Personal and Professional Competencies: Impact of Health and Physical Education Programme on Pre-service Teachers of Paro College of Education, Bhutan

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Abstract

Low physical activity and sedentary lifestyle have been contributing to overweight/obesity in children worldwide. In response to this, school health and physical education (HPE) programmes have been introduced to assist children to adopt and maintain healthy lifestyles. Teacher education colleges have been introducing training programmes to prepare teachers. Paro College of Education (PCE), Bhutan, is one such college where the HPE training programme was introduced in 2003. This paper reports on the impact of the HPE programme on the pre-service teachers of PCE in relation to their personal and professional competencies. The participants were the final and second-year Bachelor of Education (primary) pre-service student teachers and Diploma in Physical Education and Sports Coaching students. Results revealed that the HPE programme had a significant impact on pre-service teachers' personal and professional competencies. Male participants were highly motivated to teach HPE as well as participating regularly in physical activities compared to their female counterparts. Further, the study revealed differences in personal and professional competencies, pedagogical knowledge, and self-efficacy beliefs amongst the pre-service teachers. Implications for the teacher training programme and recommendations for future research are presented.

Keywords: Health and Physical Education, Self- Efficacy, Competency, Pedagogy, Assessment

Introduction

Low physical activity and sedentary lifestyle have been contributing to overweight/obesity in children worldwide (Varja 2018; Yi, 2005). Although not an issue in Bhutan in the past, Bhutanese youth have started leading toward a more inactive lifestyle at the beginning of the 21st Century (CAPSD, 1999; Sherab, 2001). As a result, the Bhutanese education system increased emphasis on the Health and Physical Education (HPE) programme which began in 1999. Since 2003, the two teacher training colleges of Bhutan started offering two HPE modules (HPE 201 for lower primary and HPE 402 for upper primary) as components of the Bachelor of Education (B.Ed) Primary programme. Health and Physical Education plays a vital role in assisting children to adopt and maintain healthy lifestyles. These modules aim to prepare the student teachers to develop and enhance their personal competencies that lead to a healthy lifestyle and professional competencies to effectively and efficiently teach HPE in primary schools. Although there is lack of research, more recent sources suggest that Bhutanese school children continue to lead an inactive lifestyle (Gyeltshen, 2013; World Health Organisation & Ministry of Health [WHO],

2016).

Internationally, the need for quality HPE curricula in schools is increasingly recognized, mainly for the promotion of active and healthy lifestyles (Lerner, Burns, & Roiste, 2011; Royal Education Council, 2016; WHO, 2016). A sound HPE programme in school can also encourage youth to remain psychologically and physically healthy, which coincide with two of the nine domains of Gross National Happiness (GNH) – the development philosophy that Bhutan expounds (Choden, Namdel, & Sherab, 2019; Gyeltshen, 2013; Sherab, 2001, Wright, 2004). Therefore, the HPE programme has huge potential to contribute towards the national vision of promoting happiness among its citizens.

The fundamental issue of education is to identify the most effective way to teach (Bali & Souissi, 2015). Since the introduction of HPE in 2003, Paro College of Education (PCE) has trained thousands of pre-service teachers, but no research has been conducted to evaluate and understand the quality of the programme. Therefore, this study examined the impact of the HPE programme on student teachers' personal and professional competencies, pedagogical knowledge, assessment practices, and self-efficacy beliefs (SEB) to teach HPE for the first time.

Objective of the Study

The study aimed to:

- evaluate the impact of the HPE programme in developing and enhancing student teachers' personal (personal fitness & wellness) and professional (content & pedagogy) competencies; and
- examine if students' levels of personal and professional competencies and SEB significantly differ in terms of their course, years in course, gender, experiences in sports participation, and parent's background.

Literature Review

Teachers play an important role in successful implementation of any educational innovations (Fullan 1999; Fullan & Hargreaves, 1992; Kunter, et al., 2013; Sherab, 2017; Yero, 2010). Teachers possess the power to determine the quality and focus of a school to create exemplary worlds within the classroom, and reform programmes that failed to fit their ways of thinking are more likely to fail (Yero, 2010). There is evidence to show that even in the Bhutanese education system, reform efforts fail if teachers who are the real champions of change are not prepared well in terms of their attitude, skills and knowledge, and self-efficacy beliefs (Sherab, 2017; Sherab et al., 2017). So, for successful implementation of HPE in Bhutanese primary schools, it is important that the HPE teachers are knowledgeable, skilled, exhibit high self-efficacy beliefs, and are able to motivate their students to actively participate in HPE classes.

