

Effects of a Professional Development Programme on Teacher Receptivity and Curriculum Change in Hong Kong Physical Education

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Earlier studies stress that teachers are at the center of the educational change process. Based on Fullan's (1982) multidimensional framework for educational change, 40 schoolteachers were selected and randomly

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distributed (Penuel, Fishman, Yamaguchi, & Gallagher, 2007) according to four conditions of professional support, specifically, the control group (CO), Teaching Materials and Teacher Development (TMTD); Teaching Materials and Student Assessment (TMSA), and Teaching Materials, Teacher Development, and Student Assessment (TMTDSA). Subsequently, pre- and post-stage studies to the 10-month intervention were conducted to compare the various effects of educational change on teacher receptivity (Ha, Lee, Chan, & Sum, 2004; Waugh & Godfrey, 1993). Both quantitative and qualitative methods were likewise used to identify the teachers' views on education reform. Results show that teachers of TMTD and TMTDSA obtained a significantly higher post-test score ($p < .05$) on "Behavioral Intentions toward Promoting Physical Education as a Key Learning Area (PE-KLA)" and "Other Perceived Support for Teaching PE-KLA," respectively. Meanwhile, the control group obtained a significantly higher post-test score ($p < .05$) in "Issues of Concern Associated with Implementing PE-KLA," indicating that teachers who do not receive support from schools or outside agencies showed more concern on the implementation of the initiative compared to the other groups.

Key words: Fullan's multidimensional framework of educational change, Teacher Receptivity Model

Teachers are at the center of the educational change process (Fullan, 2001). As such, a framework for continuing professional development (CPD) should be designed to help teachers refine their knowledge and skills, especially since producing changes in classroom practice, from a perspective lifelong learning, seems to be a major challenge for the profession (Day et al., 2006; Garet, Porter, Desimone, Birman, & Yoon, 2001; Organisation for Economic Co-operation and Development, 2005). In the past, teachers took passive roles and merely received trainings or strategies to implement new initiatives. However, a new perspective on the teachers' role based on the CPD framework arose over the recent years (Armour & Yelling, 2007; Darling-Hammond & Bransford, 2005; Little, 2002; O'Sullivan & Deglau, 2006). Educators, including those

from the field of Physical Education (PE), have begun to focus increasingly on high-quality professional development (Armour & Yelling, 2007; Bechtel & O'Sullivan, 2006; Garet et al., 2001; Penuel et al., 2007), and with it, have called for building and sustaining "communities of practice" that are contextually sensitive and supportive of the teachers' working conditions (Darling-Hammond & Bransford, 2005; O'Sullivan, 2007).

Armour and Yelling (2007) suggested that CPD providers should find new ways of working with teachers to enhance their quality of professional experiences, which likewise imply that teachers need to locate themselves differently within the CPD framework, and that teachers should contribute their knowledge and experience to educational reforms. O'Sullivan and Deglau (2006) claim that this method may be applicable for PE teachers since they have different values, interests, and motivations towards their careers. In addition, Ha et al. (2004) and Ha, Wong, Sum, & Chan (2008) found that teachers at different career stages have different concerns about implementing change, which implies the need to solicit teachers' opinions during CPD design, and suggested the establishment of long-term partnerships among schoolteachers, curriculum designers, policy makers (or the government), and other relevant parties engaged in enhancing the quality of Hong Kong's education curriculum.

All these findings call for changes to the CPD to meet the evolving needs of the teaching profession and the society as a whole.

Physical Education Curriculum and Instruction: The Hong Kong Perspective

In the past years, the Curriculum Development Council (CDC) of Hong Kong included Physical Education as a key area for learning for school institutions (CDC, 2002; CDC & HKEAA, 2007). According to its rationale, such is aimed at the promotion of a healthy active lifestyle, development of educational opportunities, and enhancement of the role of PE in the character development of the student sector.

The Hong Kong Education Bureau (HKEB) likewise raised its positive views on the importance of PE in both realms of learning and

teaching. As a guide, HKEB required teachers to regularly update data on student physical fitness, which aimed at showing the teaching profession's contribution to the overall learning community (see also <http://www.edb.gov.hk>).

Recently, emphasis on Physical Education as a pedagogical tool has begun to shift from skills development, or the "movement education model," to as basic as PE's effects on children's health (CDC, 1988, 1995, 2002; CDC & HKEAA, 2007). The major change was brought about by the need to promote, in both the primary and secondary curricula, the ultimate goal of life-long active living. Teachers have therefore been required to develop relevant modules to prepare for this shift, which include the promotion of active lifestyles for students, like the enhancement of their interpersonal skills. More important, greater attention was given to the assessment of students, such as those relating to the gathering of more meaningful and authentic information on student learning and levels of achievement (CDC, 2001). Subsequently, these student assessments contributed to bridging the gap between curriculum and instruction development. Finally, the policy on educational reform also called for a shift from a teacher-centered to a learner-focused curriculum. In effect, teachers were expected to become more interactive in enhancing the students' generic skills on collaboration, communication, creativity, and critical thinking — Physical Education was no exception to this rule.

Beginning 2003, the Education and Manpower Bureau initiated annual two- to three-day seminars or "summer schools," which were initiated primarily to explain to the teachers the values of education reforms, and consequently, to consolidate the profession's efforts for the reform. However, it was observed that the teachers' professional growth, and its role in the long-term effectiveness of the reform, had not been fully addressed in the present government initiative.

