Implementation of the Project P.A.T.H.S. in Hong Kong: observations based on the Co-Walker Scheme

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Abstract

The implementation quality of the Tier 1 Program (Secondary 1 Program) of the Project P.A.T.H.S. in the third year of the Full Implementation Phase was examined in this study, with classroom observations of 233 units in 157 schools. Results demonstrated that the overall level of program adherence was generally high with an average of 72.96%. A total of 13 aspects regarding program delivery were significantly correlated. Multiple regression analyses indicated that overall implementation quality was significantly predicted by student participation and involvement, classroom control, use of positive and supportive feedback, degree of achievement of the objectives, and time management. Student participation and involvement, classroom control, degree of achievement of the objectives, and time management were significant predictors of success of implementation.

Keywords: observation; positive youth development program; program adherence; program implementation quality.

Introduction

Increasing societal attention to adolescent problem behaviors, e.g., abuse of psychotropic substances (1), adolescent suicide (2), and school violence (3), has led to the development of programs directed at promoting holistic development among young people in Hong Kong. A youth development program of considerable standing in the Asian context is the territory-wide project entitled "P.A.T.H.S. to Adulthood: A Jockey Club Youth Enhancement Scheme" (Project P.A.T.H.S.) launched by The Hong Kong Jockey Club Charities Trust in Hong Kong. To develop a multiyear universal positive youth development program to promote holistic adolescent development in the territory, a research team with researchers from five universities was formed with The Hong Kong Polytechnic University as the lead institution and the first author as the Principal Investigator. There are two tiers of program in this project, of which the Tier 1 Program is a universal positive youth development program involving the participation of Secondary 1 to Secondary 3 students, whereas the Tier 2 Program is a selective program designed for students with greater psychosocial needs.

To provide support to the program implementers and to facilitate communication between the research team and the schools, the "Co-Walker Scheme" was introduced in the 2006–2007 academic year. Under the "Co-Walker Scheme", a registered social worker is assigned as a Co-Walker to each participating school. Its primary aims are to offer support to program implementers as emerging evidence suggests that continued support from fellow colleagues can foster a teacher's ability to be resilient (4) and be an important resource for an individual to cope with stress and prevent burnout (5). The introduction of the Co-Walker Scheme is important because the teaching profession is highly stressful in Hong Kong, with stressors emerging from the latest curriculum reform (e.g., the implementation of the New Senior Secondary Curriculum), daily teaching, and other duty commitments. Because collegial support might influence the stressor-strain relationship in the workplace, and program implementers are consistently found to be one of the crucial factors for high-quality program implementation in many evaluation studies of the project (6), the "Co-Walker Scheme" is designed to facilitate and enhance the communication between the schools and the research team which regularly visits the schools, conducts observation without monitoring functions about the program delivery in the classroom, and offers essential support and advice to instructors. Concurrently, the program implementers are also encouraged to share their experiences on program implementation, and make feasible suggestions and recommendations for the program.

The "Co-Walker Scheme" offers the program developers an opportunity to comprehend how the program is implemented in a real-world setting and the observational data provide the program developers some current knowledge about what factors determine the effectiveness of a program. Mihalic (7) pointed out that implementation quality is related to program effectiveness, and it is imperative to identify and understand

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the factors that enhance or obstruct high-quality implementation. Unfortunately, although program implementation is an important topic, it has been relatively neglected in the prevention research literature (8). As noted by Kam and colleagues (9), "the majority of published preventive intervention trials have been conducted with little or no reported implementation information" (p. 56). Similarly, Domitrovich and Greenberg (10) highlighted that "only 5% of over 1200 published prevention studies provide data on program implementation" (p. 197). Therefore, the precise ingredients of an effective program are not yet known. Similar argument has been put forward by Mihalic and Irwin (11) and they pointed out that we know "very little about *how*" (p. 308). Because prevention science has progressed to the point where understanding the implementation process and the factors that support it is essential for continued growth in this field (7), primary factors that facilitate high-quality implementation clearly warrant our attention.

