

SERVICE-LEARNING WITHIN FIELD EXPERIENCE OF PHYSICAL EDUCATION TEACHER EDUCATION IN SOUTH AFRICA: EXPERIENCES OF PRE-SERVICE AND IN-SERVICE TEACHERS

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ABSTRACT

The re-implementation of Physical Education (PE) in the South African national curriculum after an absence of more than ten years, has led to problems, such as unqualified PE teachers and a lack of PE equipment. The purpose of this study was to investigate the benefits and challenges experienced by pre-service and in-service teachers in a service-learning Physical Education Teacher Education (PETE) programme, in a South African school setting of unqualified PE teachers and a lack of PE equipment. A total of 140 pre-service teachers presented PE lessons once a week at a pre-school and primary school according to assignments involving course content, critical reflection and the construction of PE equipment. Employing qualitative methodology supported by limited quantitative data, data was collected from reflections, interviews and questionnaires. Qualitative data was analysed using an interpretive approach, while quantitative data was analysed using descriptive statistics. The results show that pre-service and in-service teachers perceived the programme as beneficial to all role players. Unique contributions of this study lie in the experiences of the teachers that the barriers of teacher incompetence and a lack of PE equipment, were overcome due to the service-learning programme.

Keywords: Physical Education; Teacher education; Pre-/In-service learning.

INTRODUCTION

The problems encountered by modern day Physical Education (PE) programmes, such as reduced time allocation in the school time table, the lower status of PE than ‘academic’ subjects, inadequately trained teachers and lack of funding, are widely reported in the literature (Van Deventer, 2012; Hardman, 2013; Liu *et al.*, 2016; Lynch, 2017). These challenges facing PE are often more prominent in economically underdeveloped countries like South Africa (Hardman, 2013; Taukeni, 2015), and in countries where PE curriculum time and status in the national curriculum has been reduced (Hardman & Marshall, 2009; Van Deventer, 2012; Burnett, 2016). In the case of South Africa, PE has been reinstated in the national curriculum after an absence of more than 10 years (SADBE, 2010), leading to several challenges and implementation problems for schools, most prominently being the lack of qualified PE teachers and a lack of PE equipment in the Foundation Phase (pre-school to Grade 3) (Du Toit *et al.*, 2007; Van Deventer, 2012; Edginton *et al.*, 2014).

After the re-implementation of PE in the curriculum, the training of in-service teachers in the new PE curriculum consisted of one afternoon of PE training presented by the National Department of Education (Crouse, 2013), resulting in most PE teachers being unequipped to

implement the new curriculum successfully (Du Toit *et al.*, 2007; Van Deventer, 2012). In a survey of PE in four provinces of South Africa, Van Deventer (2012) found that between 40% and 58% of the teachers presenting PE in schools, were not qualified PE teachers. Similarly, Edginton *et al.* (2014) highlight the insufficiency of the implementation of the PE curriculum in South African schools due to unqualified teachers and a lack of equipment and facilities.

This shortage of qualified PE teachers and absence of policy implementation, together with the diverse school population of South Africa (Edginton *et al.*, 2014), constitute the majority of South African learners, as well as pre-service and in-service teachers, to be underserved communities in need. Service-learning constitutes a reciprocal process wherein students can achieve the objectives of academic curricula through active participation in authentic community settings while meeting community needs (Miller & Nendel, 2011; Meaney *et al.*, 2012; Cervantes & Meaney, 2013). Therefore, the needs of the underserved community of South African PE teachers and learners may be addressed by a service-learning programme, embedded in the practical field experience of the Physical Education Teacher Education (PETE) programme of a South African university, as an innovative teacher education approach and strategy in PETE.

Service-learning is grounded in Dewey's (1938) experiential learning theory, which postulates that active engagement in an authentic learning environment, together with the sharing of and reflection on experiences, leads to faster end better learning. Konukman and Schneider (2012) describe service-learning as a class-orientated experience where students participate in an organised community service activity, thereby linking theoretical knowledge to practice. According to Konukman and Schneider (2012) and Johnson (2016), service-learning consists of at least three elements namely, service in the community, reflection on the experience, and integration of the experience within the curriculum.

Field experiences as a part of PETE programme have shown to yield positive outcomes for the community, including more efficient use of allocated time for teaching specific subjects, the infusion of technology, the introduction of new ideas and current best practices, as well as heightened motivation of learners and teachers (Robinson & Melnychuk, 2012; Johnson, 2016). However, service-learning for pre-service teachers has been shown to include added benefits, such as enhanced self-competence, gains in content knowledge, improved ability to use different instructional strategies, and enhanced cultural awareness (Meaney *et al.*, 2012; Wilkinson *et al.*, 2013). Results of recent studies (Johnson, 2016; Webster, 2017) employing service-learning as teaching and learning methodology in PETE programme, support the above-mentioned positive outcomes for both the pre-service PE-teacher and the community, represented by the school, teacher and school learner.