Existing research indicates that teacher training colleges are expected to develop and enhance high levels of educational competencies in the trainees to help them plan, implement and develop their personal and social competencies to deliver instruction successfully, manage classroom, and contribute to students' development in schools (Al-Tawel & AlJa'afren, 2017; Chakraborty, Nandy & Adhikari, 2012; Kovac, Sloan, & Starc, 2008; Tsangaridou, 2008; Wanyama, 2011; Yi, 2005). Paro College of Education offers the HPE programme with the vision to equip pre-service teachers with all the required knowledge and

skills to teach HPE in the schools (PCE, 2010). So, this study aimed to examine if these expectations are met.

Lai, Wu, Lee, and Jhang (2018) found that Health Education and Physical Education teachers in Taiwan had favourable health literacy, positive health literacy, positive teaching beliefs and attitudes, and acceptable efficacy. Further, these teacher participants' teaching beliefs, attitudes, and efficacy were positively correlated with the variance of teaching intentions. Another study in the UK (Breslin, Murphy, McKee, Delaney, & Dempster, 2012) revealed that trainee teachers believed the major purpose of physical education is to provide school students opportunities to develop psychomotor, cognitive and affective skills. They not only articulated these views but also practiced them in teaching and believed that physical education has the same status as the other subject areas in the school curriculum. However, in the Bhutanese context, the effectiveness of the teacher education HPE programme is uncertain due to lack of research.

Research in Ghana (Ansah, Menyanu, & Agyei, 2014) has shown that curriculum intentions are not translated into classroom practices as desired. It was found that university students in Ghana engage in many unhealthy habits that needed attention. Existing literature also indicates that teachers need to increase students' interest in physical education as only half of the students indicated that physical education is interesting (Hussain, Hasan, Wahab, & Jantan, 2014). While there is no research conducted to evaluate the impact of the HPE teacher education programme in the Bhutanese context, research on other school curriculum areas indicate a similar gap between curriculum intentions and actual classroom practices (Sherab, 2001; Sherab, et al., 2008; Sherab, et al., 2017). So, this study seeks to find out the impact of the HPE programme on the pre-service teachers.

The HPE programme offered at PCE aims to enhance pre-service teachers' teaching competencies. So, it remains important to find their level of perception, and if this perception is determined by any variables. For instance, Al-Tawel and AUa'afreh's (2017) study in Jordan found significant differences in the physical education teachers' perceptions of the levels of their educational competencies based on their gender and academic qualifications. The findings showed that the male teachers had higher levels of competencies than female teachers while "the teachers, who had graduate degrees, had higher levels of their perceived educational competencies compared to the teachers who had undergraduate degrees or academic degrees below the bachelor level" (Al-Tawel & AUa'afreh (2017, p. 231). Therefore, the study intends to explore any differences among the Bhutanese pre-service teachers.

This study intended to examine if the pre-service teachers' level of personal and professional competencies significantly differ in terms of their course, similar to the examination done by Chakraborty, Nandy, and Adhikari (2012) on Bachelor of Physical Education students in India. Their study results showed that attitudes toward HPE had positive increases over time when participants moved through higher level courses. However, whether this is similar to Bhutanese context or not is something that this study will reveal.

The differences in the level of participation in sports, in terms of gender, have been widely studied (Ansari, Khalil, Crone, & Stock, 2014; Magoc, Tomaka, Shamaley, & Bridges, 2016; Murcia, 2008).

These studies revealed that the attitude of men is higher compared to women in terms of participation in physical activities and sports. This study was also designed to explore if the situation is similar for Bhutanese students. Hence, this study addressed the following research questions.

Research Questions

- What are the levels of personal and professional competencies of the pre-service teachers to teach HPE programme?
- What is the level of self-efficacy beliefs of pre-service teachers to infuse Gross National Happiness values into teaching of HPE?
- Is there a difference in the level of pre-service student teachers' personal and professional competencies and SEB in terms of their course, level of year, gender, experiences in sports participation, and parents' background?

Methods and Materials

The purpose of this study was to explore the impact of the HPE programme on the pre-service teachers' personal and professional competencies and self-efficacy beliefs to infuse GNH values into HPE teaching. The study employed a quantitative approach with a self-administered survey (Cooksey & McDonald, 2011; Creswell, 2012). Census sampling in terms of pre-service teachers studying HPE programme (B.Ed Primary & Diploma in Physical Education and Sports Coaching) was employed. Permission to conduct the survey was obtained from the participants and concerned tutors and administered by the lead researcher. Prior to the survey, the purpose of the study and the process for responding to each of the items in the survey to avoid any confusion were explained to all the participants. A total of 202 (79.2% response rate) pre-service teachers responded to the survey out of 255 questionnaires distributed (demographic details are provided in Table 1).

