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Effectiveness of a play-integrated primary one preparatory programme to enhance a smooth transition for children

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Abstract

This study tested the effectiveness of a play-integrated preparatory programme to enhance a smooth transition for children from kindergarten to primary one. A randomized controlled trial was employed and 142 families were recruited. Children in the experimental group experienced greater happiness, fewer worries and lesser difficulty in psychological adjustment than children in the control group, providing evidence that the play-integrated preparatory programme is effective in enhancing a smooth transition for children. Findings from this study promote the awareness in parents and teachers that play is an important part of children's lives, which is essential for their normal growth and development.

Keywords

children, community health psychology, education, psychological distress, quantitative methods

Introduction

Moving on to a primary school is an important milestone for children, marking the beginning of their formal education. Yet it can be a very stressful experience for a child, as there is a huge leap from a free and relaxed environment to a relatively structured school life (Sanders et al., 2008; Wong, 2003; Yeboah, 2002). Most of the worry and anxiety experienced by primary one students can be attributed to the change in the pattern of learning, and the unfamiliar physical and social setting of a primary school. Children need to adapt to changes that include a larger school and class size, a tighter timetable, longer school hours with frequent changes of subject and teacher, a more subject-based curriculum, stricter school rules and more homework demanding the application of literacy and numeric skills. Additionally, children have to deal with various challenges, such as reconstructing their social activities, building

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up new relationships and adapting to a new environment. Therefore, children are exposed to considerable anxiety and stress while moving on to a primary school.

Although a mild to moderate level of anxiety is crucial for learning and can promote better adjustment (Janis, 1958), excessive anxiety can be detrimental to a child's physical and mental well-being. There is evidence that excessive anxiety hinders children's coping ability, affects their social adjustment, causes behavioural changes and encourages negative emotional behaviour (Becher and Sing, 1997; Li and Chung, 2009; Li et al., 2007), all of which have the potential to impair learning capacity and hinder future learning (Featherstone, 2004). Tomb and Hunter (2004) pointed out that some school children even developed serious mental health problems as a result of prolonged anxiety, such as disruptive behaviour, difficulties related to communication and sleep, low self-esteem, attention and learning disorders and depression. Ensuring a smooth and successful transition is therefore vital for children's physical and psychosocial well-being, and to their continuing cognitive achievements (Fabian and Dunlop, 2006; Sanders et al., 2008; Yeboah, 2002).

Helping children to be familiar with school life and attaining a smooth transition to primary one are the major objectives of the Education Bureau in Hong Kong (Education Department, 2001). The most common primary one preparatory programme run by schools in Hong Kong involves teaching children how to organize their school bags, observe school rules and regulations, familiarize themselves with school timetables and different subjects and record homework in the student handbook. Nevertheless, most of these activities are focused on the physical preparation of children, and the psycho-social needs of children in the process of transition are often overlooked by schools and parents. This is because most parents in Hong Kong have high expectations of their children, and regard education achievement as the top priority in child care (Li et al., 2010a). Additionally, the common attitude held by most Hong Kong parents is that academic achievement is related to a better career and a brighter future (Li et al., 2010a). Under such circumstances, some parents adopt components of a harsh parenting style and believe that, if they praise children when they do well, this may cause failures in the children if they become too proud of themselves (Chen et al., 2000).

There has been an increase in the use of play activities to help children attain a smooth transition to primary one in western countries (Fabian and Dunlop, 2006). Indeed, play not only has a major role in enhancing physical well-being but also in promoting psychosocial well-being of children (Fabian and Dunlop, 2005). Both cognitive-developmental and psychoanalytic theorists believe that play is essential for children's normal growth and development, an expression of their understanding about the world, and could provide opportunities for them to develop mastery of self and the environment (Piaget, 1963). During the past few decades, play has been well documented as a crucial role in the optimal growth, learning and development of children from infancy through adolescence (Becher and Sing, 1997). Children can develop all their abilities: movement; hand skills; communication; self-care; social, creativity and intellectual skills through play. It can also build up children's understanding of people and things around them and influence the development of their character and personality. Although there is a substantial body of evidence of play in promoting psychosocial well-being in children (Li et al., 2007, 2011), there is a lack of empirical evidence to determine the effectiveness of using play to help children adapt smoothly to primary school life. Additionally, despite the importance of play being well received in western countries, play has traditionally been viewed as a secondary concern when compared with academic performance by many Hong Kong Chinese parents (Becher and Sing, 1997). It is therefore unclear whether it is effective, feasible and appropriate to incorporate play into the preparation of children for the transition to primary school in the Hong Kong

Chinese context as some parents consider play as an undesirable interference to studying. Given these issues, there is an imperative need for more rigorous empirical scrutiny of the effectiveness of incorporating play activities into a primary one preparatory programme to help children enjoy a smooth transition to primary school life.