In a response to the relative lack of studies on program implementation (10) and the importance of evaluating the efficacy of the Project P.A.T.H.S., considerable efforts have been made to evaluate the project by different evaluation designs, including subjective outcome evaluation, objective outcome evaluation, process evaluation, interim evaluation, focus groups, case studies, diaries, and repertory grid tests. Results in different studies (12–15) consistently showed that the Project P.A.T.H.S. has demonstrated significant positive results and proven to be beneficial to the development of the program participants.

A review of the literature shows that there are predictors of the implementation quality of positive youth development programs. One of the important determinants of program success is implementation fidelity or adherence. Dusenbury and colleagues (16) defined fidelity as "the degree to which…programs are implemented…as intended by the program developers" (p. 240), whereas adherence, which has similar meaning, is defined as "the degree to which program components were delivered as prescribed" (17). Fagan and colleagues (18) highlighted that program adherence is "the degree to which implementers taught the required program objectives or fulfilled the program's core components" (p. 242). In school settings, Dusenbury et al. (16) reported that programs with high fidelity were more effective. Dane and Schneider (17) also found that lowered adherence was often associated with poor outcome. In a study of a parent training program, Forgatch and colleagues (19) reported that when the program was implemented with high fidelity, the parenting practices improved significantly. Conversely, when implementation fidelity was low, the effect was much reduced. Luborsky and Debubeis (20) suggested that detailed instruction manuals on how to implement the program are likely to enhance fidelity of implementation.

Another salient factor that might have an important impact on the effectiveness of the program is the quality of program delivery. Hansen et al. (21) noted that "even well developed programs may fail if there are deficits in program delivery" (p. 569). Giles et al. (22) emphasized the importance of good delivery skills, which can promote active student involvement. It is important to attract and engage participants and keep the students' enthusiasm level high so that students are empowered with the information and skills they need for developing specific attitudes and beliefs. Evidently, high participants' responsiveness to the program can only be achieved by using interactive teaching strategies (22) and facilitation skills to teach the program concepts and skills. Conversely, if program implementers are unable to adopt interactive delivery skills or do not have innovative instructional skills to implement the program in the classroom, it will adversely affect the program implementation quality (23, 24). Tobler et al. (25) examined what types of programs were most effective in reducing, delaying, or preventing marijuana use, and explored whether the characteristics of the participants and program implementation factors were related to program success. Results showed that programs with high peer interaction were more effective than those with low peer interaction and that the delivery method instead of the program content determined the success of the program. Finally, aside from fidelity and quality of delivery, classroom and time management skills were additional recurrent salient process factors of quality implementation (6).

This study aims to, first, evaluate the program implementation quality of the Tier 1 Program (Secondary 1 Curriculum) based on systematic observation for the third year of the Full Implementation Phase (FIP-S1:2008–2009) conducted via the "Co-Walker Scheme". Second, the inter-relationships among different aspects of program delivery, including student interest, student participation and involvement, classroom control, interactive delivery method, strategies to enhance student motivation, use of positive and supportive feedback, instructors' familiarity with the students, opportunity for reflection, degree of achievement of the objectives, and lesson preparation were examined. Based on the literature it was predicted that there would be positive relationships among different aspects of program delivery. Third, the current study also attempted to explore the predictors of overall implementation quality and program success.

Methods

Among the 197 schools that joined the Secondary 1 Program of the Project P.A.T.H.S. in the third year of the FIP in 2008–2009 school year, a total of 94 schools adopted the full program (i.e., 20-h program involving 40 units) and 103 schools adopted the core program (i.e., 10-h program involving 20 units). Among these schools, 157 schools (88 adopted the full program and 69 adopted the core program) were observed under the Co-Walker Scheme (Table 1). Only 40 schools were not observed owing to school refusal and time limitation. On the whole, 79.7% of the participating schools were observed in the current study.