The survey questionnaire was comprised of 49 items: the first 8 were related to demographics while the others used a 5-point Likert type items ranging from Very Ineffective (1), Ineffective (2), Neither Effective nor Ineffective (3), Effective (4), and Very Effective (5), measuring five different themes (personal competency, professional competency, pedagogical knowledge, assessment, and SEB). These items were researcher-designed with the help of literature except for the SEB items which were borrowed from Sherab (2017) and used for measuring teacher SEB for educating for the Gross National Happiness programme. The respondents also had the opportunity to share any other opinions and comments on the HPE programme under an 'any other comments' section.

Data Analysis and Findings

After entering the data from the questionnaire into SPSS (v23) database, a thorough screening process was undertaken to confirm that the data were entered correctly and to understand the distributive analysis of the items. A few wrong entries were sorted out after crosschecking with the original responses in the questionnaire. Items showed no substantive non-normality in terms of values. Cases of missing values were observed to be minimal and without any patterns.

Principal Component Analysis (PCA) was conducted to identify if there were any subsets of items measuring a common sub-construct for each of the five measurement scales. Kaiser-Meyer-Olkin

measures of sampling adequacy and Bartlett's Test of Sphericity indicated suitability of items for component analysis (Manning & Munro, 2007). Principal Component Analysis produced only one component for all the themes except for the pedagogical knowledge which produced two components. However, there were four items which loaded on both the components which were ultimately deleted from further analysis. Cronbach's alpha reliability values for all the five scales were good and excellent ($p > .86$).

The presentation and analysis of data are grouped into three categories: 1) demographic information; 2) pre-service teacher's level of personal; and 3) professional competencies, and self-efficacy beliefs to infuse GNH values in teaching HPE. MANOVA analyses to compare pre-service teachers' personal and professional competencies, and self-efficacy beliefs to infuse GNH values in teaching HPE in terms of their course/year of study, gender, and parents' qualification.

Demographic Information

A total of 202 pre-service teachers (B.Ed Primary & Diploma in Physical Education and Sports Coaching) responded to the survey (see Table 1).

As a part of the demographic information, respondents were also asked to rate their participation in games and sports, interest in teaching HPE, and motivation level to teach HPE. Findings showed that male (42.1%) pre-service teachers participated in games and sports more often in comparison to their female (27.6%) counterparts. In terms of their interest, 85.2% of the male respondents were willing to teach HPE as compared to 70.4% of the female respondents. Likewise, 50% of the male respondents were highly motivated to teach HPE compared to only 31.4% of the female respondents.

Table 1
Demographic characteristics

Item	Category	n	Percent
Course / Year & Section	B.Ed (HPE 402)	111	55
	B.Ed (HPE 201)	48	23.8
	Diploma 1	22	10.9
	Diploma 2	21	10.4
Gender	Male	95	47
	Female	107	53
Father's qualification	Primary Education	32	15.8
	Secondary Education	24	11.9
	College/University	11	5.4
	No education	132	65.3
Mother's qualification	Primary Education	23	11.4
	Secondary Education	6	3.0
	College/University	4	2.0
	No education	169	83.7

Level of personal and professional competencies, and SEB of the pre-service teachers developed through HPE programme

To understand the overall level of impact of HPE programme on pre-service teacher's personal and professional competencies and SEB in infusing GNH values in teaching HPE, the scores for each item under each of the five themes (theme 1= 8 items; theme 2= 10 items; theme 3= 7 items; theme 4= 5 items; and theme 5= 6 items) were aggregated to compute a mean score for each theme (see Table 2).

Table 2
Overall mean and standard deviations of the five components

Component	N	M	SD
Personal Competency	202	4.23	.52
Professional Competency	202	4.32	.48
Pedagogical Knowledge	202	4.39	.53
Assessment	202	4.10	.58
Self-Efficacy Beliefs	202	4.28	.58

As shown in Table 2 above, all the themes scored a mean between 4.10 and 4.39; all on the higher side.