Hypotheses of the intervention

The aim of this randomized controlled trial intervention was to test the effectiveness of a play-integrated preparatory programme to enhance a smooth transition for children from kindergarten to primary one. The hypotheses of the intervention were:

> Hypothesis 1: Children who received the play-integrated primary one preparatory programme would report higher levels of happiness when compared with children who received assessment only.

> Hypothesis 2: Children who received the play-integrated primary one preparatory programme would report lower levels of worry when compared with children who received assessment only.

> Hypothesis 3: Children who received the play-integrated primary one preparatory programme would have lesser difficulty in psychological adjustment as perceived by parents during the transition when compared with children who received assessment only.

> Hypothesis 4: Children who received the play-integrated primary one preparatory programme would have more strengths in psychological adjustment as perceived by parents during the transition when compared with children who received assessment only.

Theoretical framework

This study was guided by Lazarus and Folkman's (1984) theory of cognitive appraisal, stress and coping and Pigaet's (1963) theory of cognitive development. The theory of cognitive appraisal of stress and coping throws light on the evolution of children's stress over their transition experience, whereas Piaget's theory of cognitive development was primarily responsible for guiding the researchers of the current study to design age-appropriate play activities to promote coping for children according to their specific developmental stage.

Lazarus and Folkman's (1984) theory of cognitive appraisal, stress and coping is one of the most commonly used theoretical perspectives on how people cope with stress. This transactional model is also most frequently applied to research on children (Li et al., 2007, 2010b; Su and Ryan-Wenger, 2007). According to Lazarus and Folkman, stress is defined as a dynamic ongoing relationship between the person and environment, and cognitive appraisal is the process by which an individual evaluates or judges a potentially stressful event for meaning and significance to well-being. Coping is a process involving cognitive and behavioural attempts to meet the demands of, and to control the emotions generated by the situation. Careful assessment of stress and coping processes are a necessary step towards designing appropriate interventions to minimize children's anxiety and enhance their coping with the transition to primary school life.

Transition from kindergarten to primary school can be a very stressful experience, which may create a potential threat to children. Lazarus and Folkman (1984) postulated that individuals' evaluations are influenced by their perceptions of control over a potential threat. Previous research findings have shown that lack of control over the physical and social setting of a school is one of the major sources of stress, which may cause considerable anxiety in children when they move on to a primary school (Sanders et al., 2008; Yeboah, 2002). We reasoned that if children believe they have adequate control over the physical and social setting of a school, they will perceive less worry and report higher levels of happiness. Therefore, a primary goal of any primary school preparatory programmes is to assist children to regain their sense of self-control in order to minimize their worry. We anticipated that visiting a primary school would increase children's familiarity with the environment and, thereby enhance their sense of personal control. We surmised also that through participating in play activities, children can develop all their abilities: interpersonal and communication skills; self-care; social; and creativity. Children were not only encouraged to have fun, but also taught to desensitize potential stressful situations and to instil a sense of control over the situation in which they were involved. This is because it gave an opportunity for the child to practise school routines and interact with the environment in an active and non-threatening rather than a passive way.

Piaget's theory provides a broad overview of cognitive development. Piaget (1963) stressed that children learn only when their curiosity is not fully satisfied. Moreover, children learn best when they are actually doing the work themselves and creating their own understanding of what is going on, instead of being given explanations by adults. Therefore, education should build on the child's natural curiosity and natural tendency to act on the world in order to understand it. Piaget also found that certain mental abilities tended to appear at certain stages of development. In Hong Kong, the average age for children to be promoted from kindergarten to primary one is about five to six years old. According to Piaget's (1963) theory of cognitive development, children in this age group are at the same developmental stage (preoperational). The most important development during this stage is in the use of language. Children do not interpret objects and events in terms of general properties; they interpret them in terms of their relationships or their use of them. Children in this stage are said to be egocentric – the world is viewed entirely from the child's own perspective.

Methods

Design

This study was carried out in one of the largest public housing estates in Hong Kong. A randomized controlled trial, two-group pre-test and repeated post-test, between-subjects design was employed. A single-blinded technique was used, in which the research assistant who was responsible for data collection, was unaware of the treatment allocation of the study participants. A simple complete randomization method was incorporated in this study, which ensured that every participant had an equal chance of being assigned to any group. Although one disadvantage of this method is yielding a disparate sample size in the study groups, the benefit of using simple complete randomization outweighs its potential risks. We put two sealed opaque envelopes in a box, with one labelled experimental and another labelled control. Each parent was asked to draw one envelop from the box for each child to determine group assignment. Another sealed opaque envelop with the same group assignment being drawn was then put back in the box again before the next assignment.