Educational Reform, Professional Development, and Teacher Change

A reform in the school curriculum has been widely promoted over the recent years with the aim of instituting changes in the overall education

system (Barber, 1998; Fink & Stoll, 1998). Yet, schools and their teachers often appear reluctant to alter their practices (Ha et. al., 2004), of which some of the popular reasons include limited support from relevant agents and institutions, and/or the lack of research evidence to undergo reforms (Hargreaves, 1998; Sparks, 2002). In practice, much of the previous reform initiatives for Physical Education have been short-termed, untested, or volunteer-based, resulting to very limited impact for the program's intended beneficiaries (Drewett, 1991; Fay & Doolittle, 2002; Lund, 1992).

According to Fullan (1982), the implementation of educational change should involve a three-pronged multidimensional approach, namely, the (1) development of teaching materials, (2) development of teaching approaches, and (3) alteration of teacher beliefs. Fullan stressed that educational change should focus on all the three areas in order to maximize the expected outcomes from the initiative.

In Hong Kong, revisions of education materials are initiated and designed by a group composed of government curriculum officers, university education consultants, and school principals and teachers (CDC, 2002). However, since the reform, neither new teaching approaches nor changes in the teachers' beliefs have been thoroughly discussed and tested (Johns, Ha, & Macfarlane, 2001). For example, during annual teacher seminars, although introduced to generic skills involved in PE, teachers have not been presented with strategies to accommodate educational reforms, such as those concerning problem-solving and creativity (Ha et al., 2004, 2008).

Fullan (2001) claimed that only minor changes will be achieved if teaching strategies do not complement newly published materials. One possible approach is creating an overall program for professional development that is focused on aiding teachers to change their beliefs and teaching behaviors. Armour and Yelling (2004a, 2004b), in a series of studies on the CPD, called attention to the importance of learning communities, and emphasized the inclusion of the teachers' opinion and experiences in the planning and implementation of professional development programs.

Given these earlier initiatives, this study offers a two-fold objective. First, we shall aim to examine the effects of the new PE curriculum and

teacher professional development program on the teachers' receptivity to change, specifically, at different levels of support that are provided before, during, and after a 10-month intervention period. Second, at the end of the intervention, we will collect teachers' views on educational reform through semi-structured interviews.

For these objectives, Fullan's multidimensional approach to educational changes was adopted. Initially, we offer the assumption that teachers under different working conditions will produce different levels of educational outcome of the reform.

Methods

Participants and Procedures

Forty senior primary and junior secondary PE teachers from Hong Kong Island, Kowloon Peninsula and the New Territories were invited to participate in the study. Permission from their school principals was obtained prior project commencement.

Invited teachers were randomly distributed (Penuel et al., 2007) into the following groups: first, in the control group (CO), wherein teacher-participants were introduced to the proposed document, *Physical Education: Key Learning Area Curriculum Guide (Primary 1 to Secondary 3)* (CDC, 2002); second, in Experimental Group 1, teacher-participants received "teaching materials" and were required to attend a six-month PE program on "Teacher Development" (TMTD); third, in Experimental Group 2, teachers received "teaching materials" and were required to conduct "Student Assessment" in school (TMSA); and fourth, in Experimental Group 3, teachers received "teaching materials," and were required to attend "Teacher Development" program and to conduct "Student Assessment" in school (TMTDSA).

Theoretical Framework and Measures

Using Fullan's (1982) multidimensional framework, the authors assumed that there are three dimensions in the implementation or reform of a new educational program, which include the following:

1. The use of new or revised curriculum materials as provided by the government (e.g., physical education as a key learning area);
2. The use of new teaching approaches through the teacher development program; and
3. The focus on the alteration of beliefs, such as in pedagogical assumptions and theories underlying particular new policies or through students' assessments.

To examine and compare the effects of the four conditions (CO, TMTD, TMSA, and TMTDSA), the teachers' receptivity to curriculum change was measured before and after the 10-month intervention period. Individual semi-structured interviews were also carried out from each of the schoolteachers participating in the study.

Teachers' Receptivity to Change

To study teacher receptivity to change, Waugh and Punch (1985, 1987) proposed a model that has been widely validated and adopted in different subject areas, including in physical education (Fleming, 1992; Ha et. al., 2004; Jephcote & Williams, 1994; Lee, 2000; Waugh & Godfrey, 1993). Their study provided empirical support for a range of variables affecting teacher receptivity towards system-wide change, including those concerning (1) beliefs about general issues of education, (2) overall feelings toward the previous educational system, (3) attitude towards the previous educational system, (4) alleviation of fears and uncertainty associated with the change, (5) practicality of the new educational system in the classroom, (6) perceived expectations and beliefs about important aspects of the new educational system, (7) perceived support for teacher roles in school with respect to the main referents of the new educational system, (8) personal cost-appraisal of the change, and (9) beliefs about some important aspects of the new educational system in comparison to the previous system (see Appendix).

Semi-structured Interviews

Follow-up interviews were individually conducted to further examine the teachers' views and concerns on the CPD program. Their receptivity to the recent curriculum change was likewise noted during the interviews. All the interviews were audio-recorded and transcribed verbatim, including the identification of the speakers, after which raw data were organized to highlight the relevant responses to questions posed during interviews. Open coding system was used to identify meaningful pieces of information that form comprehensible text segments (Tesch, 1990), and segments with similar meanings were collected and tagged so that the speakers and their responses could be identified according to topics, including the "views on receptivity to curricular change" (Miles & Huberman, 1984).

10-month Intervention Program

1. Professional Development Program

To achieve a comprehensive program for the two target groups (Experimental Groups 1 and 3, or the TMTD and TMTDSA groups, respectively), the perspectives of the research team and the teachers were both considered and included. Interviews commenced by sharing to the teachers our targeted results for their professional development; specifically, the research team proposed the document, *Physical Education: Key Learning Area Curriculum Guide* (CDC, 2002). Then, the two target groups were asked to read through the curriculum guide. After this, the teachers were asked for their views concerning the content of the proposed professional development program.