In their review of literature on service-learning in PETE programmes, Cervantes and Meaney (2013) found that the benefits of service-learning in PETE programmes culminated in the gained hands-on experience of pre-service PE teachers in designing, instructing and assessing physical activity lessons, as well as the broadening of their awareness of and attitude towards learners from ethnically diverse communities and with different abilities. Furthermore, as PETE programme students' opportunities to instruct increased, their fears with regard to teaching decreased and their confidence levels improved (Cervantes & Meaney, 2013). In the study of De Groot *et al.* (2015) investigating the perspectives of kinesiology majors in a service-learning project in a low-income area, the learning experience was perceived as promotional to their personal and professional development, self-efficacy, skill acquisition and their perceptions of low-income communities.

Changing pre-service teachers' preconceived stereotypes were also one of the positive outcomes in two studies among pre-service teachers at a university in the southwest of the United States (Meaney *et al.*, 2008; Meaney *et al.*, 2012). In both studies, one involving 53 *Health and PE* pre-service teachers and the other, 16 graduate students, PE lessons were presented to children from low socio-economic backgrounds, and the results showed better social awareness and less stereotyping of learners from diverse backgrounds by the pre-service teachers, that was attributed to teaching in an authentic setting.

Other positive changes in perceptions include the results of Miller (2012), where pre-service PE teachers reported a better understanding of the call for vocation in an early childhood service-learning project, where they taught motor skills to young children. Additionally, in the study of McMullen *et al.* (2014), PETE majors felt that they had increased ownership of their pre-service learning in a non-traditional PETE internship course, where they presented PE lessons twice a week at a high school and which included critical reflection and freedom of decision in the course.

Other beneficiaries of improved cultural competence of pre-service teachers, which has been shown in several studies (Cervantes & Meaney, 2013; De Groot *et al.*, 2015; Johnson, 2016), are the school learners. The learners benefit from motor skill and sport skill development, the improvement of physical fitness, and the development of positive relationships with their teachers (Miller, 2012; Rosenkranz, 2012). Increased motivation to be physically active is in fact considered to be one of the principal positive outcomes for learners engaged in the PETE programme field experiences of pre-service teachers (Robinson & Melnychuk, 2012; Rosenkrantz, 2012; Johnson, 2016), which further embraces the service-learning principle of meeting community needs.

PURPOSE OF RESEARCH

To date, no studies have been reported on the use of service-learning as a pedagogical approach within the PETE field experience in South Africa, implying a serious shortfall in the field. Considering the challenges that PE in South Africa faces and the reported benefits of service-learning in PETE programmes, several of these problems might be addressed and even solved, using the service-learning approach within a PETE field experience. Therefore, the purpose of this study was to investigate the benefits and challenges of a service-learning programme within a PETE field experience, as experienced by pre-service and in-service PE teachers in a city in South Africa, in order to make recommendations for and to contribute to the improvement of the effectiveness and quality of PETE programmes in the country.

METHODOLOGY

Research design

Situated within an experiential learning framework, the study employed qualitative methodology supported by limited quantitative data.

Participants

Foundation Phase pre-service teachers

A total of 140 pre-service teachers (all female) between the ages of 20 and 22 years, who enrolled for the eight-credit course of PE in the Foundation Phase at the North-West University

in Potchefstroom, South Africa, as part of their four year Bachelor's degree in Foundation Phase teaching, participated in the study. The Bachelor's degree in Foundation Phase teaching qualifies the student as a generalist teacher who will teach all subjects in pre-school to Grade 3. The PE-course is only part of the third year training; consequently, none of these participants had had any previous training or experience in PE teaching. Of the 140 participants, 16 participated in the focus group interviews, while all the pre-service teachers were involved in the completion of the assignments, which included reflections by the cohort groups they worked in, and all of the 140 completed the questionnaire at the end of the project.

In-service teachers

Four teachers from one pre-school and three teachers from one primary school in Potchefstroom, (all females between the ages of 30 and 40 years, with the exception of one teacher who was 54) participated in the project. Although all seven teachers were qualified Foundation Phase teachers, the PETE of only one teacher (the oldest teacher) had included a limited amount of PE training. This one teacher had 21 years of experience in general Foundation Phase teaching, while the teaching experience of the other teachers ranged between two and ten years. Due to the absence of PE from the curriculum, however, none of the teachers had experience in PE teaching during the last ten years.