Participants

Chinese parents living in Tung Chung with a child to be promoted from kindergarten to primary one education, and meeting the inclusion criteria, were invited to participate. Tung Chung is a new town with both private and low cost public housing estate with mostly young families. The criteria were the following: (1) parent and child must be able to read and write Chinese; and (2) parent must have had primary school education or above. Children with identified cognitive and learning problems were excluded, as were parents with such problems. The effect size was uncertain since no similar study had been conducted. By reference to the available resources, including the time needed to implement interventions and the manpower available, a convenience sampling of 142 families, with a parent and a child in each family, was recruited during the school summer holidays in 2009.

Intervention

In the control group, children had no intervention except that an information leaflet for parents on helping children to adapt to the new primary school life published by the Education Bureau was given to each parent at the end of baseline data collection. The content of the information leaflet include the following:

- the aims of primary education;
- the layout of the school and its facilities;
- the details of school life, including timetabling, school regulations, homework policies, use of textbooks/learning packages and exercise books, assessment methods, policies and procedures on sick leave and school routines;
- the mode of home–school collaboration.

In the experimental group, children received the play-integrated primary one preparatory programme approximately one month before the start of the academic year in a primary school. Interventions were run in small groups of eight to 12 children over four consecutive weeks. They consisted of four group sessions, each lasting about two hours. Previous studies (Li et al., 2007, 2011) found that school-age children are more peer oriented and they could benefit from group teaching and learning. Moreover, it offers children an opportunity to interact with their peers and creates a non-threatening atmosphere for children to express their concern and fear. Additionally, in a group, children can easily express their aggressive feelings and work through their fears about a threatening event through observing or by joining in activities initiated by other group members.

There were two themes underlying the intervention. First, a variety of activities were adopted to help the children become familiar with primary school life, which included teaching them how to organize their school bags, observe school rules and regulations, familiarize themselves with school timetables and different subjects and record homework in the student handbook. Second, each session of the programme incorporated a variety of play activities falling into four major domains: building up children's ability in (1) problem solving, (2) emotional expression, (3) interpersonal communication and (4) coping with stress.

During the first session, children were taken on a tour starting at the school entrance, then to the covered playground, general office, snack shop, school hall, library, computer room, toilet, staff room and finally to the classroom. The tour visit aimed to enhance participants' personal control over an unfamiliar environment of a primary school, which is completely different with the physical layout in the kindergarten. All other play-integrated primary one preparatory activities were conducted in a classroom.

To ensure that the intervention could be implemented appropriately and also to control the integrity and uniformity of treatment, an intervention protocol was developed. The protocol contains the schedule of the activities and the content of the play-integrated preparatory programme is described in Table 1.

The content of the preparatory programme that related to the primary school life was first reviewed by two teachers with more than 10 years' experience of teaching primary school children. They reported that the content is appropriate for those childrend to be promoted from kindergarten to primary one education. The content of the play activities was then sent to the Playright Children's Playground Association in Hong Kong for content validation. The Playright Association is a professional organization that organizes a variety of children's play programmes for the public, and offers education and training to different professionals and organizations in Hong Kong. The Playright Association was asked to assess the appropriateness and dosage of the play activities in terms of the amount, frequency, duration and breadth. This measure ensured the dosage of play activities delivered would be adequate to assess the quality and to manage outcomes, such as children's levels of happiness and worry. Because ways of implementing play activities may be different despite a standard protocol, only a research assistant and two facilitators conducted the play activities for the experimental group throughout the study. This

Table 1. Play-integrated preparatory programme for primary one – protocol

Session	Objectives	Activities[a]
One	1. Understand primary school life	• *Introduction to primary school life* • Basic classroom rules and regulations, such as forming a line or put up your hand before talking • The classroom setting, e.g. seating arrangements, blackboard, teacher's desk • School timetable, and the different subjects
	2. Understand classroom roles and regulations	• *Ice-breaking game*: Children are asked to sit down in a circle. The facilitator will select two children at random each time and ask them to run in opposing directions round the circle until they meet each other, when they are required to introduce themselves
	3. Understand ways of emotional expression	• *DOs and DON'Ts*: Each child will be given two pieces of paper, one labelled *DO* and the other *DON'T*. After introducing basic classroom rules and regulations, the assistant will read out different scenarios one by one. Children are required to hold up the paper to indicate whether the scenario can or cannot be done • *Tour of school*: Children will be taken on a tour starting at the school entrance, then to the playground, snack shop, general office, hall, library, computer room, toilets, staff room and finally to the classroom. The nature and purposes of each area will be explained during the tour • *Balloon game*: Children will be introduced to various common emotions, such as happiness, sadness or anger. The facilitators will prepare some long balloons, a paper cup attached to each end. The children will then be separated into two groups, one with their ears to the cups, and the other with their mouths on them. Children in the group with their mouths on the cups are invited to express some examples of emotions to the group with their ears on the cups. The groups will then change ends to allow each child the opportunity to express their emotions
Two	1. Practise daily activities in school	• *Warm-up game*: Children will be asked to sit in a circle. The facilitator will first randomly select a child and ask them to introduce themselves. Then the child has to call out the name of another member of the group and ask them to do the same
	2. Understand relationships with classmates and teachers	• *Questions and answers*: A review of the content of previous sessions, and help in correcting any misconceptions revealed by the children
	3. Learn and practise communication skills	• *Game, packing a school bag:* Children will be given various items, such as textbooks, toys, mobile phones or handbooks. Children are then asked to sort out which items should be put into their bag and brought to school