Prior the formal professional program, the research team arranged two informal meetings with the targeted teacher informants. In the first meeting, teachers were asked to brainstorm and discuss their professional needs for the reform. Then, a priority list collated from among the responses, reviewed, and further determined through a second meeting. Teachers also agreed to contribute to the professional development program by sharing their successful and less successful experiences in designing and implementing the changes as

recommended in the reform. Subsequently, the research team set up an electronic link via the Internet, such that the target teachers would have an avenue for instant two-way communication with regard to their ideas and work on the reform (O'Sullivan, 2007).

With respect to the CPD, the teachers say that about a third of the program content was designed based on their opinions. The rest was determined by the research team members based on the drawn needs for curricular reform and on principles of best practice. The teacher development program was conducted for a total of six months and included 12 workshops (36 hours in total) carrying the following themes:

1. Philosophy and Mission: New Physical Education Concept;
2. Physical Education as a Key Learning Area: The Curriculum Guide;
3. The Six Strands of Physical Education, including Motor and Sports Skills, Health and Fitness, Sport-related Values and Attitudes, Knowledge and Practice of Safety, Knowledge of Movement, and Aesthetic Sensitivity;
4. Promoting Health and Active Living Concepts;
5. Personal and Social Development through Physical Activity;
6. Teacher-centered and Student-centered Instructional Strategies;
7. Teaching Games for Understanding Approach;
8. Physical Education Learning Portfolio;
9. The Professional Lives of Physical Education Teachers;
10. Student Assessment and Program Evaluation;
11. Teacher's Self-Assessment and Reflection; and
12. Liabilities and Negligence of School Physical Education.

Each of the 12 workshops was divided into three parts, namely, (1) lecture, (2) reflection and discussion, and (3) practical sessions.

In the lecture series, researchers discussed subject matters relating to prevailing theories in education and physical education.

The teachers were then asked to discuss and reflect upon the theories mentioned above in relation to their daily teaching practices. During the reflection and discussion, they were also guided to share their professional experiences with fellow teachers. Large group

discussions were initiated after these small group interactions, of which key points were recorded for future references.

Finally, in the practical sessions, teachers from different schools showing exemplary teaching practices were invited to share their teaching strategies. Herein, some shared successful experiences in designing effective activities for different levels of students, while others discussed new approaches to teaching health and physical education through both formal and informal curricula. Outdoor sessions on teaching popular sports, new and modified sports, and fundamental movements were likewise suggested during the practical sessions.

Subsequently, a video compact disc (VCD), which recorded the practical sessions of the teacher development program, was produced and provided to all schoolteachers who participated in the workshop. This included demonstrations on teaching for campus orienteering, hip-hop dancing, modified softball, modified bowling, modified tennis, health knowledge, and a fitness game.

In addition, a Web-based “knowledge page” was designed to assist the teachers in promoting concepts on health (cognitive domain development) in schools. A multiple-choice questionnaire was specifically developed by the research team for this Web site (see also www.pehealthquiz.net).

2. Student Assessment Meetings

Two meetings were held with teachers from the Experimental Group 2 (TMSA) and Experimental Group 3 (TMTDSA) to introduce the new student assessment and accountability system, namely, the Physical Education Report Card, which was initiated by the government as part of the reform. The objectives of the meetings were to encourage teachers to conduct student assessments during and after their classes, and to introduce basic technical knowledge and software skills in their regular PE setting.

New assessment methods were stated, after which discussions between the teacher-participants and the research team were conducted. The “merge print” function of Microsoft Word and Excel was introduced to facilitate teachers in inputting and recording their students’ PE performance results; these documents were later printed on

certificate templates. The teachers were encouraged to use this new method in assessing their students' learning outcomes, including those that focus on their fitness level, skills, PE knowledge, attitude, participation, and attendance. To stress, systematic recording of student learning outcomes is an uncommon practice among schools in Hong Kong.

3. On-going Regular Meetings with Experimental Group 3 (TMTDSA)

During the 10-month implementation period, a total of six meetings with the TMTDSA group were conducted to discuss plans for changing and improving PE teaching and learning in schools. The objectives of these meetings were as follows:

- a. To help teachers to set goals and plans for the reform,
- b. To provide venues for teachers to communicate ideas and seek advice, and
- c. To monitor changes in the teachers' action plans.

Results

The total number of participated teachers was 40, with 55 percent males ($n = 22$) and 45 percent females ($n = 18$), representing a similar cell size of gender. Approximately, 25 percent ($n = 10$) were aged 20 to 30, 40 percent ($n = 16$) were aged 31–40, and 35 percent ($n = 14$) were aged 40 and above respectively. In terms of teaching experience, the data show that 22.5 percent ($n = 9$) of the teachers had less than five years of experience, 37.5 percent ($n = 15$) had six to ten years of experience, 40 percent ($n = 16$) had 11 years and above of experience. Among all the participants, 40 percent ($n = 16$) were panel heads of the Physical Education subject, and 60 percent ($n = 24$) were non-panel heads. About 57.5 percent ($n = 23$) of the teachers taught at secondary schools and 42.5 percent ($n = 17$) taught at primary schools. Finally, about 90 percent ($n = 36$) of the participants held a bachelor's degree in physical education or education, while the rest of the sample held a master's degree, a diploma on education, or received professional training in physical education from a local teacher's college.