School learners

The school learners comprised 110 pre-school children, consisting of boys (n=53) and girls (n=57) between the ages of three and six years, and 121 primary school children consisting of boys (n=54) and girls (n=67) in Grade 1, 2 and 3 (seven to nine years of age). These learners were from one pre-school and one primary school, which were both considered to be low to middle socio-economic schools. Although both schools were situated on the same premises and shared an open field, these schools had no PE equipment.

Setting and lessons

The service-learning programme represented a first-time collaboration between the North-West University and the two schools in a low- to middle socio-economic area of Potchefstroom, a city of South Africa. The programme formed part of a semester-long PE course which is presented during the third year of the four year degree. The content of the course mainly addresses the gross and perceptual-motor development of children, the content of the national PE curriculum for the Foundation Phase, lesson presentation, the remedying of movement problems and the making of improvised apparatus.

Before the onset of the service-learning programme, the in-service teachers of the schools, the course lecturer and the pre-service teachers had a meeting at the pre-school, during a scheduled lecture session, where the needs of the schools and the aims and regulations of the project were discussed and confirmed. After initial training during the first five weeks at the University, the pre-service teachers presented PE lessons once a week for the rest of the semester at the pre-school and primary school. The total number of lessons at the schools amounted to twelve, and was presented during one of the two weekly official lecture times. During the second official lecture session per week, experiences during the previous lessons at the schools were reflected upon and discussed, the aims and assignments of coming lessons were clarified and new PE and pedagogical content were taught.

As the pre-school and primary school shared the same premises, all lessons were presented on the same open field, which was approximately the size of three rugby fields, under the supervision of the lecturer and the teachers. The pre-service teachers were grouped into 20 cohort groups each consisting of six to eight students. These groups of pre-service teachers were each assigned one group of school learners of ten to twelve learners of the same age, for the duration of the semester. The in-service teachers observed the lessons and when necessary, asked questions or assisted by giving advice during the lessons with regard to learner characteristics or needs.

The lessons were compiled and presented by the groups of pre-service teachers, according to six structured assignments, which addressed the base-line and end-of-semester assessment of the school learners, as well as each of the content themes in the PE Foundation Phase curriculum (basic perceptual-motor activities, dance, gymnastics, basic sport skills and/or games) (SADBE, 2010). Each assignment required the pre-service teachers to compile two different lessons addressing one PE content theme, which would be presented at the schools. The lessons were presented by all members of each group of pre-service teachers (groups were also graded on the involvement of all group members).

A unique feature of the service-learning programme, as part of each assignment, entailed that the pre-service teachers were required to make improvised PE equipment from scrap material, to use during the lessons. The making of equipment from scrap material constituted a study unit of the PETE course, and entailed loose hand apparatus, for example, balls made from crumpled and taped newspaper, racquets made from wire hangers and stockings, and ropes made from plaited plastic bags (ASC, 1996). The apparatus was then donated to the school after the completion of the service-learning programme.

Lastly, the pre-service teachers were required to have brief discussions with the teachers of their learners after each lesson, to discuss events during the lesson, share new ideas, or make recommendations.

Data collection

Although the service-learning programme aimed at benefitting all role players, the focus of this study was on the benefits and challenges of the programme as experienced by the pre-service and in-service teachers. Data were obtained from reflections of the pre-service teachers, individual interviews with the in-service teachers, focus group interviews involving pre-service teachers, and a survey questionnaire completed by the pre-service teachers.

Reflections within assignments

Each assignment consisted of the compilation of two lesson plans according to one theme provided, which was assessed and graded by the lecturer in terms of the application of content knowledge, teaching preparation and planning. The assignment further included four questions aimed at reflection on the experience during lesson presentation, which the groups of pre-service teachers completed after each pair of lessons. These questions were developed according to the levels associated with reflection as described by Stevens (2008). It included a short descriptive account of happenings during the lesson, personal opinions and feelings regarding the events during the lesson, reasons for the events and feelings experienced during the lesson, and possible strategies to improve the experience during the next lesson (see Table 1).