Table 1. (Continued)

Session	Objectives	Activities[a]
		• *Game, communication skills*: Children are asked to sit chairs in a circle. Each child will have an opportunity to be selected to stand inside the circle, when they will be required to ask the others sitting on the chairs for a seat, in a polite manner. Group members can either refuse or accept the request, but reasons must be provided for the decision. There will be a debriefing after the game on the correct ways of communication.
Three	1. Understand the school timetable	• *Warm-up game*: Same as in Session Two • *Questions and answers*: Reviewing the content of the previous session and helping to correct any misconceptions revealed by the children
	2. Learn about time arrangement	• *Game, writing a timetable*: Children will be given crayons to write their own timetables • *Introduction to extra-curricular activities*: Facilitator will demonstrate different postures or gestures representing different extra-curricular activities of the school, with the help of coloured pictures. Children are then asked to repeat the posture or gesture, in response to the activity the facilitator calls out
	3. Know how to cope with stress	• *Stress management game*: Children are invited to discuss their own ways of coping with stress. They will then be introduced to different coping strategies, such as seeking social support from parents, teachers and friends, watching TV, reading stories, crying or going to sleep. All these suggestions will be written up on the board, and various different scenarios given to the children. They are invited to choose the best way of coping by using a toy gun to fire at the 'target' – the particular method of coping appearing on the board • *Practice in writing up a school handbook*
Four	1. Understand ranking and academic results	• *Warm-up game*: Same as in Session Two • *Questions and answers*: A review of the previous session and help with correcting any misconceptions
	2. Report what they have learnt in school to their parents	• *Game, understanding ranking and academic results*: Each child will be given several chips, which they must throw on to a table about two metres away. Several sheets of paper are laid out on the table, each representing a different mark. The facilitator will help calculate the total marks that each child has scored, according to where the chips landed. The major aim of the game is to make children understand that they must make an effort to achieve a better result

(Continued)

Table 1. (Continued)

Session	Objectives	Activities[a]
		• *Game, problem-solving skills*: Children are asked to stand and form a circle. Each child must then come closer and closer to the others and randomly hold hands with them. Eventually, a 'knot' will be formed made up of all the children's hands. They are then asked to find a way to undo the knot, but without letting go of their hands
	3. Learn how to seek help when faced with problems	• *Game, writing up a school handbook:* Each child will be given a school handbook, where they must write down the key points of what they have learnt in that session. They are also required to copy some instructions/notices/messages into their handbooks by referring to details of content on the board • *Debriefing*: Summing up what has been learnt and addressing questions or concerns • *Graduation ceremony*: Each child will be given a certificate to certify that they have successfully gone through the transition

Note: [a]All activities will be carried out by a research assistant and two facilitators.

protected the children and minimized threats to internal validity. Before the study, the research assistant and two facilitators received training by the Playright Association on how to implement play activities for children. In addition, discussion, role play and rehearsal of the play activities by the research assistance and two facilitators with the staff in the Playright Association were organized before beginning the study.

Through play, children would develop their abilities including interpersonal and communication skills, self-care, social and creativity. Children were not only encouraged to have fun, but also taught to desensitize potential stressful situations and to instil a sense of control over the situation in which they were involved. Moreover, during play, each child was closely observed for any signs of distress, misinterpretation of explanations and difficulties in dealing with the procedures so that individual guidance and support could be provided accordingly. Most importantly, the play-integrated primary one preparatory programme gave an opportunity for the child to practise school routines and interact with the environment in an active and non-threatening rather than a passive way.

Measures

Visual Analogue Scale (VAS). VAS was used to assess children's levels of happiness and worry. For happiness, we used a horizontal 10 cm line on a piece of paper having different facial expressions supplemented by the descriptive words 'very happy' at one end and 'not happy' at the other. Higher scores indicate lower levels of happiness. For worry, we used a similar diagram, but with the facial expressions supplemented by the words 'Not worried' at one end and 'very worried' at the other. Higher scores indicate higher levels of worry. Children used a movable indicator to show their levels of happiness or worry. The VAS is one of the most widely used measurement tools (Lara-Muñoz et al., 2004) because it is easy to administer, simple for children to understand and a valid method for measuring subjective feelings. Additionally, one of the biggest advantages of using VAS is that it will not be affected by the limited test-taking ability of younger children. Previous studies have found VAS to be a reliable, valid and sensitive measure of individual subjective feelings (Davey et al., 2007; Lara-Muñoz et al., 2004; Li et al., 2007).