Table 1: Pre-test and Post-test Scores on Teachers' Receptivity to Change

Dimension	Condition	<i>Pre-test</i>		<i>Post-test</i>		<i>p</i> value
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Attitude toward the guidelines	CO (<i>n</i> = 10)	5.20	(0.60)	5.22	(0.31)	0.76
	TMTD (<i>n</i> = 10)	5.13	(0.80)	5.20	(0.77)	0.92
	TMSA (<i>n</i> = 10)	5.31	(0.46)	5.35	(0.33)	0.70
	TMTDSA (<i>n</i> = 10)	5.20	(0.48)	5.38	(0.42)	0.41
Behavioral intentions	CO (<i>n</i> = 10)	5.30	(0.80)	5.47	(0.96)	0.74
	TMTD (<i>n</i> = 10)	5.06	(0.45)	5.39	(0.41)	0.02*
	TMSA (<i>n</i> = 10)	5.39	(0.55)	5.41	(0.61)	0.93
	TMTDSA (<i>n</i> = 10)	5.29	(0.87)	5.78	(0.60)	0.02*
Perceived non-monetary cost-benefits	CO (<i>n</i> = 10)	5.23	(0.99)	5.24	(0.63)	0.31
	TMTD (<i>n</i> = 10)	5.20	(0.51)	5.25	(0.70)	0.22
	TMSA (<i>n</i> = 10)	5.06	(1.06)	5.14	(0.32)	0.51
	TMTDSA (<i>n</i> = 10)	5.56	(0.58)	5.43	(0.74)	0.42
Perceived practicality of the guidelines	CO (<i>n</i> = 10)	5.21	(1.22)	5.22	(0.97)	0.26
	TMTD (<i>n</i> = 10)	5.13	(1.04)	5.19	(0.55)	0.53
	TMSA (<i>n</i> = 10)	5.30	(1.12)	5.31	(0.88)	0.51
	TMTDSA (<i>n</i> = 10)	5.21	(0.93)	5.38	(0.90)	0.47
Perceived school support	CO (<i>n</i> = 10)	3.63	(1.50)	3.63	(1.57)	0.93
	TMTD (<i>n</i> = 10)	3.09	(1.07)	2.89	(1.10)	0.10
	TMSA (<i>n</i> = 10)	3.03	(1.09)	3.23	(0.90)	0.72
	TMTDSA (<i>n</i> = 10)	2.91	(1.09)	2.75	(0.90)	0.36
Perceived other support	CO (<i>n</i> = 10)	3.11	(0.77)	3.20	(1.23)	0.39
	TMTD (<i>n</i> = 10)	2.89	(0.99)	3.64	(1.03)	0.03*
	TMSA (<i>n</i> = 10)	3.26	(1.31)	3.36	(1.48)	1.00
	TMTDSA (<i>n</i> = 10)	3.12	(1.14)	3.94	(1.36)	0.02*
Issues of concern	CO (<i>n</i> = 10)	4.65	(1.50)	5.82	(0.55)	0.03*
	TMTD (<i>n</i> = 10)	4.60	(0.82)	4.63	(1.07)	0.93
	TMSA (<i>n</i> = 10)	4.51	(1.11)	4.77	(0.80)	0.59
	TMTDSA (<i>n</i> = 10)	5.18	(0.71)	5.28	(0.48)	0.16

**p* <.05; 7-point Likert Scale

Teachers' Receptivity to Curriculum Change

Table 1 shows the mean and standard deviation of the scores of the teachers' receptivity to the curriculum by comparing results from pre-test to post-test. Teachers were instructed to respond by scoring an item through a 7-point Likert Scale, with 1 as "least likely" and 7 as "most likely".

The first item on "Attitude toward the Guidelines on 'Physical Education as a Key Learning Area (PE-KLA)' in Schools" reveals that all groups of teachers generally possess a positive attitude toward the proposed PE-KLA curriculum. A higher post-test score was obtained by all groups, specifically, CO (5.20/5.22), TMTD (5.13/5.20), and TMTDSA (5.20/5.38), and with TMSA (5.31/5.35) achieving the highest score compared to the other groups.

The second item, "Behavioral Intentions toward Promoting PE-KLA," reveals that teachers in the groups on TMTD (5.06/5.39) and TMTDSA (5.29/5.78) obtained significantly higher post-test scores ($p < .05$), implying their greater willingness to implement reforms after participating in the professional development program.

Findings from the fourth item, "Perceived Practicality of the Guidelines," indicate that regardless of groups, teachers obtained higher post-test scores, specifically, in CO (5.21/5.22), TMTD (5.13/5.19), TMSA (5.30/5.31), and TMTDSA (5.21/5.38).

The sixth item on "Other Perceived Support for Teaching PE-KLA" shows that TMTD (2.89/3.64) and TMTDSA (3.11/3.93) significantly improved ($p < .05$) after teachers of these two groups attended the intervention program. This proves that teacher development programs, such as the present one, are deemed helpful and important for teachers, including continuous support from outside professional agencies.

"Issues of concern associated with implementing PE-KLA," the seventh item, shows a significant higher post-test score for CO (4.65/5.82) at $p < .05$, which indicates that teachers who do not receive support from their schools or outside agencies are generally concerned with the implementation of the initiative.

Finally, no significant changes were noted in the third and fifth items, "Perceived Non-monetary Cost-benefits of the Guidelines" and

“Perceived School Support for Teaching PE-KLA,” respectively. The scores of the third item are as follows: CO (5.23/5.24), TMTD (5.20/5.25), TMSA (5.06/5.14), and TMTDSA (5.56/5.43). Meanwhile, the fifth item shows CO (3.63/3.63), TMTD (3.09/2.89), TMSA (3.03/3.23) and TMTDSA (2.91/2.75), which implies that school support for the implementation of PE-KLA is limited.

