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Enhancing social-emotional well-being in young children through improving teachers' social-emotional competence and curriculum design in Hong Kong

Lawrence T. Lam[1*] and Emmy M. Y. Wong[2,3]

*Correspondence:
Lawrence.Lam@uts.edu.au
[1] Faculty of Health and Graduate School of Health, University of Technology Sydney, Building 10, Level 3, Rom 215, 235 Jones Street, Ultimo, NSW 2007, Australia
Full list of author information is available at the end of the article

Abstract

This study aimed to evaluate an intervention programme for the enhancement of social-emotional well-being of young children through improving the social-emotional competence of kindergarten teachers and a specifically designed curriculum, in an urban city in the East Asia region. The design and some preliminary results on the outcome evaluations of the intervention programme are reported in this paper. The design of the intervention programme was based on the conceptual framework of the evidence-based Wisconsin Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children. Kindergarten teachers and children under their care were recruited using a random cluster sampling technique with teachers undergoing a training programme for 2 months with hands on workshops. The social-emotional well-being of preschool children was assessed with the Social Competence and Behavioural Evaluation (SCBE-30) Scale pre- and post-intervention. Changes in outcome measures that compared assessments between baseline and post-intervention were analysed with adjustment to clustering effects. Results suggested a statistically significant improvement in social competence and reduction to anxiety-withdrawal and anger-aggression after intervention. These results were indicative of a potentially successful intervention programme that would require a proper trail to establish its efficacy.

Keywords: Social competence, Emotion, Well-being, Behaviour, Early childhood, Intervention programme

Background

It has long been recognised that social competence is an important aspect for human development, particularly for early childhood development, and it has been considered as a construct in developmental theory (Waters and Sroufe 1983). Different views have been put forward on the definition of social competence over the past two decades. These different perspectives range from the innate tendency of prosocial or inappropriate behaviour; personal ability in social adaptability; and the ability for demonstrating appropriate behaviour in different social situations (Dirks et al. 1977). Some scholars have defined social competence as the ability of the individual to function as appropriate

to age and cognitive abilities, or simple social skills, and effectiveness in interaction (McCabe and Meller 2004; Rose-Krasnor 1997). Others defined social competence as a reflection on prosocial and antisocial behaviours (Junttila et al. 2006). Rantanen, Eriksson, and Nieminen proposed a conceptual model that described the essential components of social competence as social skills, social adjustment, and social performance in examining the relationship between social competence and epilepsy. In this model, social adjustment refers to the absence of behavioural problems, and social performance reflects prosocial behaviour and social participation (Rantanen et al. 2012).

On the other hand, the definition of emotional well-being, which is a different construct to social competence, has not been subjected for much debates and discussions as social competence. The definition of emotional well-being has been commonly accepted as a positive state of well-being that enables the individual to function and face up to the challenge of daily demands with the ability to recover from illness, changes, and misfortune effectively (Denham et al. 2009). The purpose of the current research is to explore the relationship between social competence and emotional well-being in young children.

Literature review

Importance of social competence and social-emotional well-being to child development

The Collaborative for Academic, Social, and Emotional Learning was recently established to promote the integration of social-emotional skills in general school education in the U.S. (Oberle et al. 2016). The Collaborative underscored the importance of social competence and social-emotional well-being in the on-going development of children and adolescents, particularly during early childhood (Oberle et al. 2016). A growing wealth of literature in recent years has reflected the significant association between social-emotional development and health as well as social-emotional well-being. Children who are socially competent and social-emotionally well-developed will have a higher chance of enjoying success in education, acquiring future employment, and establishing secure and stable social relationships (Jones et al. 2015). They are less likely to be involved in criminal activities, substance use and abuse, and mental health problems (Public Health England 2014). It has also been established that social and emotional deficiencies are major obstacles for children to be well-adapted in schooling and result in many behavioural problems such as disruptive behaviours, aggression, oppositional, and non-compliant behaviours (Domitrovich et al. 2007). However, good social and emotional development provides a foundation for good adjustment in schools and, in turn, enhances the sense of belonging, which has been reported to be correlated with positive affect, academic self-efficacy, and academic achievement (Duckworth and Seligman 2005; Goodenow 1993; Mouratidis and Sideridis 2009; Nix et al. 2013; Ray and Smith 2010). These have strengthened the argument for the need of early childhood intervention programmes to support later positive learning outcomes in all domains, by maintaining a focus on the promotion of healthy social-emotional development (Taylor et al. 2013; Yurgelun-Todd 2007).