Strengths and Difficulties Questionnaire (SDQ). The SDQ is a brief but comprehensive screening instrument used to assess psychological adjustment of children and adolescents, three to 16 years old, which can be filled out by parents (Goodman, 2001). The SDQ has been widely used for screening as part of a clinical assessment, as a treatment-outcome measure or a research tool (Goodman, 2001). The SDQ has been translated into 40 languages (http://www.sdqinfo.com). It contains five subscales, four assessing difficulties (emotional symptoms, conduct problems, hyperactivity-inattention and peer problems), and one assessing strengths (pro-social behaviour). Each subscale contains five items, and participants are asked to report the degree to which a particular statement is true for them. Each item is rated on a four-point Likert scale, and scored from 0 to 2 (0 = not true, 1 = somewhat true, 2 = certainly true). Total difficulties scores are obtained by adding all four difficulties subscale scores together to obtain a total ranging from 0 to 40, with higher scores indicating higher levels of difficulties. In the pro-social subscale, total possible scores range from 0 to 10, higher scores indicating higher levels of strengths.

The psychometric properties of the SDQ have been empirically tested (Goodman, 2001; Matsuishi et al., 2008; Riso et al., 2010), showing good concurrent validity, excellent construct validity and adequate internal consistency reliability. The results of confirmatory factor analysis have added further evidence of the SDQ's construct validity (Yao et al., 2009). The Chinese version of the SDQ has been used with children and teenagers aged three to 16 years (Toh et al., 2008; Yao et al., 2009), the findings demonstrating acceptable psychometric properties for use with Chinese people.

Data collection procedures

Recruitment and data collection were conducted during summer 2009. Participants were recruited through referrals from the Hong Kong Sheung Kung Hui Welfare Council in Tung Chung. Prior to the study, ethical approval was obtained from the Institutional Review Board of the University of Hong Kong. The centre's head of Sheng Kung Hui integrated services in Tung Chung was fully informed of the study's purpose, nature, design and duration. Written consent was obtained from parents after they were told the purposes of the study and agreed to participate. Children were also invited to put their names on a special individual assent form. Both children and parents were told that they were under no obligation to participate, could withdraw from the study with no prejudice at any time and were assured of the confidentiality of the data to be collected.

After consent forms were signed, a research assistant collected demographic and baseline data from participants. Data collection was divided into three phases: at the time of recruitment (T1: pre-intervention), at six weeks after the last session of the intervention (T2) and three months after the last session of the intervention (T3). Parents were asked to respond to the Chinese version of the SDQ, and children to the VAS.

Data analysis

Intention-to-treat analysis was done with missing data substituted by the last-observation-carried-forward procedure. The Statistical Package for Social Sciences (SPSS) software, version 18.0 for Windows was used for data analysis. The homogeneity of the experimental and control groups regarding the demographic and baseline data were assessed using inferential statistics (independent *t*-test and chi-square). Mixed between-within subjects ANOVA (split-plot ANOVA) was used to determine which intervention was more effective in increasing the levels of happiness and minimizing the levels of worry in children and enhancing psychological adjustment of children

