereof (Srivastava & Kumari, 2005). However, including teachers' voices in future curriculum change may add further insight and innovation to the

curriculum, based on teachers' experiential knowledge. In order for teachers to be involved in further research regarding curriculum change, they need to have a degree of knowledge, insight and experience in early physical development and PE.

Further research and consideration is needed in the training of teachers in physical development, and also the manner in which physical development is facilitated through PE. Further training could take the form of workshops and conferences. However, an awareness of the various purposes of physical development needs to be central to teacher training. Training in early physical development needs to focus on the building of physical skills as a foundation for further cognitive development and academic performance. Du Toit *et al.* (2007) argue that although teachers and principals are aware of the health implications of PE, they need further education with regard to other benefits of PE. If teachers, parents, policymakers and other stakeholders become more aware of the link between physical development in early childhood and future academic functioning, the status of PE in schools may be elevated, regardless of whether PE is an examinable subject or not.

This study has demonstrated how the status of PE can be elevated within a school due to teachers' in-depth understanding of the nature, purpose and importance of physical development for the child, thus showing that teacher training itself can serve to elevate the status of PE in schools. A need seems to exist to convince government (as curriculum developers and policymakers) about the potential benefits of optimal physical development in early childhood. As professionals in the education sector and other helping professionals, are in a position to liaise with government in this regard.

REFERENCES

- AMUSA, L.O. & TORIOLA, A.L. (2008). Children's perceptions of physical education and school sports at selected South African schools. *African Journal for Physical, Health Education, Recreation and Dance*, 14(4): 355-372.
- ANDERSON, M.J.; BLANKSBY, B.A. & WHIPP, P.R. (2005). A retrospective evaluation of assessment in physical education. *South African Journal for Research in Sport, Physical Education and Recreation*, 27(1): 1-10.
- AYRES, A.J. (2005). *Sensory integration and the child: Understanding hidden sensory challenges*. Los Angeles, CA: Western Psychological Services.
- BART, O.; HAJAMI, D. & BAR-HAIM, Y. (2007). Predicting school adjustment from motor abilities in kindergarten. *Infant and Child Development*, 16: 597-615.
- BERG, B.L. (2004). *Qualitative research methods for the social sciences* (5th ed.). Boston, MA: Allyn & Bacon.
- BLOOM, B.S. (1956). *Taxonomy of educational objectives, Handbook 1: Cognitive domain*. New York, NY: David McKay.
- BOEIJE, H.R. (2010). *Analysis in qualitative research*. Thousand Oaks, CA: Sage.
- BURDETTE, H.L. & WHITAKER, R.C. (2005). A national study of neighbourhood safety, outdoor play, television viewing and obesity in preschool children. *Paediatrics*, 116(3): 657-662.
- CARNOY, M.; CHISHOLM, L. & BALOYI, H. (2008). Uprooting bad mathematical performance: Pilot study into roots of problems. *HSRC Review*, 6(2): 13-14.
- CHEATUM, B.A. & HAMMOND, A.A. (2000). *Physical activities for improving children's learning and behaviour: A guide to sensory motor development*. Champaign, IL: Human Kinetics.