Table 1. AN ASSIGNMENT EXAMPLE OF SERVICE-LEARNING PROGRAMME**LSKP 311: Practical Assignment 1**

Write down two basic lesson plans addressing the theme of the development of perceptual-motor skills of the learners assigned to your group, including the following:

1. Choose 2 activities for each of the identified components of perceptual-motor development (total body coordination, hand-eye coordination, foot-eye coordination, static balance, dynamic balance, body awareness, spatial awareness). Also, write down how you would make each activity easier for younger or less able learners or more difficult for older learners.
2. In your group, make at least 4 hand apparatus from scrap material that you can use in the presentation of the activities.
3. These 14 activities have to be presented to the learners assigned to your group, using the loose apparatus that your group has made. Every activity must be repeated at least 5 times (with variations depending on their developmental level) and all group members must be actively involved in the presentation at all times.
4. After both lessons have been completed, answer the following questions reflecting on the two lessons:
 - 4.1 Provide a brief description of the quality of the presentation of the lessons and the learners' responses to the activities.
 - 4.2 Do you think the learners attained the lesson aims set with regard to the learning and practising of perceptual-motor skills? How did you feel during the presentation of the activities in the lessons?
 - 4.3 If the learners did not attain all the lesson aims, why not, in your opinion? Which components of perceptual-motor skills seem to be worse than others in your group of learners, and why do you think that is?
 - 4.4 Provide recommendations on how to improve your lesson presentations and the learners' responses in the next lesson.

Interviews

Semi-structured individual interviews were conducted by the researcher on the premises of the schools with the seven teachers, four from the pre-school and three from the primary school, who were originally assigned to present PE to the learners. Focus group interviews were also conducted with four groups of pre-service teachers. The focus groups consisted of four participants each, who were randomly chosen from the two categories of pre-service teachers (those who presented PE to pre-school learners and those who presented PE to primary school learners), so that one focus group represented pre-service teachers who had taught primary learners and the other those who had taught pre-school learners.

The interview schedules of the teachers focused firstly on the perceived effect of the project on the teachers' attitudes, knowledge and skills related to the presentation of PE, including questions like 'In your opinion, what was the effect of the project on your competency as a PE teacher?' Secondly, the focus was on the perceived effect of the project on the learners in their classes with regard to their attitude towards PE, motor skill levels and other aspects, like concentration in the class.

The interviews scheduled for the focus groups primarily addressed the effect of the project on the pre-service teachers' attitudes and feelings, knowledge and skills related to the presentation of PE and their perceptions of the improvement and learning of the learners. The interview included questions, like 'In your opinion, what was the effect of the project on your awareness of the value of PE in the Foundation Phase?' In all interviews the respondents were also asked to make recommendations for future service-learning projects based on their experiences. All interviews were sound recorded.

Survey questionnaire

After the completion of the project, questionnaires were completed by all the pre-service teachers ($N=140$) in the course. The questionnaire included seven questions employing a 4-point Likert scale assessment and consisting of a choice between the following options: 'I do not agree at all', 'I partially agree', 'I agree/good', 'I absolutely agree/excellent' to questions like 'The practical training has contributed to my comprehension of the theoretical concepts of the module' and also contained six open-ended questions concerning positive and negative experiences, perceived benefits, practical implications and recommendations for improvement of service-learning in the course.

To enhance the validity and reliability of the questionnaire, after their compilation, the questionnaires were given to four experts in the field of Physical Education and two in service-learning, for evaluation and recommendations. After adapting the questionnaires according to the recommendations of the experts, ten students who were not involved in the study, were asked to complete the questionnaire in order to evaluate the understandability and clarity of the questions.

Data analysis

Data analysis of the answers to the reflection questions in the assignments entailed inductive analysis by reviewing all answers of each group of pre-service teachers to each question, to identify specific themes around the central themes implicated by each question. All interviews were sound recorded and transcribed verbatim. The data from participant responses to questions in the interviews, as well as open-ended questions in the questionnaires, were encoded and patterns were identified that resulted in categories and subcategories. These were refined into themes and subthemes using inductive analysis within an interpretive approach, according to the guidelines of Strauss and Corbin (1998) and Henning (2004).

To ensure trustworthiness, triangulation, peer debriefing and member checks were used (Strauss & Corbin, 1998). During data analysis, the researcher triangulated the data between the different sources to find commonalities. Additionally, two peer researchers independently analysed the data and then met to compare and discuss identified themes and subthemes (Leedy & Ormrod, 2014), while member checks were used to validate that the data collected by returning the transcribed data to interviewees to confirm data accuracy.

Descriptive statistics were used for the quantitative analysis of the questionnaire data using Statistica (StatSoft, 2016), expressed as mean (M) values, minimum/maximum values and standard deviations (SD). The quantitative results were used to confirm qualitative findings. Independent t-tests were also conducted with regard to the results of the quantitative data, to determine whether there were any significant differences between the answers of the pre-service teachers who had taught primary learners and those who had taught pre-school learners. The level of significance was set at 0.05.