Different social-emotional development programmes in the literature

The efficacy of programmes designed to enhance social and emotional development and improve behavioural and academic outcomes has been demonstrated (Durlak et al.

2011). Research findings suggested that children's social-emotional learning can be achieved through effective teacher instruction, students' engagement, parents' participation, and community involvement in planning and implementing the programme in classrooms (Durlak et al. 2011; Greenberg et al. 2003). Teachers can also help children to identify their emotions so that children are able to re-evaluate their internal thinking and gain confidence and ultimate success in schools and becoming responsible citizens (Elias 2006; Kong 2011). For example, Elias identified teachers' contributions to the development of emotional intelligence of students that may be contusive to the improvement of academic performance (Elias 2006). Hence, in addition to parents, teachers or early childhood educators play a significant role in the development of the emotional literacy in children.

By and large, social-emotional development programmes for early childhood are mainly formulated on the basis of interpersonal interactions that take place between the adults and children in those programmes (Durlak et al. 2011). There are different curriculum models focusing on promoting the social-emotional development and school readiness of young children, one of which is the Wisconsin Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children. Developed by two national centres in the United States, the Center on the Social and Emotional Foundations for Early Learning (CSEFEL) and the Technical Assistance Center on Social Emotional Interventions (TACSEI) in the US, this model provides a multidimensional framework that promotes the social-emotional well-being of children (Hemmeter et al. 2014). It includes systems and policies to ensure an effective workforce, provision of support for children through nurturing and responsive relationships and high-quality learning environments, prevention of risky behaviour through some targeted social-emotional strategies, and provision of early interventions for children with risky behaviour (Hemmeter et al. 2014). The Mayor–Salovey model is an information processing model that helps to operate the cognitive and emotional systems. It focuses on enhancing children's capacity to move from emotional perception to integration, understanding, and finally management (Salovey et al. 2000). The social emotional learning (SEL) model describes a process for life skill learning, and focuses on reinforcing positive behaviours and reducing negative behaviours. Positive behaviours include the improvement of social-emotional skills, attitudes towards interpersonal relationships, and behaviour within a classroom. Negative behaviours include reducing conduct problems and emotional distress (Durlak et al. 2011; Greenberg et al. 2003). However, the main focus of these programmes is on the children, and tends to overlook the importance of teachers and parents in child behaviour. Only a few programmes have also emphasised the enhancement of social-emotional well-being in teachers and parents in order become "changing agent[s]" to young children under their care.

Effect of teachers on the social-emotional well-being of children

As aforementioned teachers play a very important role in the social-emotional development of children under their care (Durlak et al. 2011). Through a proper socialisation process, children can acquire skills for regulating their own emotion as well as to be guided to express their emotion appropriately (Denham et al. 2012; Jennings and Greenberg 2009). It has also been shown that children could gain a better understanding of

theirs, as well as others emotions when teachers respond to children's negative emotions with a positive attitude and in a supportive manner (Davidov and Grusec 2006; Morris et al. 2013). Through the positive interactions with teachers, children could develop their social competence and emotional understanding via the social learning process. As a result, children could be able to handle situations and interactions with others in a more positive manner that is contusive to positive emotions. All these suggest that teachers are not only an integral part of children's social-emotional development, but also can be an active agent in enhancing the social-emotional well-being of young children. However, in order to provide support to children under their care, it is also important to ensure the social-emotional competence of teachers as well.