The two themes that showed the highest means were pre-service teachers' level of impact on their pedagogical knowledge (M= 4.39; SD= .53) and professional competency (M= 4.32; SD= .48). Such findings suggest that these pre-service teachers are able to develop their pedagogical knowledge by: 1) providing opportunity for maximum practice and limit teacher talk; 2) encouraging children to accept peers with special needs; 3) effectively organising space, equipment, and students for the HPE class; 4) providing adequate equipment that allows all children to be active at the same time (e.g., one ball per child); 5) improvising equipment to allow all children to be active; 6) planning practice opportunities that are structured for maximum participation; 7) structuring the class so that learning occurs while students are being physically active; 8) using physical activity as means of learning not as punishment 9) using skills learnt to participate in physical activity outside of the HPE class; 10) emphasising on teaching about the importance of cleanliness; and 11) help children acquire healthy eating habits.

Pre-service teachers have been able to enhance their professional competency by: 1) acquiring skills that allow active participation of all children through developmentally appropriate activities; 2) valuing HPE as a holistic approach to help children create a positive outcome for life; 3) acquiring motor skills to enhance the overall development of every child; 4) develop physical activities as per the national standards for HPE programme; 5) acquire instructional strategies to design activities related to motor skills; 6) designing fitness education that helps children maintain their physical well-being; 7) modifying physical activities to include children with special needs; 8) encouraging children develop healthy lifestyle; 9) acquiring knowledge on food and nutrition; 10) designing a variety of assessment tools to monitor and reinforce student learning; 11) acquiring skills and instructional strategies to maximise student participation for HPE lessons to adopt and value healthy and active lifestyle.

However, relatively speaking, the pre-service teachers' level of impact towards assessment showed the lowest mean with highest standard deviation (M= 4.10; SD= .58). This is an indication that pre-service teachers who participated in this research comparatively showed lesser impact towards assessment through HPE programme offered because they seemed to have some reservation that the programme did not help them to validate assessment as an on-going, vital part of HPE programme, adopt relevant record and report

the most appropriate evidence-based practices that measure student achievement, align student assessment with national HPE standards and written HPE curriculum, evaluate the effectiveness of the HPE programme periodically with concerned stakeholders to support quality HPE, and grade directly to the student learning objectives identified in written HPE curriculum.

Student perceptions of the level of personal and professional competencies and their SEB compared on four demographic characteristics

A total of five one-way MANOVAs were conducted between five competency components: 1) personal competency; 2) professional competency; 3) pedagogical knowledge; 4) assessment; and 5) self-efficacy beliefs as dependent variables and four demographic characteristics (course, gender, father's qualification and mother's qualification) as independent variables to explore if there were any statistically significant differences in the five dependent variables.

Inspection of multivariate Box's M Test did not show any significant differences in terms of gender, course, father's and mother's qualification indicating that homogeneity of covariance matrices of all dependent variables was equal across groups. Levene's tests for each of the depended variables did not show any significance indicating that homogeneity of variances was equal across groups.

Results of Multivariate F-tests

The overall multivariate F-tests showed significant difference for only course/year of study (Wilk's Lambda =.791, MV F [15, 535] = 3.175, $p<.001$, partial $\eta 2 = .075$). Multivariate differences on the other independent variables (gender, father's qualification and mother's qualification) were not significant.

Results of Univariate F-tests

Following the significant multivariate F-tests for course/year of study, univariate F-tests were examined to identify which of the five competency components contributed to the significance. For independent variables with more than two categories, post hoc Tukey multiple comparisons tests were performed to identify which categories were significantly different.

According to the univariate F-tests, Course showed statistically significant differences ($p<.001$) on three competency components (personal, professional and pedagogical) and marginal significance on self-efficacy belief component (see Table 3).

Table 3
Tests of Between-Subjects Effects for components with significant results

MANOVA Effect	Dependent Variable	df	Error	F	Sig.	Partial Eta Squared
Course/Year	Personal competency	3	49.1	6.426	<.001	.089
	Professional competency	3	41.1	8.778	<.001	.117
	Pedagogical competency	3	48.5	9.876	<.001	.130
	Self-efficacy beliefs	3	63.9	4.693	=.003	.066

The examination of effect size as measured by Partial Eta Squared generally explained small portion of variability of scores for course/year (see Table 3). Consultation of post hoc Tukey multiple comparisons

tests (see Table 4) showed the following:

- The mean personal competency of HPE 402 (M=4.27; SD=.48) and the Diploma first year (M=4.52; SD= .34) pre-service teachers were marginally and significantly higher than the mean for HPE 201 (M=3.99; SD= .61) pre-service teachers respectively.
- The mean professional competency of HPE 402 (M=4.42; SD= .42) and Diploma first year (M=4.45; SD= .51) pre-service teachers were significantly higher and marginally higher than the mean for HPE 201 (M=4.03; SD=.57) pre-service teachers respectively.
- The mean pedagogical competency of HPE 402 (M=4.50; SD=.44) and Diploma first year (M=4.52; SD= .37) were significantly higher than the mean for HPE 201 (M=4.06; SD=.63) pre-service teachers.
- The mean SEB of HPE 402 (M=4.36; SD=.50) was marginally higher than the mean for HPE 201 (M=4.02; SD=.72).