- COHEN, L.; MANION, L. & MORRISON, K. (2007). *Research methods in education* (6th ed.). New York, NY: Routledge.
- CRESWELL, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*. (2nd ed.). Thousand Oaks, CA: Sage.
- DoE (DEPARTMENT OF EDUCATION) (2001). *Meeting the challenge of early childhood education in South Africa: Education White Paper 5*. Pretoria: Department of Education.
- DEPARTMENT OF BASIC EDUCATION (2010). *Strategic Plan: 2010-2013*. Pretoria: Department of Basic Education.
- DE VOS, A.S.; STRYDOM, H.; FOUCHÉ, C.B. & DELPORT, C.S.L. (2005). *Research at grass roots for the social sciences and human service profession* (3rd ed.). Pretoria: Van Schaik.
- DE WITT, M.W.; LESSING, A.C. & LENAYI, E.M. (2008). An investigation into the state of early literacy of preschool learners. *Journal for Language Teaching*, 42(1): 38-47.
- DURRHEIM, K. (2006). Research design. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed.) (33-59). Cape Town: University of Cape Town Press.
- DU TOIT, D.; VAN DER MERWE, N. & ROSSOUW, J.P. (2007). Return of physical education to the curriculum: Problems and challenges facing schools in South African communities. *African Journal for Physical, Health Education, Recreation and Dance*, 13(3): 241-253.
- EDWARDS, A. (2001). Qualitative designs and analysis. In G.M. Naughton, S.A. Rolfe & I. Siraj-Blatchford (Eds.), *Doing early childhood research: International perspectives on theory and practice* (117-135). Philadelphia, PA: Open University Press.
- FLEISCH, B. (2008). *Primary education in crisis: Why South African schoolchildren underachieve in reading and mathematics*. Cape Town: Juta.
- FREDERICKS, C.R.; KOKOT, S.J. & KROG, S. (2006). Using a developmental movement programme to enhance academic skills in Grade 1 learners. *South African Journal for Research in Sport, Physical Education and Recreation*, 28(1): 29-42.
- GALLAHUE, D.L. & CLELAND-DONNELLY, F. (2007). *Developmental physical education for all children* (4th ed.). Champaign, IL: Human Kinetics.
- GILLHAM, B. (2000). *Case study research methods*. London: Continuum Publishers.
- GODDARD-BLYTHE, S. (2000). Attention, balance, coordination: Early learning in the balance: Priming the first ABC. *Support for Learning*, 15(4): 154-158.
- GODDARD-BLYTHE, S. (2005). Releasing educational potential through movement: A summary of individual studies carried out using the INPP test battery and developmental exercise programme for use in schools with children with special needs. *Child Care in Practice*, 11(4): 415-432.
- GUBA, E.G. & LINCOLN, Y.S. (1989). *Fourth generation evaluation*. Thousand Oaks, CA: Sage.
- HARROW, A.J. (1972). *A taxonomy of the psychomotor domain: A guide for developing behavioural objectives*. New York, NY: David McKay.
- HARDMAN, K. (2008). Physical education in schools: A global perspective. *Kinesiology*, 40(1): 5-28.
- HILLS, A.P.; KING, N.A. & ARMSTRONG, T.P. (2007). The contribution of physical activity and sedentary behaviours to the growth and development of children and adolescents: Implications for overweight and obesity. *Sports Medicine*, 37(6): 533-545.
- JANESICK, V.J. (2003). The choreography of qualitative research design: Minuets, improvisations, and crystallization. In N.K. Denzin & Y.S. Lincoln (Eds.), *Strategies of qualitative inquiry* (2nd ed.) (46-79). Thousand Oaks, CA: Sage.

- JORDAN-BLACK, J. (2005). The effects of the primary movement programme on the academic performance of children attending ordinary primary school. *Journal of Research on Special Educational Needs*, 5: 101-111.
- KILLEN, R. (2007). *Teaching strategies for outcomes-based education* (2nd ed.). Cape Town: Juta.
- LERNER, J. & JOHNS, B. (2009). *Learning disabilities and related mild disabilities: Characteristics, teaching strategies and new directions* (10th ed.). Boston, MA: Houghton Mifflin.
- LINCOLN, Y.S. & GUBA, E.G. (1985). *Naturalistic enquiry* (3rd ed.). Thousand Oaks, CA: Sage.
- LOLAND, S. (2006). Morality, medicine and meaning: Toward an integrated justification of physical education. *Quest*, 58: 60-70.
- LONGHURST, G.K. (2006). Comparison of motor proficiency programmes for children with learning disabilities. *African Journal for Physical, Health Education, Recreation and Dance*, 12(2): 97-111.
- MAREE, K. & VAN DER WESTHUIZEN, C. (2009). *Head start in designing research proposals in the social sciences*. Cape Town: Juta.
- NATIONAL JOINT COMMITTEE ON LEARNING DISABILITIES. (2006). Learning disabilities and young children: Identification and intervention. *Learning Disability Quarterly*, 30: 63-72.
- OPIE, C. (2004). Research approaches. In C. Opie (Ed.), *Doing educational research: A guide for first time researchers* (73-94). Thousand Oaks, CA: Sage.
- PATTON, M.Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.
- PIENAAR, A.E.; BOTHA, J.; VERMEULEN, C. & BALLACK, M. (2007). A review of the interrelationship between vestibular dysfunction, motor and learning disabilities and the rehabilitation thereof. *South African Journal for Research in Sport, Physical Education and Recreation*, 29(1): 129-146.
- POPE, C.; ZIEBLAND, S. & MAYS, N. (2006). Analysing qualitative data. In C. Pope & N. Mays (Eds.), *Qualitative research in health care* (3rd ed.) (63-81). Malden, MO: Blackwell.
- RUBIN, A. & BABBIE, E.R. (2010). *Essential research methods for social work* (2nd ed.). Belmont, CA: Brooks/Cole, Cengage Learning.
- RYAN, S. & LOBMAN, C. (2007). The potential of focus groups to inform early childhood policy and practice. In J.A. Hatch (Ed.), *Early childhood qualitative research* (63-74). London: Routledge.
- SANTHANAM, T.; PRASAD BABU, B. & BHASKARARAO, D. (2008). *Learning disabilities and remedial programmes*. New Delhi (India): Discovery Publishing House.
- SHERMAN, C.; TRAN, C. & ALVES, Y. (2010). Elementary school classroom teacher delivered physical education: Costs, benefits and barriers. *Physical Educator*, 67(1): 2-17.
- SMITH, A. & PARR, M. (2007). Young people's views on the nature and purposes of physical education: A sociological analysis. *Sport, Education and Society*, 12(1): 37-58.
- SOLLERHED, A.C. & EJLERTSSON, G. (2008). Physical benefits of expanded physical education in primary school: Findings from a 3-year intervention study in Sweden. *Scandinavian Journal of Medicine and Science in Sports*, 18: 102-107.
- SON, S. & MEISELS, S.J. (2006). The relationship of young children's motor skills to later reading and math achievement. *Merrill-Palmer Quarterly*, 52(4): 755-778.
- SRIVASTAVA, D.S. & KUMARI, S. (2005). *Curriculum and instruction*. Delhi (India): Gyan Publishing House.
- STAKE, R.E. (2000). Case studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.) (435-454). Thousand Oaks, CA: Sage.