Instrument

A rating form was designed for each observer to record how each teaching unit was implemented in the classroom. It comprises four major areas: basic information of the class, integration with the school formal curriculum, program fidelity and adherence, and

Table 1   Basic information of observed schools.

Basic information	Hours of training		
	10-h	20-h	Total
Total number of schools observed	69	88	157
Total number of units observed	94	139	233
Number of units observed per school	1–3	1–4	1–4
Average number of students per class	34.87	39.33	37.53
Average number of instructors per class	2.15	2.04	2.08
Average duration of observation, min	34.32	31.27	32.50

Note: The observed units of Secondary 1 Program covered 14 positive youth development constructs, i.e., bonding, social competence, emotional competence, cognitive competence, behavioral competence, moral competence, self-efficacy, prosocial norms, resilience, self-determination, spirituality, clear and positive identity, beliefs in the future, and prosocial involvement.

quality of program delivery. For program fidelity and adherence, the observers were required to rate the degree of adherence and record the time used to implement the unit.

The Curriculum Delivery Assessment Scale was used to measure the quality of program delivery in the areas of student interest, student participation and involvement, classroom control, use of interactive delivery method, use of strategies to enhance student motivation, use of positive and supportive feedback, instructors' familiarity with the students, opportunity for reflection, degree of achievement of the objectives, time management, quality of preparation, overall implementation quality, and success of implementation. The rating form also consists of three open-ended questions for the observers to fill in further information. These included their feelings towards the lesson, other feelings or observations, and comments made by the instructors. This scale was used in previous process evaluation studies (26) where it was found to be valid and reliable.

Procedures

School consent was obtained prior to the study, which was carried out from September 2008 to May 2009. Each teaching unit was observed by an observer. The observers were seven colleagues of the Project P.A.T.H.S., and they are all registered social workers. Before conducting the observational study, the observers were trained to standardize the data collection procedure and rating of classroom observation, to ensure the quality and consistency of the data collected.

Results

As indicated in Table 1, systematic observation of one to three teaching units in schools that adopted the core program and one to four teaching units in schools that adopted the full program was conducted. There were 233 units in 157 schools under observation, which covered 14 positive youth development constructs, including bonding, social competence, emotional competence, cognitive competence, behavioral competence, moral competence, self-efficacy, prosocial norms, resilience, self-determination, spirituality, clear and positive identity, beliefs in the future, and prosocial involvement. The average duration of observation was 32.50 min/unit. The average number of students and instructors per class were 37.53 and 2.08, respectively.

As shown in Table 2, a majority of the observed units was incorporated into the school formal curriculum (63.9%), such as Life Education, Civic Education, Liberal Studies, Integrated Humanities, Moral Education, Social Studies, Personal Growth, and Religious Studies. Approximately one-third of observed units were implemented outside the formal curriculum (36.1%), such as after school hours, during holidays, teachers' periods, post-examination days, assemblies or camps. The average overall adherence to the curriculum manuals was 72.96% (Table 3). However, one observed unit was rated 0%. The incredible low rate is attributed to the fact that the instructors spent too much time on building rapport between students and instructors. The lesson was commented by the observer as follows:

> "*That was the first session for instructors teaching the class, and they spent a long time on building rapport. As a result, insufficient time was allocated to cover the main topics for the unit. Instructors did not respond to the questions raised by students who showed great interest in the topic.*"

To obtain an overall picture, the ratings for each item across all units were averaged. Concerning the implementation quality, percentage analyses of the responses of the participants to the items showed that the implementation quality was high. Results in Table 3 revealed that the mean rating of lesson preparation was high (5.34 on a 7-point rating scale), and classroom control was also considered as successful (5.20

Table 2   The percentage of observed Tier 1 Program (Secondary 1) units implemented in different modes for schools adopting 10 and 20 hours of implementation.