Current situation in Hong Kong

In Hong Kong, there are two types of early childhood education facilities, namely kindergartens and kindergarten-cum-child care centres. All these facilities are registered with the Education Bureau of Hong Kong as well as under the supervision of the Bureau. For kindergartens, all are privately run with some being non-profit-making organised mainly by charity organisations, others are independently owned and operated by private enterprises (Education Bureau 2012). In the 2015/16 academic year, there were 1000 kindergartens and kindergarten-cum-child care centres with 872 (87.2%) facilities serving local children with total enrollments of 185 398 students. There were 13,552 registered early childhood teachers with 91.2% qualified with a certificate in Early Childhood Education or a degree (Education Bureau 2013). Despite the recognition of the importance in promoting social and emotional learning in the school system, schools have been slow to incorporate emotional literacy into their structures (Chan 2002). On the other hand, there is a call for promoting children's lifelong learning and all-round development within the Hong Kong schooling system including early childhood education (Education Bureau 2012). While whole-person development has been advocated as a guiding principle in education, little evidence-based models are available to guide the design and development and the delivery of curricular to meet children's learning and social-emotional needs. Furthermore, as aforementioned, early childhood teachers play a crucial role in the development of emotional literacy and competence in young children. Hence, it is essential for teachers themselves to be emotionally literate and competent in order to act as role models, and assist young children in developing their emotional health. In order words, early childhood teachers need to be equipped with an adequate level of emotional intelligence. Unfortunately, it has been noted that early childhood teachers have received little training in emotional literacy or skills in the communication of the emotional experience of their young students to parents (Chan 2002).

The intervention programme

To address this important gap in the early childhood education system in Hong Kong, the Social-emotional Well-being of Early Childhood (SEWEC) Project was established. It received funding support from the Hong Kong government through the Quality Education Fund. The formulation of the programme is mainly based on the conceptual framework of the Wisconsin Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children in the U.S. (Hemmeter et al. 2014). The model consists of 4

interrelated levels of practice aiming to cultivate an environment, individual quality, and skills that are conducive for the healthy socio-emotional development of young children. Based upon the first level of cultivating a nurturing and responsive relationship among adults and children, a high-quality, supportive, and caring environment that promote positive socio-emotional outcomes for young children could be built. To supplement the effect of such an environment in socio-emotional development, formal social and emotional skills need to be taught, through a variety of means and in a systematic approach, to young children. These skills could have remedial effect of some inappropriate social behaviours or emotional expressions and manifestation, as well as having prevention effect on those behaviours. At the apex of the pyramid is the last resort of intensive intervention that aim to target children who need additional care and support individually. The reason for using the Wisconsin Pyramid Model is because on the cover multiple dimensions aiming to target different levels of need ranging from individual to the environment. It also consists of components targeting young child in the early childhood education system with special needs. This is exactly an issue need to be tackled currently in the Hong Kong early childhood education arena. Adopting the evidence-based training modules developed by the Centre of Social Emotional Foundations for Early Learning (CSEFEL) (Neddenriep et al. 2016), the contents of the SEWEC programme are generated with modifications to the original modules using local expertise with in-depth understanding of the cultural and societal characteristics of the early childhood population and early childhood educators. The reason of the modification was that not all components of the model are applicable to the local environment as well as the materials were originally designed for use in a Western cultural context. A direct deployment of the contents would be deemed inappropriate. The intervention programme has three main aims: (1) to enhance the emotional intelligence and literacy of early childhood teachers, as well as the communication of their emotional experience; (2) to provide training and hands on experience in the design of an evidence-based curriculum to enhance the social-emotional well-being of young children; and (3) to provide training in the delivery and the evaluation of the evidence-based curriculum to enhance the social-emotional well-being of young children. This report presents preliminary findings from evaluation of the SEWEC programme.

The research question and hypothesis

Of interest of the current study is whether the intervention programme, SEWEC, is efficacious in enhancing the social-emotional well-being of young children of kindergarten ages. It is hypothesised that there will be significant improvement in the social-emotional well-being in young children after receiving the intervention in comparison to the baseline measure.

Methods

Study design

This was a pre- and post-intervention study with the implementation of the SEWEC programme to early childhood educators in Hong Kong. The outcome evaluation of the programme was conducted with assessments on young children's social-emotional and

behavioural well-being before programme implementation and after completion of the programme.

Participants

The sample of the study was generated from a random sample of kindergartens in the city with all kindergartens registered with the Hong Kong Education Bureau, the governmental body responsible for education affairs in Hong Kong, They were selected from the list of registered public or privately operated institutes. These included kindergartens attended by mainstream Hong Kong families, new migrant families from mainland China, and other countries mainly from South-East Asia. To formulate the final sample three class teachers, one from each grade of the early childhood education programme, were randomly selected from each kindergarten along with his/her class. As a result, 32 kindergartens and a total of 106 early childhood educators were recruited to the study.