- STEPHENSON, J.; CARTER, M. & WHELDALL, K. (2007). Still jumping on the balance beam: Continued use of perceptual motor programs in Australian schools. *Australian Journal of Education*, 51(1): 6-18.
- STRYDOM, I. (2005). Addressing life skills problems. In E. Landsberg, D. Krüger & N. Nel (Eds.), *Addressing barriers to learning: A South African perspective* (96-115). Pretoria: Van Schaik.
- SWANNELL, J. (Ed.). (1984). *The little Oxford dictionary* (5th ed.). Oxford: Oxford University Press.
- TERRE BLANCHE, M. & DURRHEIM, K. (2006). Histories of the present: Social science research in context. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed.) (1-17). Cape Town: University of Cape Town Press.
- TIMPERIO, A; SALMON, J. & BALL, K. (2004). Evidenced-based strategies to promote physical activity among children, adolescents and young adults: Review and update. *Journal of Science and Medicine in Sport*, 7(1): 20-29.
- VAN DEVENTER, K.J. (2004). A case for physical education/life orientation: The health of a nation. *South African Journal for Research in Sport, Physical Education and Recreation*, 26(1): 107-121.
- VAN DEVENTER, K.J. (2007). A paradigm shift in life orientation: A review. *South African Journal for Research in Sport, Physical Education and Recreation*, 29(2): 131-146.
- VAN DEVENTER, K.J. (2009). Perspectives of teachers on the implementation of life orientation in grades R-11 from selected Western Cape schools. *South African Journal of Education*, 29: 127-145.
- VEUGELERS, P.J. & FITZGERALD, A.L. (2005). Effectiveness of school programs in preventing childhood obesity: A multilevel comparison. *American Journal of Public Health*, 95(3): 432-435.
- WASSENAAR, D. (2006). Ethical issues in social science research. In M. Terre Blanche, K. Durrheim & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed.) (60-79). Cape Town: University of Cape Town Press.
- WESSELS, Y.; PIENAAR, A.E. & PEENS, A. (2008). Gender and racial differences in 6 and 7 year old children with developmental coordination disorder (DCD) in learning related abilities and ADHD. *Tydskrif vir Geesteswetenskappe*, 48(4): 493-504.
- WILBARGER, P. & WILBARGER, J. (1991). *Sensory defensiveness in children aged 2-12: An intervention guide for parents and other caregivers*. Denver, CO: Avanti Educational Programs.
- WILLENBERG, I. (2005). Starting at the beginning: Early childhood literacy intervention as a strategy for reducing adult illiteracy. *Language Matters*, 36(2): 162-175.
- WOODFIELD, L. (2004). *Physical development in the early years*. New York, NY: Continuum International.

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