Ethical clearance

Ethical clearance for the study was obtained from the Ethical Committee of the Faculty of Education of the North-West University (Ethics no: NWU-00003-14-A1). Informed consent was obtained from all the teachers, as well as all parents of learners involved in the study.

RESULTS

Findings from the quantitative data will be presented first, as these will be used to support the themes identified from the qualitative data.

Quantitative findings

The results of the t-tests (p-values between 0.79 and 0.44) showed that there were no statistically significant differences between the responses of the pre-service teachers who had taught primary learners and those who had taught pre-school learners. The descriptive statistics with regard to the results of the perceptions of the pre-service teachers with regard to their experiences in the service-learning programme, is presented in Table 2.

Table 2. OPINIONS OF PRE-SERVICE TEACHERS REGARDING EFFECT OF SERVICE-LEARNING PROGRAMME (N=140)

Statement: The programme has...	M±SD	Min	Max
1. Contributed to my understanding of academic concepts of the course	3.7±0.62	3	4
2. Provided me with better comprehension of the motor development of learners in the Foundation Phase	3.8±0.60	3	4
3. Provided me with better understanding of the principles of PE lesson presentation	3.7±0.59	3	4
4. Influenced my disposition towards pre-school learners (3-6-year-olds) positively	2.9±0.71	1	4
5. Influenced my disposition towards primary school learners (7-9-year-olds) positively	2.8±0.75	1	4
6. Influenced my disposition towards learners from different ethnic groups, positively	3.5±0.54	1	4
7. Influenced my disposition towards physical education teaching in general, positively	3.7±0.68	1	4

M=Mean value

SD=Standard Deviation

Min=Minimum value

Max=Maximum value

According to Table 1, on average, the pre-service teachers felt strongly (3.7 to 3.8 out of a maximum of 4) that the service-learning programme contributed to a better understanding of academic concepts of the course, the motor development of, and PE lesson presentation to, learners in the Foundation Phase. The agreement with the statement that the programme had led to a more positive disposition towards PE teaching of learners in either the pre-school or the primary school, was moderate (2.8 to 2.9 out of 4), indicating that the programme had influenced their disposition more towards either the pre-school or primary school. The respondents agreed strongly (3.5 to 3.7 out of 4) that the service-learning programme made them feel more positive toward towards learners from different ethnic groups and PE teaching in general.

Qualitative findings

Five main themes emerged from the data, namely (1): Gaining knowledge and insight into PE content; (2) New pedagogical strategies and ideas; (3) Changes in attitudes toward learners from diverse backgrounds and PE; (4) Benefits for the learners; and (5) Practical problems and recommendations. Each of these themes will now be discussed individually.

Gaining knowledge and insight into PE content

The greater majority of the pre-service students indicated that their knowledge and insight of the PE content was enriched, often beyond the content presented in the course work.

“I studied the different phases of motor development, but I never really understood what it meant until I saw how the three-year-olds looked so much different from the six-year-olds when doing our games.”

“You really start to get a feel for the developmental levels of the learners.”

Similar statements were often made with regard to the differences between learners of different cultural backgrounds:

“I never realised that boys and girls, and even children of different ethnic groups were so different in their movement.”

Most pre-service teachers agreed that the practical teaching strongly reinforced the theory, even with regard to the different themes of the PE curriculum.

“I have always thought that teaching dance only involved showing some movements to the learners to copy, now I know six different ways to teach dance!”

This theme was prominent in the answers of the in-service teachers as well, as all the in-service teachers stated that they gained new insight into the new PE content, as well as various new physical activities that address this content. One in-service teacher remarked:

“I would never have presented gymnastics activities as I had no idea what to do, but now I have learnt a lot of ideas; it’s simple and I can do it.”

Some in-service teachers were especially impressed by what they learned in the service-learning programme during the assessment of the learners:

“Up to now I have done two simple movement tests each term for all grades; now we have learnt that there are tests that are suitable for each age and for specific aspects of moving, and which are important for identifying kids with problems.”

The theme of ‘Gaining knowledge and insight into PE content’ is strongly supported by the results in the quantitative section. On average, the pre-service teachers felt strongly (3.7 to

3.8 out of a maximum of 4) that the service-learning programme provided them with a better understanding of PE content and of the motor development of learners in the Foundation Phase.

New pedagogical strategies and ideas

Supported by the quantitative data in Table 1 that the pre-service teachers generally felt (3.7 out of a possible 4) that the programme had provided them with better understanding of the principles of PE lesson presentation, the theme of learning new strategies and ideas with regard to managing learners in a PE class, emerged strongly in both the data from the interviews and the questionnaire. The vast majority of the pre-service, as well as in-service teachers, agreed that they had learnt new ways to manage and organise PE classes.