Semi-structured Interviews

Theme One: Receptivity to Curricular Change

Results indicate that all teachers initially had a positive attitude toward the proposed “PE as a Key Learning Area Guideline.” Teachers from the TMTD and TMTDSA groups showed stronger support for innovation after attending the teacher development program. Furthermore, they felt that in-service training was needed to enable school personnel to become familiar with the curriculum and the implementation strategies. According to a teacher from the TMTDSA group:

I like the idea of inviting teachers to be involved in designing the content of the teacher development program. There is always a gap between planning and implementation of the reform. Unlike the 2–3 days annual summer program provided by the Education Bureau, this program attempted to include the teachers’ opinion in all stages of planning, implementation, and evaluation of long-term professional development. During the 10-month period of intervention, I shared my teaching strengths and weaknesses with colleagues of other schools and vice versa. Some teaching constraints, which greatly concerned me, were discussed and resolved during workshops and follow-up meetings. I feel more secure in implementing the initiative because I have a group of colleagues to share and exchange ideas with.

Another teacher of the TMTD group reflected:

A few objectives of the reform needed to be further communicated and discussed between the curriculum designers and schoolteachers. Through this program, we are provided the opportunities to ask and speak out our constraints. In fact, it is surprising to know that some colleagues from other

schools have different viewpoints towards the initiative. Overall, the ongoing dialogue generated positive changes to my personal attitudes towards the curriculum reform. I made some practical changes in my school after the 10-month study period.

The program, which involved collaboration among government curriculum officers, university scholars, and teachers with innovative ideas, successfully provided an effective learning experience for the PE teachers. However, upon deeper examination, we found these responses regarding the reform initiative:

The reform was initiated by the government with a top-down approach. I thought the government should play a more leading and guiding role for the schoolteachers. Basically, we also need greater support from within and outside our schools.

Another teacher of the TMSA group stated:

Without an interactive infrastructure of pressure and support, we remain unaware on how to start and where to go. At present, although required to submit an annual record of our students' fitness level to the Education Bureau, we are free to follow — or not to follow — the proposed changes based on our own school's initiatives.

Moreover, several teachers in the control group consistently felt that the proposed guideline was purely a recommendation rather than a mandate. The document, which listed a timeline for implementation, did not specify any concrete plan to measure and evaluate the proposed changes. The government should find ways to consider these comments and rethink its strategy in implementing the reform.

Theme Two: Knowledge, Belief, and Practice in Teaching Physical Education

Generally speaking, teachers from all groups felt that they possess good knowledge of Physical Education, which includes topics on athletics, ball games, physical fitness, and other popular sports.

However, after further discussions on pedagogical content and knowledge, teachers from the control group showed less confidence in applying a wide range of teaching methods for their students, who incidentally may have less interest towards abilities in sports. One teacher responded:

I do not have much problem in preparing the teaching lesson for my students, as long as they are willing to learn and to move. I learned from my pre-service teacher's training that I should design a content-based curriculum. However, I sometimes encounter students who do not really enjoy the lessons I prepared for them, and I am a bit frustrated about the situation.

The teachers of TMSA particularly found difficulties in motivating their senior female students to engage in physical activities during PE lessons. One teacher from this group claimed:

I graduated from a teacher's college almost 20 years ago. To be frank, I lack new ideas and skills in my teaching, especially when I encounter students with low learning motivation. It seems they are not interested in any of the physical activities that I provide them. In relation, one of the points I learned from the reform initiative is keeping a good record of student assessment. Apart from this, our school conducts fitness tests three times a year in order to provide for the required information to the Education Bureau. I feel like I have done what the government asks us to do, but I failed to provide enjoyable and successful learning experiences to my students. I hope I could do both in process and during evaluation.

Meanwhile, both TMTD and TMTDSA teachers realized that after attending the teacher development program, they had become more conscious of their students' perspectives. As such, they began to consider designing activities based on the students' needs, abilities, and interests, as opposed to merely focusing on the usual skill refinement. One teacher of the TMTDSA explained:

In order to better understand my students' needs and interests in physical education, I conducted a school-wide survey at the beginning of the school year asking students to speak out their views on our PE lessons. Both junior and senior male students considered pure sub-skills practice boring and would rather prefer competition games for our 70-minute lesson so they

could apply their learned skills, and most importantly, so they could play and have fun with peers in these activities. The female seniors also claimed they would prefer to play, specifically, badminton, volleyball, skipping and modified ball games, or have yoga, during our PEs. It is quite surprising to learn about the female students' interest in sports; I used to think they disliked all physical activities.

In addition to putting more emphasis on the self-development of the students, most of the teachers from TMTDSA reported they started to accommodate student assessment when designing their lessons. Consequently, they included a wider range of methods to record their students' learning. One teacher of the TMTDSA group stated:

I found this professional development program reflective and insightful. During the workshops, we listened to the current theories on education and PE in order to renew and refresh our knowledge and skill in teaching. For example, when the lecturer mentioned the value orientation of Physical Education, I realized I had been a very teacher-centered and skill-oriented teacher. I seldom think of the perspective of my students. I think it is important to have a teacher review and assess one's own teaching value (subject matter-centered, student-centered, and/or society-centered) prior to introducing reforms, which altogether may require a different orientation.

Another teacher from the same group elaborated:

I particularly like the reflection and discussion part. In the past, I do not have any chance of sharing with colleagues from schools my teaching ideas and difficulties. However, through this program, apart from the sharing component, I also chanced upon learning from others' skills and perspectives. In fact, I copied some of my colleagues' ideas and teaching methods, and I found them workable for my own students! For example, I adopted the Teaching Game for Understanding (TGFU) approach when teaching volleyball to Senior Primary 6 girls. In the past, I used to teach each of the sub-skills and have students practice each of them before they could even learn the rules, and even so, play the game. It usually takes weeks to learn the basic skills, and some more period for the actual volleyball game. However, when I adopted the TGFU based on a colleague's successful experience, I partially modified the rules. For example, I asked my students to play volleyball at the beginning of the lesson, and they showed more interest and motivation for this approach. We played not just in one lesson, but throughout the four lessons.