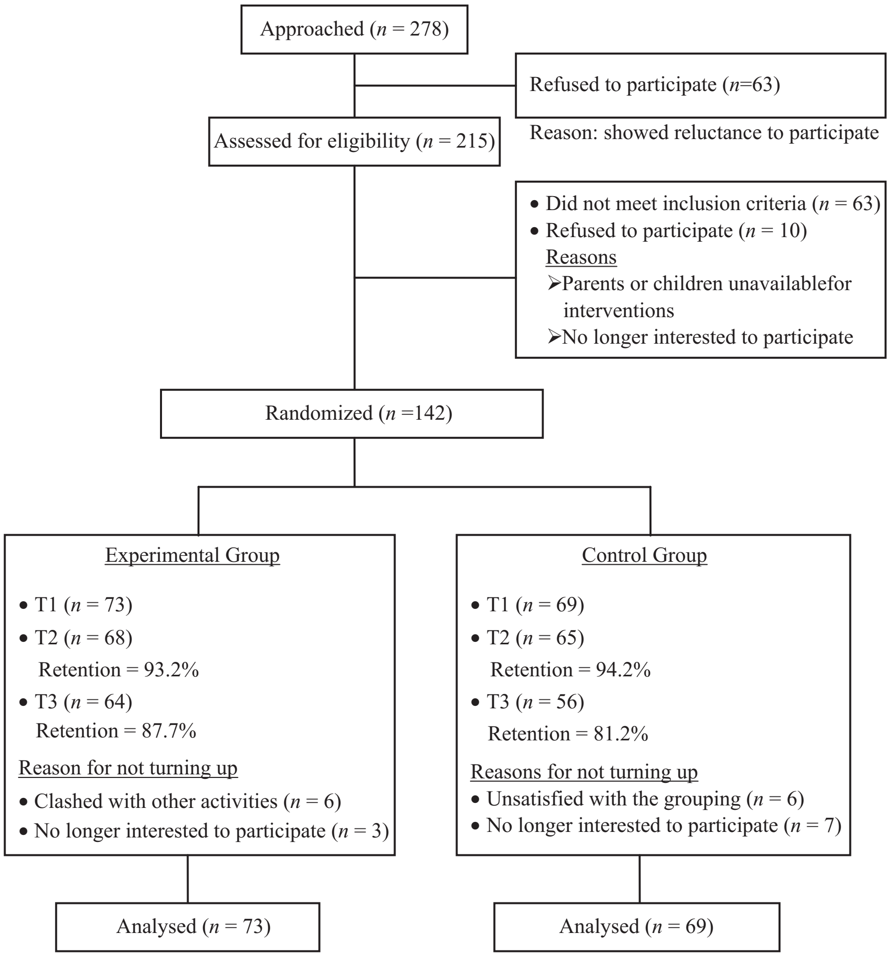

Figure 1. The consolidated standards of reporting trial (CONSORT) flowchart to track participants through randomized controlled trial.
Note: Data collection was divided into three phases: at the time of recruitment (T1: pre-intervention), at six weeks after the last session of the intervention (T2) and three months after the last session of the intervention (T3).

as perceived by parents during the transition from kindergarten to primary school.

Results

A total of 215 families living in Tung Chung were approached and assessed for eligibility to participate in the study. Of 215 families, 152 met the inclusion criteria. However, 10 families were unable to participate because either parents or children were not available for the intervention during the scheduled period. The remaining 142 families were randomly assigned to the experimental and control groups, with 73 families in the experimental group and 69 families in the control group. The response rate was 93.4%. The overall retention rates for the experimental and control groups were 87.7% and 81.2%, respectively. A Consolidation Standards of Reporting Trials (CONSORT) flowchart is shown in Fig. 1. The results showed that there were no statistically significant differences in any of the

Table 2. Demographic and baseline characteristics between those who completed and dropped out during the study and between the experimental and control groups[a]

	n (%)		χ^2	p	n (%)		χ^2	p
	Completed (n = 120)	Dropped out (n = 22)			Experimental (n = 73)	Control (n = 69)		
Gender of children								
Male	64 (53.3)	11 (50.0)	0.01	.77 NS	39 (53.4)	36 (52.2)	0.01	.98 NS
Female	56 (46.7)	11 (50.0)			34 (46.6)	33 (47.8)		
Age range for parents								
20–29	13 (10.8)	2 (9.1)	0.30	.96 NS	4 (5.5)	11 (15.9)	5.50	.14 NS
30–39	68 (56.7)	12 (54.6)			43 (58.9)	37 (53.6)		
40–49	32 (26.7)	7 (31.8)			23 (31.5)	16 (23.2)		
50 or above	7 (5.8)	1 (4.5)			3 (4.1)	5 (7.2)		
Gender of parents								
Male	16 (13.3)	2 (9.1)	0.41	.84 NS	10 (13.7)	8 (11.6)	0.02	.90 NS
Female	104 (86.7)	20 (90.9)			63 (86.3)	61 (88.4)		
Parents' education attainment								
No formal education	4 (3.3)	1 (4.5)	0.69	.95 NS	1 (1.4)	4 (5.8)	3.50	.48 NS
Primary	8 (6.7)	1 (4.5)			3 (4.1)	6 (8.7)		
Lower secondary	40 (33.3)	9 (40.9)			27 (37.0)	22 (31.9)		
Upper secondary	57 (47.5)	9 (40.9)			35 (47.9)	31 (44.9)		
Tertiary	11 (9.2)	2 (9.2)			7 (9.6)	6 (8.7)		
		M (SD)	t	p	M (SD)		t	P
Age of children	5.75 (0.5)	5.81 (0.4)	−1.2	.31 NS	5.73 (0.4)	5.84 (0.4)	−1.6	.11 NS
Level of happiness	4.73 (1.9)	4.52 (1.4)	0.55	.53 NS	4.71 (1.9)	4.55 (1.5)	0.58	.57 NS
Level of worry	5.54 (1.7)	5.73 (1.2)	−1.0	.31 NS	5.52 (1.6)	5.78 (1.3)	−1.1	.29 NS
Psychological adjustment								
Difficulties	14.62 (3.9)	14.71 (3.9)	1.82	.76 NS	14.82 (3.9)	14.68 (4.7)	1.95	.85 NS
Strengths	6.69 (1.5)	6.81 (1.8)	−0.47	.63 NS	6.67 (1.4)	6.84 (2.1)	−0.58	.57 NS

Notes: [a]family as a unit, with a parent and a child in each unit.
NS = not significant at $p > .05$.

demographic and baseline data between those who completed the study and those who dropped out during the study. The demographic and baseline characteristics between those who completed and dropped out during the study and between the experimental and control groups are shown in Table 2. The results indicate that the experimental and control groups were similar with respect to the children's age and sex, and baseline levels of happiness, worry and psychological adjustment.