Different modes	Hours of implementation		
	10-h	20-h	Total
Incorporated into the formal curriculum[a]	44 (46.8%)	105 (75.5%)	149 (63.9%)
Outside the formal curriculum[b]	50 (53.2%)	34 (24.5%)	84 (36.1%)
Incorporated into the formal curriculum and outside the formal curriculum	0 (0%)	0 (0%)	0 (0%)
Incorporated into the formal curriculum and other time slots	0 (0%)	0 (0%)	0 (0%)
Total	94 (100%)	139 (100%)	233 (100%)

Note: [a]Formal curriculum included Life Education, Civic Education, Liberal Studies, Integrated Humanities, Moral Education, Social Studies, Personal Growth, and Religious Studies. [b]Outside formal curriculum refers to the implementation after school, during holidays, teachers' periods, post-exam days, assemblies or camps.

Table 3   Cronbach α coefficients, means, and standard deviations of the curriculum delivery assessment scale and average adherence rate.

Quality of curriculum delivery	Corrected item – total correlation	Total α if item is deleted	Mean	Standard deviation
1. Student interest	0.66	0.94	5.15	0.83
2. Student participation and involvement	0.74	0.93	5.10	0.78
3. Classroom control	0.69	0.94	5.20	1.03
4. Interactive delivery method	0.71	0.93	4.92	0.79
5. Strategies to enhance student motivation	0.74	0.93	4.94	0.89
6. Use of positive and supportive feedback	0.75	0.93	4.88	1.02
7. Instructors' familiarity with the students	0.47	0.94	4.81	1.10
8. Opportunity for reflection	0.80	0.93	4.87	0.99
9. Degree of achievement of the objectives	0.86	0.93	5.08	0.89
10. Time management	0.57	0.94	5.07	0.96
11. Lesson preparation	0.63	0.94	5.34	0.75
12. Overall implementation quality	0.89	0.93	4.94	0.86
13. Success of implementation	0.87	0.93	5.01	0.89
	Cronbach's α=0.94		Average adherence=72.96%	

on a 7-point rating scale). An examination of different curriculum delivery aspects showed that the mean ratings were generally high (over 4 on a 7-point rating scale), suggesting that the program implementation quality was high.

Reliability analysis showed that the Curriculum Delivery Assessment Scale was highly reliable (α=0.94; mean inter-item correlations=0.56; Table 3).

In Table 4, results of Pearson correlation analyses showed that all 13 items (including student interest, student participation and involvement, classroom control, interactive delivery method, strategies to enhance student motivation, use of positive and supportive feedback, instructors' familiarity with the students, opportunity for reflection, degree of achievement of the objectives, time management, lesson preparation, overall

implementation quality, and success of program implementation) were positively correlated as predicted. Particularly, the overall implementation quality (item 12) and success of implementation (item 13) were highly correlated (r=0.89, p<0.01). Moreover, both were significantly and positively correlated with all the other items, and had relatively high correlations with opportunity for reflection (item 8, r=0.72 and r=0.73, p<0.01), and degree of achievement of the objectives (item 9, r=0.83 and r=0.87, p<0.01).

Based on these findings, separate standard multiple regression analyses were performed to examine the contribution of the different aspects of program delivery to (i) overall implementation quality and (ii) success of implementation. Results in Table 5 indicated that the overall implementation quality