Theme Three: Generic Skills

After examination of the knowledge on the reform, the participating teachers from all groups expressed their concerns and constraints towards teaching generic skills through PE in varying degrees. This include topics covered under the workshops of (1) Philosophy and Mission: New Physical Education Concept, (2) Physical Education as a Key Learning Area: The Curriculum Guide, and (7) Teaching Games for Understanding Approach.

According to the proposed curriculum guide, generic skills include collaboration skills, communication skills, creativity, critical thinking skills, information technology skills, numeric skills, problem-solving skills, self management skills, and study skills. Most teachers, regardless of their group, pointed out that creativity, critical thinking, and problem-solving skills are their primary concerns. The teachers consistently indicated their limitations in applying these topics to PE. One of the teachers from the group of TMTD explained:

I was introduced to the rationale of putting generic skills in the existing PE curriculum, but even after attending the workshops, I still have not included much of these ideas into my own teaching. The document expects too much from us. However, among the nine generic skills, I did encourage my students to do more cooperative learning to further enhance their communication skills. I also asked my students to do some projects on the Olympic Games and the Soccer World Cups, which required them to do some research via the Internet. I think students also like developing their study skills, which is one of the generic skills highlighted by the government.

Another teacher from the group of TMTDSA replied:

Initially, I think the reform recommends too much from us in terms of teaching school subjects. After attending the workshops, I adopted the Teaching Games for Understanding Approach to promote and enhance the students' communication skills, collaboration skills, and problem-solving skills. This new approach takes time to plan and requires persistence during implementation. At the beginning, I was challenged by my PE panel head, who believed there is no need to follow the new instructions because there is no mechanism for "check and balance." He even suggested that I go back

to teaching via the traditional approach because students are known to benefit from it.

Overall, teachers from the TMTDSA group showed more interest and initiative to work on teaching generic skills. Some of them have even already worked closely with their colleagues to apply the new teaching ideas. The TMTDSA group likewise expressed that teacher development should be an on-going, progressive, and interactive process to attain the greatest benefits in nurturing and sustaining approaches in teaching and learning PE.

In contrast, other teachers of the control group and TMSA group consistently claim that even if they agree that promoting generic skills in PE assists in developing well-rounded learners, they remain apprehensive in teaching these skills. The teachers of these two groups requested more on-the-job training or teacher development programs, which they perceive could aid them in their professional growth.

Theme Four: Student Assessment

In terms of student assessment, most teachers from the TMTD and TMTDSA groups reported that they changed their scoring system from a physical skill-oriented system to a more holistic approach over time. They began to accommodate fitness, skill, knowledge, participation, and attitudes toward physical activity, as suggested by the new curriculum guide. One teacher explained:

During and after attending this teacher development program, I obtained a deeper understanding on what the government proposed for us to do. I gradually felt that the reform is necessary and would be practical if teachers were guided to plan, implement, and evaluate their past and future experiences. One of the major changes of the reform is to provide a systematic student assessment in physical education. I completely agree with this, but I also need knowledge and support to implement this change. As long as the government or related institutions can continue to work together with teachers, I think schoolteachers will find the security and responsibility to make this change, and will continue to reflect on their students' learning effectiveness.

In contrast, teachers from the CO and TMSA groups did not change their way of assessing students. Nearly all of them continued to adopt the traditional method of assessing their students based on fitness and skill. One teacher from this group said:

It may be that either my school principal or the PE subject panel chair, to a certain extent, does not agree with the reform. We have no intention in following the proposed document in terms of changing our ways of assessing our students.

Interestingly, it is a common observation that such inconsistencies occur between the government and school administrators, making the reform more difficult and complicated as intended.

Discussion and Conclusions

The findings in this study are discussed in relation to the effects of professional development programs on teachers' receptivity to curriculum change. Using Fullan's multidimensional framework of educational change, this study hypothesized that different levels of support inside and outside the school (CO, TMTD, TMSA, TMTDSA) would create different opportunities and challenges for teachers. According to Fullan (1982), it is necessary to altogether implement three aspects of change, specifically: (1) the possible use of new curriculum, (2) the possible use of new teaching approaches or strategies (teacher development), and (3) the possible alternation of beliefs (student assessment scheme), because they represent the means of achieving a particular educational goal.

In general, change occurs in a variety of ways and forms. When changes are initiated in the realm of education, academic leaders, school administrators, teachers, parents, and students contribute together to effect an internal and external transformation (Ha et al., 2008). Unfortunately, teachers are often expected to initiate and implement curricular change without support and interactions at the workplace and from the community (Ha, Chan, & Sum, 2006; Louis & Marks, 1998).

The Possible Use of a New Curriculum

One of the major findings in this study supported Fullan's notion that merely providing the new curriculum, *Physical Education: Key Learning Area Curriculum Guide*, to teachers (CO), or independently adopting students' assessment method at school (TMSA), would not generate any changes in teachers' behavior and intentions towards promoting the new curriculum. Another manifestation would be that although the new material was collectively prepared by the Education Bureau's curriculum officers (central government), university scholars (educators), and schoolteacher representatives, there remains a gap between "the provider" and "the executor" of the reform.