The mean and standard deviation of the levels of happiness and worry in children, and psychological adjustment (SDQ scores) in children as perceived by parents across the three time periods are shown in Table 3. The results of mixed between-within subjects ANOVA on the levels of happiness and worry in children, and psychological adjustment (SDQ scores) in children as perceived by parents across the three time periods are shown in Table 4. The results indicated that children in the experimental group experienced statistically significant

Table 3. The mean levels of happiness and worry in children and psychological adjustment (SDQ scores) in children as perceived by parents across three time periods (n = 142)[a]

	Mean (SD)		
	Experimental (n = 73)	Control (n = 69)	Total (n = 142)
Level of happiness in children:			
T1	4.71 (1.84)	4.55 (1.46)	4.63 (1.66)
T2	2.52 (1.91)	3.20 (1.79)	2.85 (1.88)
T3	1.66 (1.54)	2.93 (1.70)	2.27 (1.74)
Level of worry in children:			
T1	5.52 (1.62)	5.78 (1.26)	5.65 (1.46)
T2	2.18 (1.69)	3.39 (2.09)	2.77 (1.98)
T3	1.64 (1.36)	3.12 (2.07)	2.36 (1.88)
Psychological adjustment (SDQ Scores):			
Perceived difficulties by parents:			
T1	14.82 (3.86)	14.68 (4.70)	14.75 (4.28)
T2	13.59 (4.83)	14.91 (4.76)	14.23 (4.83)
T3	10.08 (4.89)	13.51 (4.19)	11.75 (4.86)
Perceived strengths by parents			
T1	6.67 (1.42)	6.84 (2.05)	6.75 (1.75)
T2	6.96 (1.75)	6.84 (1.68)	6.90 (1.72)
T3	7.27 (1.73)	7.06 (1.87)	7.17 (1.79)

Notes: [a]family as a unit, with a parent and a child in each unit.
SDQ = Strengths and Difficulties Questionnaire
T1 = Data collection at the time of recruitment; T2 = Data collection at six weeks after intervention; T3 = Data collection at three months after intervention.

greater happiness, fewer worries and lesser difficulty in psychological adjustment than children in the control group. Using the commonly used guidelines proposed by Cohen (1992), the eta squared of 0.01, 0.06 and 0.14 are typically interpreted as small, moderate and large effect sizes respectively. The results suggest moderate-to-large intervention effect sizes. A post-hoc test, using the Tukey procedure, confirmed that the differences between groups were statistically significant in both six weeks and three months after intervention. The first, second and third hypotheses were supported. Nevertheless, the results of mixed between-within subjects ANOVA showed that there was no statistically significant difference in parents' perception of their children's level of strengths in psychological adjustment to primary school between the experimental and control groups. The fourth hypothesis was not supported.

Discussion

The overall results provide support for the effectiveness of integrating play activities in a primary one preparatory programme in preparing children for the transition to primary school.

Effect of the play-integrated primary one preparatory programme on the children's levels of happiness, worry and difficulties in psychological adjustment to primary school

The results of mixed between-within subjects ANOVA on the levels of happiness, worry and difficulties in psychological adjustment indicated that there were statistically significant main effects for time. The findings suggest that there was a change in the levels of happiness

Table 4. The results of mixed between-within subjects ANOVA on the levels of happiness and worry in children, and psychological adjustment (SDQ scores) in children as perceived by parents across the three time periods (n = 142)[a]

	Children's happiness			Children's worry			Psychological adjustment					
							Perceived difficulties			Perceived strengths		
	F-value	*p*-value	Eta squared	*F*-value	*p*-value	Eta squared	*F*-value	*p*-value	Eta squared	*F*-value	*p*-value	Eta squared
Time effect	118.31	.00*	0.63	218.89	.00	0.76	29.01	.00*	0.29	2.48	.09	0.03
Interaction effect	11.12	.00*	0.14	7.02	.00	0.09	8.56	.00*	0.11	0.58	.56	0.00
Intervention effect	6.22	.01*	0.06	18.70	.00	0.14	6.98	.00*	0.06	0.06	.81	0.00