Various pre-service teachers referred to their initial fear of losing order and discipline when taking a class of learners outside and that their fear had dissipated:

“The first day, I looked at the children standing there, they were so excited to be outside, and I thought there is no way that we will control them.”

“I think at first the learners thought we are just young teachers-in-training who knew nothing...they wouldn’t listen to us...our group used the small group circuit strategy and, well, we wanted them into a routine, and that changed that.”

Most of the in-service teachers also felt that they learned new teaching and class management strategies to teach PE. One in-service teacher further related this to the problem of class size:

“In the new curriculum, we have so many learners in a class, and taking a class outside is usually impossible for one teacher. But now I see that it’s okay and it’s not so bad.”

The improvement in teaching competencies clearly came to the fore in the reflections of the groups of pre-service teachers on the quality of presentations and learners’ reactions during the twelve weeks of lessons. In this regard, the reflections of more than half the groups of pre-service teachers progressed from feeling ‘incompetent’, ‘slightly nervous’, and ‘overwhelmed’ during the first two lessons.

“We are really starting to feel more in control as the kids are starting to understand how we operate.”

“We are actually starting to feel, like, we can do this in the seventh lesson.”

“We have learnt so many cool activities and ways to teach them, we are looking forward to doing this PE when we are teachers.”

“It is exhausting, but awesome that the learners really improved after the twelfth lesson.”

Most of the groups related the quality of presentation to the reaction of the learners.

“The learners wouldn’t listen to us because they were looking around at what the other groups are doing.”

“The little ones started doing their own thing and then we had to stop the lesson each time to bring them to order first.”

After the fourth week of the programme, the number of groups who felt that their presentations did not go well, decreased to one of the three groups. Statements noting improvement included the following:

“The kids were so excited and they wanted to do everything over and over again!”

“They didn’t want to go back to class.”

Reflecting on reasons for lessons not going well, the lack of planning time required for a lesson was mentioned by the majority of the groups. As reasons for successful lessons, most of the groups referred to their improved organisational and instruction skills.

"At first we tried it our own way, but then we realised, using stations and different activities at each station like we've been taught, actually really works."

"You have to plan the activities to suit each child in the group, you can't just give the same to everybody."

The inclusion of the self-made apparatus from scrap material, was another strong sub-theme emerging from the data from both the pre-service and in-service teachers. As the schools did not have their own PE equipment, this practice was thought to be positive for generating new possibilities for movement activities.

"I am very excited because this means the school can't hide behind the excuse of no equipment anymore."

"Every new apparatus idea is also new ideas for activities."

"I never knew you could make so many cool stuff yourself!"

Changes in attitude toward learners from diverse backgrounds and PE

The awareness and accommodation of learners from diverse backgrounds was mentioned several times by pre-service teachers as a benefit for their learning of instructional strategies.

"I learnt to use different approaches with learners from different cultures; they are different in their movement abilities and [in] how they listen to you when you tell them to do a movement."

"This programme enabled us to work with diverse groups of children, something we are going to get a lot as teachers."

Several groups indicated that their perception of teaching and PE has changed.

"Some members of our group have realised that they would definitely rather like to teach the young kids, and the others definitely not."

"After seeing the effect on the learners today, we realize how important this PE thing really is."

"We are learning that PE is a lot more than teaching sport."

This theme was supported by the quantitative data where the pre-service teachers expressed strong agreement ($M=3.5$ to 3.7) that the programme had influenced their disposition towards learners from different ethnic groups and teaching PE in general, positively.

Benefits for learners

The improvement of movement skills was a benefit that was pointed out by all teachers, and it can be noted here that, although this was not the focus of the study, this improvement in skills was confirmed by inferential statistics when the results of the motor skill assessments were analysed. Other benefits of the programme for the learners which were named by the pre-service and in-service respondents, included that the learners received more individual attention, a greater variety of movement stimulation, more complete development of their movement skills and the motivation to be more physically active.

In general, the in-service teachers indicated that the programme enabled them to assess their learners more accurately and comprehensively, because they could observe them while the pre-service teachers worked with them. Two of the in-service teachers also stated their

surprise at the movement abilities of their learners, which emerged when the learners were challenged by the pre-service teachers, more than they would have been in the usual PE presentations presented by the in-service teachers. Most of the in-service teachers mentioned that, while observing their learners doing the movement activities presented by the pre-service students, they could see more clearly how different the movement abilities and developmental levels of learners from different cultures were.

Further benefits mentioned by the in-service teachers, included that the learners were 'more awake and ready for learning' after the PE sessions.