The SEWEC intervention programme

A programme was specifically designed for the project combining three essential components: (1) assessment of the social-emotional well-being of young children using a validated and standardised assessment instrument; (2) emotional literacy of early childhood teachers and skills to communicate emotional experiences; and (3) skills in the design and delivery of an evidence-based curriculum to enhance the social-emotional well-being of young children. The main learning modules of the programme lasted for 8 weeks and were followed by three workshops. Contents of each component are briefly described below:

Assessment training

Prior to the commencement of the training programme proper, a senior teacher and at least three junior teachers of each participating schools received training on the assessment of social-emotional well-being of young children via the instrument used as the outcome measure of this study. Details of the instrument are described in the section below. During training, teachers were required to successfully complete three observations using the assessment instrument. The assessments were then evaluated by a qualified psychologist for any inaccuracy. Junior teachers were to conduct the baseline assessment on their own class of students prior the implementation of the intervention curriculum. The senior teacher who was not involved in teaching of any classes conducted the post-intervention assessment for all classes. The reason of using different teachers as assessors was to minimise the assessment bias that might occur when junior teachers were actively involved in the delivery of the intervention as well as assessing the outcome of the intervention.

Training programme

The learning module consisted of a series of interactive seminars and discussions utilising blended learning with multiple teaching approaches including lectures, online multimedia study, role-playing, and activities. In the first half of the module, participants undertook self-evaluation of emotional literacy and communication followed by a brief training in these two areas in order to enhance their emotional intelligence. This was

followed by sessions on various areas of social-emotional development in early childhood. These included assessing the function of children's behaviour; helping children to manage their own behaviours; promoting positive social interaction through the use of the environment and activities; promoting positive peer social interactions; positive behaviour support; using functional communication techniques to replace challenging behaviour; helping children to express their wants and needs; and helping children to express warmth and affection through modelling.

Curriculum designing workshops

Following the seminars, three workshops were held with a main purpose of allowing participants to gain hands on experience in the development of curriculum and materials based on research evidence established in the literature, and following the CSEFEL model. During the workshop, participants worked in small groups under the guidance of members of the project team, who are well-versed in the programme, to develop teaching sessions to improve and develop the social-emotional well-being of young children. Participants were required to utilise the skills they had acquired in their previous early childhood education training, newly gained knowledge in social-emotional development, and their own experience in designing and developing the teaching sessions. Furthermore, they were to produce detailed lesson plans, materials required, and activities involved by the end of these workshops for the purpose of sharing with other participants.

Upon completion of the training programme and workshops, participants were asked to implement a curriculum of their own design, drawing upon shared lesson plans, materials, and activities, to their own class of students. The implementation of the curriculum lasted for about 2 months with a pre- and post-assessment regime included as part of the implementation process.

Measurements

The Social Competence and Behavioural Evaluation (SCBE) Scale was initially designed for assessing social competence, emotion regulation and expression, and adjustment difficulties in young children aged between 2½ and 6 years (LaFreniere et al. 1992). The original 80 item scale was subsequently re-developed into a shorter version with 30 items retaining the core elements of the original instrument (LaFreniere and Dumas 1996). The short version aimed to assess the quality of the relationship between the child and his/her teachers, as well as with peers. In particular, it captured social competence and negative behavioural and emotional problems in young children. In this study, the teacher form of the short version was used as an observational assessment instrument of children's social competence and emotional well-being. The scale consists of 30 items that reflect typical child behaviours or emotions with 10 items in each of the three subscales: namely social competence, anxiety-withdrawal, and anger-aggression. Examples of the items include: "Forces other children to do things they don't want to do"; "Cooperates with other children in group activities"; and "Easily frustrated". Teachers were asked to observe the usual behaviours of the children under their care and assess each child with the SCBE-30, rating the items on a Likert scale ranging from 1 (never) to 6 (always) resulting in a minimum raw score of 10 and a maximum sore of 60 in each subscale. The