Notes: [a] family as a unit, with a parent and a child in each unit.
* Significant at $p < .05$; **$p < .01$; ***$p < .001$.
Effect size (eta squared) conventions: small effect = 0.01; moderate effect = 0.06; large effect = 0.14.

and worry in children, and difficulties in psychological adjustment as perceived by parents in both groups across the three different time periods. There was a reduction in the levels of worry and difficulties in psychological adjustment, and an increase in the levels of happiness following the transition to primary one (six weeks and three months after the intervention), regardless of the type of intervention given. This is understandable as the children had already gone through the transition and some of the difficulties encountered in the primary school had been overcome; their levels of difficulties in psychological adjustment and worries might have lessened and the levels of happiness were then increased. Yet, there were statistically significant interaction effects between the time and intervention, indicating that the changes in the levels of happiness, worry and difficulties in psychological adjustment of children over the different times were dissimilar between the experimental and control groups.

The results showed that children in the experimental group reported statistically significant greater happiness and fewer worries than children in the control group. Owing to the transitory nature of happiness and worry, the levels of happiness and worry of a child may vary in intensity, fluctuating from time to time as a result of exposure to different situations. The findings indicated that children who had received the play-integrated primary one preparatory programme might have appraised the transition as less threatening than those children who received continuous assessment only. This may explain why the levels of worry of children were lower and the levels of happiness were higher as that might have been affected by situational factors. The results also showed that parents of children in the experimental group perceived statistically significant lesser difficulty of their children in psychological adjustment than those parents of children in the control group. As most children will not disguise their feelings, their behaviour is easily displayed and observed. It was reasoned that parents might have perceived fewer difficulties for their children in psychological adjustment to primary school life as a result of reduced levels of worry, and increased levels of happiness in their children.

The major objective of our programme was to enhance children's personal control through helping them become familiar with the pattern of learning, physical and social setting of a primary school. As children's evaluation of threat was influenced by their perception of control over a potential threat (Lazarus and Folkman, 1984), children who received our programme might have appraised the transition as less threatening than the control group as a result of experiencing increased personal control. Our programme contained a variety of play activities. Through participating in structured play activities, children would learn certain basic skills, such as those concerned with problem solving, interpersonal relationships and communication and managing stress and emotions, all essential for a successful transition to the child's primary school life. Additionally, through play, children had the opportunity to practise the school routines and interact with the environment in an active and non-threatening way, which would allow the child to become desensitized to the potentially stressful situations and be instilled with a sense of control over the situation.

The parents' perception of their children's level of strengths in psychological adjustment in both groups did not change across the three different time periods and the effect size for the intervention was very small. One possible reason was that the level of strengths as measured by the SDQ focuses on pro-social behaviour, which refers to positive interaction with other people – helping, sharing, co-operating and comforting. Because of difficulties or lack of opportunities for parents to observe such pro-social behaviour at home or at school, parents might have difficulty in evaluating their children's level of strengths. On the other hand, as primary school teachers have more opportunities to observe children's pro-social behaviour in school, it is recommended that teachers could more appropriately perform this assessment of children in future studies.

The overall results provide evidence that the play-integrated primary one preparatory programme is effective in preparing children for attaining a smooth transition from kindergarten to primary school. In fact, there was positive feedback from children after receiving the programme. One child commented:

> I was worried and unhappy when I knew that I would have to move on to a primary school. However, after the programme I felt happier. It included many interesting play activities, and was really fun and interesting. I was also able to make new friends here and learn some useful skills, such as how to prepare my schoolbag and how to write up my student handbook on my own. I no longer worry about going to primary school.

Limitations

This study was limited in that all data were collected in a district in Hong Kong, and a small, convenience sample was used, which might limit its generalizability. A multi-district, with larger sample size is recommended in future studies.

Practical implications

The findings of this study have important implications for future practice. The results showed that the transition created stress for children as evidenced by high levels of worry and low levels of happiness before the start of the academic year in primary school, and that they needed to adjust to the changes by accepting the new roles and development tasks during the stressful school transition period. The most important implications for practice from this study relate to the determination of the effectiveness of a play-integrated primary one preparatory programme to enhance a smooth transition for children. In addition, this study demonstrated the feasibility and appropriateness of incorporating play in the preparation of children for the transition to primary school in the Hong Kong

Chinese context. Most importantly, this study promotes the awareness in parents and teachers that play is a very important part of children's lives, which can facilitate children's learning and is essential for their normal growth and development.

Conclusions

This study has addressed a gap in the literature by providing empirical evidence that the play-integrated primary one preparatory programme is effective in minimizing children's worry and difficulties in psychological adjustment, and increasing children's level of happiness towards the transition from kindergarten to primary one. Most importantly, this studyhighlights the significance of play in helping children attain a smooth passage to a pleasurable learning life in the primary school.

Competing Interests

None declared.

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