Table 4   Intercorrelations among items of the curriculum delivery assessment scale.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Student interest	1.00												
2. Student participation and involvement	0.75**	1.00											
3. Classroom control	0.47**	0.58**	1.00										
4. Interactive delivery method	0.54**	0.66**	0.52**	1.00									
5. Strategies to enhance student motivation	0.54**	0.55**	0.49**	0.70**	1.00								
6. Use of positive and supportive feedback	0.54**	0.58**	0.54**	0.56**	0.64**	1.00							
7. Instructors' familiarity with the students	0.12	0.27**	0.50**	0.32**	0.31**	0.37**	1.00						
8. Opportunity for reflection	0.55**	0.58**	0.57**	0.60**	0.63**	0.65**	0.52**	1.00					
9. Degree of achievement of the objectives	0.65**	0.66**	0.58**	0.59**	0.70**	0.65**	0.45**	0.77**	1.00				
10. Time management	0.31**	0.38**	0.45**	0.29**	0.42**	0.47**	0.40**	0.47**	0.54**	1.00			
11. Lesson preparation	0.50**	0.48**	0.35**	0.56**	0.57**	0.55**	0.25**	0.51**	0.55**	0.45**	1.00		
12. Overall implementation quality	0.66**	0.71**	0.66**	0.64**	0.70**	0.71**	0.44**	0.72**	0.83**	0.57**	0.57**	1.00	
13. Success of implementation	0.64**	0.69**	0.62**	0.60**	0.67**	0.64**	0.43**	0.73**	0.87**	0.56**	0.57**	0.89**	1.00

Note: **p<0.01.

Table 5   Summary of the multiple regression analyses.

Overall implementation quality		Success of implementation	
Significant predictors	Standardized β	Significant predictors	Standardized β
1. Student participation and involvement	0.13*	1. Student participation and involvement	0.15**
2. Classroom control	0.12**	2. Classroom control	0.10*
3. Use of positive and supportive feedback	0.12*	3. Degree of achievement of the objectives	0.54**
4. Degree of achievement of the objectives	0.34**	4. Time management	0.08*
5. Time management	0.11**		
	$R^2=0.80$		$R^2=0.80$
	$F(11, 221)=77.90$**		$F(11, 221)=81.30$**

Note: *$p<0.05$; **$p<0.01$.

was significantly predicted by student participation and involvement ($\beta=0.13$, $p<0.05$), classroom control ($\beta=0.12$, $p<0.01$), use of positive and supportive feedback ($\beta=0.12$, $p<0.05$), degree of achievement of the objectives ($\beta=0.34$, $p<0.01$), and time management ($\beta=0.11$, $p<0.01$). The model explained for 80% of the variance in overall implementation quality [$F(11, 221)=77.90$, $p<0.01$]. Similarly, success of implementation was significantly predicted by student participation and involvement ($\beta=0.15$, $p<0.01$), classroom control ($\beta=0.10$, $p<0.05$), degree of achievement of the objectives ($\beta=0.54$, $p<0.01$), and time management ($\beta=0.08$, $p<0.05$). The model explained for 80% of the variance in implementation success [$F(11, 221)=81.30$, $p<0.01$].

Discussion

The objectives of this study were threefold: (i) to investigate the quality of program implementation, (ii) to explore the inter-relationships among different aspects of program delivery, and (iii) to examine the predictors of implementation quality and program success. Overall, the findings showed that program delivery and implementation were positive. These findings are generally consistent with the previous findings based on Co-Walkers' observations (26, 27) and other process evaluation findings (28, 29).

There are several salient observations which could be highlighted from the findings. Firstly, in comparison with the international literature (30), the overall level of program adherence was generally high (72.96%). However, the findings showed a slight decrease in mean program adherence rate when compared with findings in the previous years (28, 29, 31). From the comments of the Co-Walkers' observations, although the program implementers made some appropriate modifications to meet students' needs, the main objectives of each unit in the curriculum were generally adhered. Noteworthy, the adherence level was determined solely by the Co-Walker alone instead of using blind raters in the process evaluation studies (28, 29) and the reports submitted by the program implementers. Furthermore, the observations were conducted within the context of school visits instead of systematic observations in the context of process evaluation.