The Possible Use of New Teaching Approaches or Strategies (Teacher Development)

This study likewise revealed that teachers who participated in teacher professional development programs (TMTD and TMTDSA) not only possessed a positive attitude towards the new curriculum, but also intended to have actual plans to implement the innovation. This finding, which echoes Fullan's "mutual-adaptation" perspective, is encouraging. It further stresses that change is often and should be a result of adaptations and decisions made by users as they work in new programs, with the program and the users' situation mutually determining the outcome of the intended reform. This implies that a change process is not exclusively a personal matter, but rather, an avenue for professional growth and development as a whole. Results confirm that purposefully designed professional programs provide for an effective platform with continuous adaptation between the curriculum designers and the schoolteachers generated during an innovation. It is believed that professional programs providing opportunities for teachers to air their opinion (Armour & Yelling, 2007; Darling-Hammond & Bransford, 2005; Ha et al., 2008; O'Sullivan & Deglau, 2006) could efficiently and effectively support their intentions and actions to implement change.

In relation to this, the second major finding, which focuses on continuous and long-term support from relevant academic or professional agencies, is confirmed in the study. Oftentimes, teachers

are required to make personal (internal) and professional (external) changes so as to “produce” the best quality of learning experience for students (Ha et al., 2004). This assumption is rather unreasonable if the responsibility and accountability for curricular change burdens only the teacher. Educational change is viable only if all members of the community are involved (Fullan, 2001).

The Possible Alternation of Beliefs (Student Assessment)

In terms of student assessment, teachers from the TMTD and TMTDSA groups reported that they changed their scoring system from a physical skill-oriented system to a more holistic approach over time while the CO and TMSA groups did not change their way of assessing students. Such findings indicate that a new student assessment scheme alone cannot produce the expected educational changes at schools. Also, teachers have old practices on student assessment that would not automatically follow the new scheme and create changes. These findings support Fullan’s assumption that “innovation is multidimensional” (p. 39), and “the assumption that an already developed innovation exists and the task is to get individuals and groups of individuals to implement it faithfully in practice” (p. 40). Therefore, the findings of this study confirmed that intervention such as teacher development plays a crucial role in assisting teachers to implement the innovation.

Fullan’s Framework and Teachers’ Perspective

In this study, the participants expressed their appreciation for the 12 workshops provided by the research team, especially since they were provided the opportunity to voice their concerns about the change, and share possible approaches for implementation, through a series of “reflection and discussion.” In varying degrees, the teachers were convinced on the advantages of implementing changes after experiencing their own “change” and “growth” through the professional development program.

The workshops also became avenues to develop collegiality and a culture of support among the teacher-participants from various schools.

During and towards the end of the professional development program, participants were not only exchanging teaching ideas face-to-face setup, but were also extending their support through emails and phone calls. Moreover, they became more confident upon seeing their fellow teachers implementing the reform. The positive gains, in return, allowed for the establishment of closer working relationships with colleagues.

From the workshops on professional development, we note the urgent need to develop new approaches in establishing professional learning communities, which can be initiated either by the Hong Kong government or by educational professional bodies involved in, for example, e-learning or other new means (Ha et al., 2006; Lee, Ha, Pun, Mak, & Chui, 2005; Sum, Ha, Chan, & Johns, 2006). The annual two-to three-day summer school program proves to be inadequate for the Hong Kong's PE teachers (Ha et al., 2004; Sum et al., 2006).

Albeit specifically examining the effects of a professional development program on teachers' receptivity to curriculum change, other findings have emerged that warrant brief discussions. One stress point is on "learner-focused curriculum." The emphasis of physical education in Hong Kong has begun to shift from skill development to children's health and fitness concerns. A lifelong active lifestyle has become the ultimate goal of physical education. However, most female junior high schoolteachers claim having difficulty motivating their female students to engage in physical activities for PE lessons.

Among the many reasons, most teachers claim that they do not have the confidence to apply the wide range of teaching methods for students who differ in gender, learning attitude, and sport interests. Similarly, upon examination of the teachers' knowledge, beliefs, and practices in teaching PE, it was found that they have concerns and constraints with teaching generic skills (collaboration, communication, creativity, critical thinking, information technology, numeracy, problem solving, self-management, and study skills). This is especially true in the case of teaching critical thinking and problem-solving skills, even if these are highly emphasized in the new curriculum guide. In fact, teachers consistently mentioned that their knowledge of generic skills was limited, especially in the field of PE, despite the professional

development program. They however agree that such innovation is essential in developing well-rounded learners.

As such, in relation to the reform guideline, either the curriculum goals should be narrowed down or professionals be given sufficient time to achieve all of the proposed goals. In terms of training the teachers, the Education Bureau should plan a reasonable timeline for both curricular change and teacher development. This should be conducted not merely for purposes of public policy, but also to instill to the teachers their role as instruments of change.

In conclusion, this study proves that the teacher development program, based on the direction of the recent curriculum reform, is successful in many ways. By adopting Fullan's multidimensional framework of educational change, it is established that different levels of professional support can produce different levels of teacher change, in terms of their beliefs and teaching practices, and through their support for education reform.

Policymakers should realize that alteration of the curriculum materials alone, as a CPD strategy, is deemed insufficient for the teachers who, in contrast, showed positive attitude toward a partnership-based teacher development program. Ultimately, a continuing professional development, which includes mutual understanding and support among curriculum designers, university scholars, and frontline schoolteachers, could effectively and efficiently facilitate desired educational changes (Fullan, 2001).

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Appendix: “Receptivity to Change” Instrument

In line with the principles of the “Learning to Learn” document published by the Curriculum Development Council, the rationale for further development in the PE curriculum is as follows.