"They just couldn't wait for the next session because they enjoyed it so much."

"During break you see kids everywhere practising what they did in the PE session."

Several of the pre-service and in-service teachers mentioned that the motivation to be physically active was positive in fighting childhood overweight and obesity.

Practical problems and recommendations

Practical problems and challenges experienced by the pre-service teachers included that the lessons were presented during their normal class schedule, which meant that they often had to attend other classes right after the lesson. Several pre-service teachers complained that they were tired and sweaty when attending the next class.

One problem cited by numerous pre-service and some of the in-service teachers was that the communication between the pre-service and in-service teachers was insufficient. Both the pre-service and in-service teachers felt that they would have liked more time to discuss each lesson, and individual learners with each other. The members of one focus group all felt that they would have liked to have had a set meeting with the in-service teachers to attain full backgrounds of the learners in their group before the programme commenced: 'We want to hear everything about every learner so that we can plan appropriately from the start'. One in-service teacher urged that the groups of pre-service students should have a monthly scheduled meeting with the in-service teachers to discuss the learners as well as teaching strategies. It would also contribute to the professional development of in-service teachers.

Several in-service teachers also felt that the university should collaborate more with the school regarding assessments and specific motor problems of learners. Although the results of the assessments were provided to the school by the lecturer, the in-service teachers felt that, based on the results of the assessments, the pre-service teachers could aid them in identifying and treating learners with movement problems.

DISCUSSION

This study investigated the experiences of pre-service and in-service teachers with regard to the benefits and challenges of a PETE service-learning programme, in a country and setting where in-service teachers are often not qualified to teach PE. The findings show that both the pre-service and in-service teachers perceived the programme as positive and beneficial to all role players in the programme. The benefits for teachers culminated in improved teacher competence experienced by both pre-service and in-service teachers, which was informed by the merging of course theory and practice, new insight into PE content, improved pedagogical and instructional skills, and an improved disposition towards PE as a school subject and a

teaching profession. Benefits for learners, as perceived by the teachers, can be epitomised as the enhanced attainment of PE outcomes and the programme contributing to general welfare.

The merging of course theory and practice is considered to be one of the greatest benefits of involving pre-service teachers in an authentic setting (Cervantes & Meaney, 2013; Webster *et al.*, 2017; Whitley *et al.*, 2017). Learning by actively engaging in organised service, is grounded by the theory of experiential learning, which was originally attributed to Dewey (1938), who emphasised that theory only has verifiable significance when applied in practical experience. The concept of learning through experience in PETE programmes is supported by the findings of a large body of research on service learning (Stevens, 2008; Parker *et al.*, 2012; Webster *et al.*, 2017; Whitley *et al.*, 2017).

The benefits thereof were emphasised even more in the current study because of its unique setting. Even though they have done teaching practicums of several weeks in their first three years of pre-graduate studies, the pre-service teachers in the current study had no previous experience with regard to movement activities and movement abilities of Foundation Phase learners, which made the application of the course theory through practice even more valuable. Additionally, because they were mostly not qualified and had not taught PE for a long time, the in-service teachers were better equipped for the presentation of PE by observing and engaging with the pre-service teachers.

The unique national curriculum situation further contributed to the impact of the programme on gaining content knowledge and insight, as well as new pedagogical strategies and ideas. As PE has not been part of the South African school curriculum for some time, the pre-service and in-service teachers had no mentors or experienced and skilled PE teachers, who could guide and advise them. In this setting, the pre-service and in-service teachers needed each other's commitment and support to apply best practices with regard to the PE content, the organisational management of the learners and implementing new ideas. Consequently, the service-learning programme became, what Mockler (2013:285) described as, an authentic partnership which "feeds" everyone, where all participants came to "both contribute and take learning away". This reciprocal partnership is considered to be a characteristic of a true service-learning PETE programme (Galvan & Parker, 2011; Cervantes & Meaney, 2013; Johnson, 2016; Webster *et al.*, 2017) and applies to several of the research-based standards for K-12 service-learning set by the National Youth Leadership Council (NYLC) in the United States (NYCL, 2008:1,3), namely *meaningful service, collaborative and mutually beneficial partnerships, and linking to curriculum*.

Another standard for service-learning programmes set by the NYCL (2008) and supported by researchers (Meaney *et al.*, 2012; Wilkinson *et al.*, 2013; Webster *et al.*, 2017; Whitley *et al.*, 2017), is that of reflection that stimulates analysis and problem-solving with regard to the activities and oneself. From the reflection data in the current study, it is clear that the pre-service students developed problem-solving skills and started to look beyond the teaching itself, correlating with findings from other PETE service-learning studies (Galvan & Parker, 2011; Meaney *et al.*, 2012; Whitley *et al.*, 2017).