scale was validated with high internal consistency. The Cronbach's alpha values ranged from 0.80 and 0.92. The test–retest reliability with a retest interval of 2-week yielded moderately high Intra-Class Correlations ranging from 0.74 to 0.87 across the three subscales. Convergent validity was also demonstrated with high correlations between the anxiety-withdrawal and anger-aggression subscales, and a measure on conduct disorder with correlations coefficients of 0.67 and 0.87, respectively (LaFreniere and Dumas 1996). In this study, the scale was translated into the Chinese language using a standard "forward-and-backward" translation process and validated with a pilot sample with Confirmatory Factor Analysis (CFA) and internal consistency checks. The CFA confirmed a three-factor model with Eigen values of 5.27, 5.16, and 4.99 for the anger-aggression, anxiety-withdrawal, and social competence subscales, respectively. A total of about 50% of the variance in the dataset could be explained by these three factors. All subscales demonstrated high internal consistency with Cronbach's alpha values of 0.89, 0.89, and 0.91 for the three subscales, respectively.

Other information collected in the survey included demographics, number of siblings, location of child's residence, location of parents' residence, mother's native language, the main carer of the child, and parents' employment status. Due to an agreement between the research team and the kindergartens authorities, as a participation condition, that no kindergarten or teachers information was collected. As a result, data pertaining to the participating kindergartens and their teachers were excluded from the data collection.

Procedures

The study was conducted on campus at each of the recruited kindergartens with the training programme and workshops carried out off site at a hired venue. Parents were invited to participate in the study with endorsement from the principal of the kindergarten. Information on the study was provided to parents of selected young children via school principals and teachers. Informed consent was obtained from all participating parents with a signed consent form indicating wilful participation of parents allowing their children to be observed. All participating teachers were also invited to fill in a consent form to be a participant of the intervention programme and also as an observer of the class under their care. However, due to the aforementioned reasons, no additional information was collected from teachers. Assessments on children's behaviour were conducted 4 weeks prior to the implementation the intervention programme as well as 4 weeks upon the completion of the programme. Teachers were instructed to complete the assessment of the whole class within a period of 5 days.

Data analyses

Data were analysed using the Stata V14.0 statistical software programme. Descriptive analyses were conducted using percentages, means, and standard deviations. Further analyses were conducted in accordance to the design of the study (pre- and post-intervention design). As a result, every child under observation was his/her own control with adjustments made for all individual and environmental characteristics. Although the primary unit of analysis was the individual child, children in a class were clustered under their teachers. Hence, data were analysed using a paired t test with adjustment to the clustering effect of teachers to compare scores obtained in the three subscales, namely

social competence, anxiety-withdrawal, and anger-aggression pre- and post-intervention. A 5% type I error rate was used for testing all hypotheses.

Results

Demographics

A total of 990 young children were observed providing complete information on pre- and post-assessments for analysis. The characteristics of the child and family were summarised in Table 1. The sample consisted of young children aged between 3 and 6 years

Table 1 Descriptive information on the demographics and outcome variables of young children (*N* = 990)

Variables	Frequency (%)
Child and family characteristics	
Age	Mean = 4.3 (S.D. = 1.0)
Sex	
Male	505 (51.0)
Female	485 (49.0)
Single child	
Yes	342 (34.9)
No	638 (65.1)
Residence of the child	
Hong Kong	913 (92.6)
Mainland China	73 (7.4)
Residence of parents	
Both parents living in Hong Kong	821 (84.3)
Only one parent living in Hong Kong	51 (5.2)
Both parents not living in Hong King	102 (10.5)
Mother's native language	
Cantonese (Hong Kong local language)	855 (87.2)
Putonghua (official Chinese) and others	125 (12.8)
Carer	
At least one biological parent	759 (77.0)
Others	227 (23.0)
Employment of parents	
Both parents are working	487 (49.4)
Only father works	474 (48.2)
Others	24 (2.4)
Developmental problems	
Yes	87 (9.0)
No	877 (91.0)
Social-emotional well-being measures	
Pre-intervention	
Social competence	Mean = 34.7 (S.D. = 9.8)
Anxiety/withdraw	Mean = 21.9 (S.D. = 8.0)
Anger/aggression	Mean = 19.2 (S.D. = 7.6)
Post-intervention	
Social competence	Mean = 37.6 (S.D. = 9.6)
Anxiety/withdraw	Mean = 20.1 (S.D. = 7.8)
Anger/aggression	Mean = 17.7 (S.D. = 6.8)