Secondly, the findings showed that a majority of the observed units was incorporated into the school formal curriculum. This observation suggests that it is viable to incorporate the program materials into the school formal curriculum. There are two advantages for such incorporation. First, because a majority of program implementers are teachers, they bear heavy workloads derived from teaching and administrative tasks. Such an arrangement can minimize their extra workloads, as teachers do not need to spend extra hours on teaching the Tier 1 Curriculum. Second, it motivates students to participate in the program more attentively because the program materials are regarded as part of the formal curriculum instead of an extracurricular activity. In addition, the finding also revealed that most of the schools adopted co-teaching mode in the Tier 1 Program. Although the designed activities could be implemented by one instructor alone, it is desirable for running activities through a co-teaching mode in the classroom (6). Murawski and Dieker (32) also supported the notion of co-teaching at school as it was very important and significant for successful program implementation.

The third observation is based on the findings from the Curriculum Delivery Assessment Scale, the program delivery could be regarded as very positive. Lesson preparation (item 11), classroom control (item 3), students' interest (item 1), and students' participation and involvement (item 2) were the four items with the highest ratings. This finding was consistent with the subjective outcome evaluations on the Tier 1 Program (27, 33) and the previous process evaluation findings (28, 29). Another possible contributing factor that leads to the successful program delivery might be attributed to the 20 h training workshop provided for program implementers. From the previous evaluation findings, the training workshops helped the program implementers to become familiar with the curriculum before the program implementation. It also facilitated the acquisition of effective program implementation skills, teaching strategies, and most importantly, workers' motivation and mission in promoting positive youth development were developed (15). Weissberg and O'Brien (34) also suggested that providing opportunities to demonstrate teaching and classroom management skills for program implementers could enhance their program delivery skills.

Comparatively speaking, instructors' familiarity with the students (item 7), use of positive and supportive feedback (item 6), and interactive delivery method (item 4) were the three items with the lowest ratings, although the scores of these three items were still above 4.8. These observations are generally consistent with the findings reported previously. Regarding the relatively lower levels of use of positive and supportive feedback and interactive delivery methods, a possible explanation for these observations is that the time for each unit was rather tight in most participating schools (average duration of each unit was 32.5 min in Table 1). Some program implementers did repeatedly mention that the implementation time was insufficient for running all activities, hence they did not give any feedback to students and had no opportunity to use interactive delivery methods, which were regarded to be more time-consuming.

Congruent with previous findings, overall implementation quality and success of implementation were significantly predicted by four common aspects of program implementation, including student participation and involvement, classroom control, degree of achievement of the objectives, and time management (15, 33). It is conjectured that good classroom discipline facilitates both teaching and learning. The positive learning atmosphere enables the program implementers to run the curriculum more smoothly and therefore have better time management. Furthermore, the positive learning atmosphere provides students with the opportunities for participation, involvement, and reflection. Consequently, these factors contribute to higher degree of achievement of the curriculum objectives and lead to successful curriculum delivery. Obviously, this conjecture provides a good conceptual framework for future research.

There are several limitations of the present study. First, as this study is cross-sectional in nature, it might not be able to capture the dynamic causal relationships involved. It is suggested that longitudinal studies should be carried out to examine the cause-and-effect relationship between program delivery and program success.

Second, because only one Co-Walker was involved in the observations, it is possible that the findings might be affected by the subjective evaluation of the Co-Walkers. Nevertheless, as systematic training had been provided to the Co-Walkers, this possibility might not be high.

Third, as the observed sessions were not carried out in a random manner, generalizability of the present findings could be limited. For units in the early phase of the program, the instructor could spend more time to build up rapport with their students. By contrast, the instructor could spend more time for consolidation and assessment towards the later phase of the program. It is recommended that units in different stages of the program implementation should be randomly selected to give a more comprehensive picture of the program implementation.

Finally, another possible influential factor is that the students could become more cooperative or quiet when visitors or strangers observe their lessons. The program implementers could also be affected and tend to be more nervous or motivated to teach well. Therefore, prolonged engagement and observations would be helpful to give a stable picture about the program implementation process.

Despite these limitations, the findings of the present study provide substantial support for the implementation quality of the Tier 1 Program of the Project P.A.T.H.S. in Hong Kong, which are consistent with the previously reported findings (35–37).

Acknowledgments

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