Table 4
Tukey HSD multiple comparisons tests

Dependent Variable	(I) Course	(J) course	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Personal competency	HPE 402	HPE 201	=.008	.05	.50
	HPE 201	Diploma 1	<.001	-.86	-.19
Professional competency	HPE 402	HPE 201	<.001	.18	.59
	HPE 201	Diploma 1	<.001	-.72	-.12
Pedagogical competency	HPE 402	HPE 201	<.001	.23	.67
	HPE 201	Diploma 1	=.002	.79	-.13
Self-efficacy beliefs	HPE 402	HPE 201	=.004	.08	.59

Discussion and Conclusion

Teachers should possess high levels of teaching competencies (Al-Tawel & AlJa'afreh, 2017; Awad & Eid, 2013; Fitzpatrick & Russel, 2013; Kovac, Sloan, & Starc, 2008). Competencies can be defined as "the positive combination of knowledge, ability and willingness in the availability of the individual to cope successfully and responsibly with changing situations" (Weinert, 2001, p. 20). Teachers are responsible for providing students with knowledge, skills and experiences within and outside the classroom. Therefore, preparing teachers to meet the demands and requirements of the teaching profession and personal competency are significant in all education systems.

Three major conclusions are drawn from this study. The first that the pre-service teachers' participation in games and sports and their motivation level to teach HPE were not robust. Such findings suggest amongst others that these pre-service teachers are likely to lead an inactive lifestyle and also not teach HPE after they graduate. This finding substantiates the findings of the recent tracer study on the four-year B.Ed primary programme that most of the B.Ed primary graduates have not been teaching HPE in the schools (Sherab, Bidha, Khorlo, Wangchuk, & Rinzin, 2018).

The second is that the HPE programme in the college has a positive impact in developing and enhancing pre-service teachers' personal (personal fitness & wellness) and professional (content &

pedagogy) competencies and self-efficacy beliefs in infusing GNH values into teaching HPE. Their level of personal and professional competencies and SEB were significantly higher as they progressed to senior years. The findings from this study corroborates the earlier findings of Chakraborty, Nandy, and Adhikari (2012) that the attitude scores of the Indian B.Ed students increased with the increase in their course level. However, no significant differences have been found in terms of gender and parental education. These student teachers hold a strong belief in their role in designing and implementing meaningful teaching tasks that may affect student learning. This study suggests that the HPE programme can provide pre-service teachers with powerful personal understanding of becoming an HPE teacher. It is also clear that learning to teach HPE is a process, which develops over time and is affected by the pre-service teachers' experiences and beliefs which teacher education programmes should nurture.

A third conclusion from the study is that teacher education programmes need to be strengthened to train pre-service teachers to implement quality HPE lessons. Findings from this study showed that pre-service teachers' competencies could be enhanced to improve assessment and evaluation in HPE. While more research into these domains is required, existing programmes require review to provide pre-service teachers with firm beliefs about good teaching practices; developing reflective inquiry courses to provide them with a strong theoretical knowledge base about effective HPE teaching; and using reflective strategies that attempt to identify, challenge, and transform trainees' beliefs with their personal and professional competencies.

The findings from this study are subject to certain limitations. More research needs to be carried out to have an in-depth understanding of why teacher graduates are not motivated as much as they might be to teach HPE, and the kind of lifestyle they are leading as full-fledged teachers in relation to physical activity and health and wellbeing. Without in-depth qualitative information to fully understand the situation of the existing HPE programme, this study remains incomplete. However, it does provide some initial insights into the programme. Overall, the findings from this study draw attention of the relevant stakeholders. Today's school and college students are the future adult citizens. If school and college students lead healthy and active lifestyle, they are more likely to grow into more active, healthy, and productive adults. Therefore, a strong HPE programme is an investment for the future of the nation. It is crucial that Bhutanese children have the opportunity to experience quality HPE programme.

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