old with a mean age of 4.3 (S.D. = 1.0) years. There were slightly more boys ($n = 505$, 51.0%) than girls, with slightly more than 1/3 single children ($N = 342$, 34.19%). The majority of these children lived in Hong Kong with both parents ($n = 821$, 84.3%) also residing in Hong Kong. The mothers of most of these children spoke Cantonese, the local spoken language in Hong Kong ($n = 855$, 84.3%). Slightly more than three quarters ($n = 759$, 77.0%) of these children were cared for by their biological parents, and nearly 98% of these children had either both parents working or the father as the main income earner. Nine percent ($n = 87$, 9%) of these children were known to have a proper diagnosis of a developmental problem including: Autism, Attention Deficit and Hyperactivity Disorder, Asperger's Syndrome, Dyslexia, and Intellectual Disabilities. In terms of the outcome measures, the overall mean scores pre- and post-intervention were 34.7 (S.D. = 9.8) and 37.6 (S.D. = 9.6) for social competence, 21.9 (S.D. = 8.0) and 20.1 (S.D. = 7.8) for anxiety-withdrawal, and 19.2 (S.D. = 7.6) and 17.7 (S.D. = 6.8) for anger-aggression, respectively.

Pre- and post-intervention results

The results on the pre- and post-intervention comparisons are summarised in Table 2. As shown, after adjusting for the clustering effect of teachers, comparisons on all three outcome variables yielded significant results with an increase in the mean social competence scores ($t_{993} = 6.41$, $p < 0.001$) and a reduction in both the anxiety-withdrawal ($t_{993} = -5.27$, $p < 0.001$) and anger-aggression ($t_{993} = -4.64$, $p < 0.001$) mean scores after the intervention. There was about a 3 unit (2.9, s.e. = 0.22) increase in average social competence score, and a reduction of nearly 1.8 (s.e. = 0.20) and 1.5 (s.e. = 0.22) units in the average anxiety-withdrawal and anger-aggression scores after the intervention when compared with the scores at baseline.

Discussion

This study was one of the few studies aiming to examine the current status of social-emotional well-being among young children in the East Asia Region. It also aimed to investigate the feasibility and the possible effect of an intervention programme specifically designed to enhance the social-emotional development of young children through personal and curriculum training of early childhood educators. The results provided much needed information on important aspects of early childhood development, particularly in a geographical area where child health and development has become a main focus of population health advancement. This echoes the joint call for action from the

Table 2 Results on comparisons of the outcome measures

Social-emotional measures	Results[a]
Social competence	
Post- vs pre-intervention	$t_{993} = 6.41$, $p < 0.001$
Anxiety/withdrawal	
Post- vs pre-intervention	$t_{993} = -5.27$, $p < 0.001$
Anger/aggression	
Post- vs pre-intervention	$t_{993} = -4.64$, $p < 0.001$

[a] Adjusted for clustering effect

World Health Organisation and UNICEF Care for Child Development Intervention programme (UNICEF 2015) to enhance psycho-social development.

As few studies, particularly studies on intervention programmes, have been found in the area of social-emotional well-being in early childhood within the region, comparison of results obtained with similar studies is difficult. Moreover as L. Fox, one of the founders of the Wisconsin Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children acknowledges, evidence on the effectiveness of relationship building and the cultivation of a high-quality learning environment on a better social-emotional competence outcome is still emerging (Fox et al. 2010). The results of this study could potentially provide a piece of evidence to support the Pyramid Model. As aforementioned, early childhood teachers are important key players in healthy childhood development. In order to be an "agent of change" for young children under their care and develop a "responsive relationship" with them, it is important for teachers to be resourceful in terms of their own internal strength and resources. They need to be socio-emotionally mature and well-developed with a good understanding of their own emotions and be able to express them appropriately and articulately. With a higher level of mastery in this aspect of their life, it would be more likely that teachers establish a responsive relationship with their students. Simultaneously, a high-quality learning environment is more likely created with better skilled teachers designing a curriculum with the specific aim to integrate elements of social-emotional skills and positive behaviour (Jennings and Greenberg 2009). The SEWEC intervention programme has been designed specifically to target these aspects aiming to enhance the social-emotional well-being of young children through the improvement of the key players of their development—their teachers. The results of the study seem to bear witness to a possible success of this approach with significant improvement in the social-emotional well-being of children resulting from the intervention programme.