The findings from the lesson reflections also show that the pre-service teachers' perception of their own competency improved progressively over the twelve week-period, which is similar to the findings of Miller (2012) in a study involving first-year pre-service PE teachers in a service-learning programme in early childhood education, and those of Wilkinson *et al.* (2013) with regard to PE student-teachers teaching adapted PE in a service-learning programme. The effect of teaching in an authentic setting on the feeling of confidence to teach PE, has in fact been reported in several studies involving generalist teachers (Konukman &

Schneider, 2012; Cervantes & Meaney, 2013). Enhanced competence has further been associated with a positive perception of PE as a subject and as a teaching profession (Miller, 2012; Cervantes & Meaney, 2013).

A perception which has also changed according to the findings of the current study, is the pre-service teachers' perceptions of the diversity among learners. Enhanced diversity awareness by pre-service PETE programme teachers has been reported in various studies (Konukman & Schneider, 2012; Peralta *et al.*, 2016). However, as Peralta *et al.* (2016) point out, service-learning studies finding a positive impact on diversity awareness, often emphasise that careful planning is needed to avoid reinforcing stereotypes.

Of the problems experienced by the teachers in the current study, two that were prominent relate to the NYCL K-12 service-learning standards of *youth voice* and *partnerships* (NYCL 2008:3). The teachers would have liked more structured time to discuss the lessons and learners with one another, to understand specific learners better and to discuss best practices in the specific lesson situation. Structured communication sessions and active participation in the planning of activities, are procedures used in several successful service-learning programmes (Konukman & Schneider, 2012; Cervantes & Meaney, 2013; Wilkinson *et al.*, 2013; Johnson, 2016). In these studies, pre-service teachers have reported that multidisciplinary discussions added to their professional development, that structured discussion sessions helped to build commitment and relationships with partners and that they experienced ownership through opportunities to make decisions regarding course content (Wilkinson *et al.*, 2013).

The in-service teachers in the current study felt that more collaboration was needed regarding the interpretation of motor assessment data and provision of specific activities for learners with problems, a need which only came to the fore later in the programme and was not among the original aims set by the in-service teachers at the beginning of the project. According to Miller and Nendel (2011) and Johnson (2016), collaboration between all partners in a service-learning programme is essential to attain its outcomes and to address the needs of the community. Furthermore, Johnson (2016) postulates that frequent interactions between partners should address the changing aims and needs of both partners.

PRACTICAL APPLICATION

The practical application of the results of this study should be considered in light of the following limitations, leading to recommendations for further research. Firstly, data have only been collected from the post-programme interviews and survey, and reflections of the pre-service teachers on lessons, while a more accurate picture of the impact of the service-learning programme could have been derived if data had been collected even more comprehensively. It is therefore recommended that future research incorporate pre-programme interviews and survey in addition to the post-programme interviews and survey, involving all participants, as well as reflections on lessons by in-service teachers.

Secondly, the pre-service teachers worked in relatively large cohort groups and taught small groups of learners, whereas the authentic class situation in South African schools constitutes large classes of up to 35 learners (Van Deventer, 2012). Therefore smaller groups of pre-service teachers and larger numbers of learners are recommended for future research, as this would enhance the real-world experience. Thirdly, collaboration between the university and the schools should be enhanced by incorporating more and longer structured discussion sessions between pre-service and in-service teachers, where specific learners and the needs of both partners can be discussed more comprehensively.

A unique benefit highlighted by the pre-service and in-service teachers in the current study was that of constructing and providing PE apparatus by the pre-service teachers. The lack of PE equipment is a global challenge faced by schools in several countries (Hardman & Marshall, 2009), therefore the recommendation can be made that future research in countries facing this challenge, should incorporate the making of improvised apparatus from scrap material into their PETE service-learning programmes.

CONCLUSION

In conclusion, the pre-service and in-service teachers in this study had positive experiences with regard to a PETE service-learning programme, especially with regard to enhanced teaching competence, perceptions about learners from diverse backgrounds and PE, and benefits for school learners. The findings of this study thus show that quality PETE service-learning programmes can, with careful planning and some creative innovations, be beneficial for pre-service and in-service teachers even in a country where PE faces the challenges of unqualified teachers, a lack of funding and a lack of equipment. The findings further demonstrate that service-learning in a PETE programme has great pedagogical value for both pre-service and in-service teachers, therefore, the incorporation of these types of field experiences and university-school collaborations, is strongly recommended for all PETE programmes.

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