- Establish PE as a key learning area to educate students in acquiring a healthy living style and enjoying life-long activities to fulfill the five Chinese virtues in the aims of education.
- Build on the present curriculum platform in PE and elaborate the good practices of the existing school PE curriculum for the current reform.
- Revise the PE curriculum so that it becomes a coherent, integrated and comprehensive program that aims to improve the educational prospects of students and their health condition, rather than emphasizing too much on sports.
- Promote learning to learn through strengthening generic skills, such as critical thinking skills and problem-solving skills, among students in PE and in a cross-curricular context. These skills have a carry-over value to adult life. Students can apply these skills to life-long learning and thus pursue a quality life.
- Enhance the role of PE in character development through cultivating a positive attitude toward PE and motivating students to become active in physical, recreational and sport activities.
- Set clear contents, criteria and areas for observation and assessment. Determine methods to be used and ways to record and report students’ attainment.
- Organize the school-based curriculum factors, such as the school’s cultural and traditional inclinations, aptitudes, interests, and the overall family background of students, that may influence the development.
- Develop a plan on how to improve the school-based curriculum that aims to generate pleasurable experiences through participation in various PE activities.
- Apart from the formal lessons, PE learning experiences can be gained through the non-formal and informal curriculum, such as the Olympic Games, Soccer World Cup, etc.

Part II. Perceived non-monetary cost-benefits of the guidelines on PE-KLA to the teacher

	Disagree very strongly	Disagree strongly	Disagree	Neutral	Agree	Agree strongly	Agree very strongly
1. In weighing up the balance between the work generated for me by PE-KLA and my satisfaction with teaching, I think PE-KLA is worthwhile.	1	2	3	4	5	6	7
2. In weighing up the balance between the work generated for me by PE-KLA and my improvement in PE knowledge, I think PE-KLA is worthwhile.	1	2	3	4	5	6	7
3. In weighing up the balance between the work generated for me by PE-KLA and improvement in communicating with students (such as problem solving), I think PE-KLA is worthwhile.	1	2	3	4	5	6	7
4. In weighing up the balance between the work generated for me by PE-KLA and the increased commitment toward exercising by the students, I think PE-KLA is worthwhile.	1	2	3	4	5	6	7
5. In weighing up the balance between the work generated for me by PE-KLA and better student health conditions, I think PE-KLA is worthwhile.	1	2	3	4	5	6	7
6. In weighing up the balance between the work generated for me by PE-KLA and praise by my school principal, I think PE-KLA is worthwhile.	1	2	3	4	5	6	7

7. In weighing up the balance between the work generated for me by PE-KLA and improvement in my professional status as a teacher, I think PE-KLA is worthwhile. 1 2 3 4 5 6 7

Part III. Perceived practicality of the guidelines on PE-KLA

1. The principle of experiential learning integral to PE suggested by the PE-KLA suits my classroom teaching style. 1 2 3 4 5 6 7
2. The PE principle of a balanced viewpoint maintained for PE-KLA reflects my thoughts about PE development. 1 2 3 4 5 6 7
3. The principle of PE-KLA provides good grading methods, which are very useful in school. 1 2 3 4 5 6 7
4. The principles of implementing PE-KLA through both the formal and informal curriculum are appropriate to meeting the needs of the pupils in my school. 1 2 3 4 5 6 7
5. The principle of forming positive PE attitudes included in the PE-KLA matches my knowledge and skills in teaching PE. 1 2 3 4 5 6 7

Part IV. Issues of concern associated with implementing PE-KLA

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. I am concerned pupils' physical condition and active lifestyles will have negative effects toward promoting PE-KLA at school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I am concerned that the introduction of PE-KLA will result in lower academic performance among the students at this school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I am concerned that the introduction of PE-KLA will lead to less time being available for the teaching of the subject syllabus. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The pupils' abilities (such as PE knowledge and skills) are causing me concern about the teaching of PE-KLA at this school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Disciplinary problems are causing me concern about the teaching of PE-KLA at this school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Part V. Perceived school support for teaching PE-KLA

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. There are regular meetings at which I can raise my worries and doubts about the implementation of PE-KLA. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Whenever there are problems in implementing PE-KLA, there is a senior teacher whom I can ask for advice. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 3. There is good support whenever I have problems, such as a shortage of books and equipment, related to PE-KLA. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. There are regular school-based talks or training programs at which I can learn how to teach PE-KLA. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The majority of teachers in this school support PE-KLA. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. The principal encourages teachers to participate in training course related to PE-KLA. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. At school meetings, the principal makes comments emphasizing the importance of introducing PE-KLA at this school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Part VI. Perceived other support for teaching PE-KLA in schools

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. In my opinion, the government departments support the implementation of PE-KLA in my school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. In my opinion, the Curriculum Development Institute and the Education Department provide sufficient suggestions and assistance to help teachers acquire the methods of implementing PE-KLA in my school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. In my opinion, the majority of parents in this school support the implementation of PE-KLA in this school. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

4. In my opinion, the local community organizations provide adequate PE activities for pupil participation. 1 2 3 4 5 6 7

Part VII. General behavioral intentions toward promoting PE-KLA

1. In my behavior and communications with other teachers, I will actively and openly support the introduction of PE-KLA at this school in 2003–04. 1 2 3 4 5 6 7
2. In my behavior and communications with other teachers, I will praise the introduction of PE-KLA at this school in 2003–04. 1 2 3 4 5 6 7
3. In my behavior and communications with other teachers, I will propose the introduction of PE-KLA at this school in 2003–04. 1 2 3 4 5 6 7
4. In my behavior and communications with other teachers, I will tell them that “learning to learn, the rationale for further development in the PE curriculum” is both flexible and feasible and hence supportable in 2003–04. 1 2 3 4 5 6 7
5. In my behavior and communications with other teachers, I will advise them that the “learning to learn, the rationale for further development in the PE curriculum” can be adapted to the abilities of pupils at this school in 2003–04. 1 2 3 4 5 6 7