The results obtained from this study may have a direct implication on the on-going education and training of early childhood educators, as well as another key player in childhood development: the parents. The intervention programme focused first on the social-emotional development of teachers, giving them opportunity to acquire knowledge, skills, and hands-on experience in the design of curriculum that enhanced the social-emotional well-being of children. These essential elements that integrated training and education for teachers can be further extended to a wider audience including parents and other carers of young children. Similar programmes have already been developed as part of the Wisconsin Pyramid Model with supporting materials for parents and carers in languages other than English including Spanish and Chinese (TACSEI 2011). These materials could be adopted and modified to fit the cultural and societal context of the East Asia region. These results may also have an impact on early childhood education policy, particularly in places like Hong Kong where the cultural and societal environment does not ascribe the same value to social-emotional development as intellectual development among young children during the early childhood period. The results of this study have two important policy implications for early childhood training and education. First, future teachers should be provided opportunities for personal growth and training for enhancing their own social-emotional competence while they are still students. Second, future teachers should also be provided training and education in

social-emotional development of young children as part of main component of the early childhood education curriculum. In order to achieve these, there is a need to review and revise the current tertiary and professional training curricular structure for the inclusion of these elements. This could only be eventuated with the full cooperation and commitment of the higher education authorities and the industrial and professional bodies.

Some strengths and weaknesses have been identified in this study. This is a population-based study that includes a random sample of kindergartens and teachers. The random selection process reduces possible selection biases. The measuring instrument, SCBE-30, is a standardised and validated assessment tool that could minimise some measurement bias. The assessors have been trained and tested prior to actual data collection, which could also help reduce measurement bias. Furthermore, different assessors were used for the pre- and post-intervention assessments with the post-intervention assessors blinded to the students as well as the results on the pre-intervention assessment. This could further reduce measurement bias. Some potential limitations have also been identified in this study. First, although teachers have been trained as observers of children's behaviour, nevertheless the class of children have been under the care of the teacher for a period prior to the study. It is possible that some subjectivity might have been involved in the observation thus affecting ratings during assessment constituting assessor bias. Second, the design of the study, being a pre- and post-intervention design, is insufficient to provide the necessary strength of evidence for establishing the efficacy of the intervention. Third, data on kindergartens and teachers were not collected and included in the analysis. Given that some school and teachers characteristics could be potential confounders and thus constitute a bias in the estimate of the intervention effect. In case of insufficient adjustment for confounding effect, it is likely that the intervention effect has been over-estimated. To address these issues identified in this study, better study design such as a randomised controlled trial with proper blinding of the assessors and better data collection of teachers' variables should be implemented to ascertain the true efficacy of the intervention programme.

This pre- and post-study provides some indicative evidence of the efficacy of the SEWEC intervention programme in improving the social-emotional well-being of young children. These results further render support to the notion that enhancing teachers' socio-emotional competence and skills in curriculum design could improve the socio-emotional well-being of young children. With further confirmatory evaluation, the programme could be integrated in the current early childhood education curriculum as a preventive measure for strengthening early childhood mental health.

Authors' contributions

LL is the principal investigator of the study. He is responsible for coming up with the idea, planning the study, developing the protocol, conducting the translation of the measurement instrument, and designing the data collection questionnaire. He is also responsible of introducing the Pyramid Model to the research team and the application of funding support. He has conducted the data analysis and drafted the manuscript. EW is the co-investigator of the study. She is responsible for adopting the Model and translating into training modules with curriculum design. She is in charge of the study field work, data collection, and co-writes the manuscript. Both authors read and approved the final manuscript.

Author details

[1] Faculty of Health and Graduate School of Health, University of Technology Sydney, Building 10, Level 3, Rom 215, 235 Jones Street, Ultimo, NSW 2007, Australia. [2] School of Nursing, The University of Hong Kong, Hong Kong SAR, China. [3] School of Nursing, St. Teresa's Hospital, Hong Kong SAR, China.

Competing interests

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Availability of data and materials
As part of the funding requirements, no aggregated or summarised data should be released to the public. Hence, the dataset will not be made available.

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