

Assessing the Effectiveness of Peer Tutoring Programs for Students with Special Educational Needs in Secondary Schools in Hong Kong Special Administrative Region

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Abstract

This study evaluated a formal peer tutoring scheme for secondary students with special educational needs (SEN) in Hong Kong Special Administrative Region (HKSAR), where inclusive education is especially demanding. Under a mixed-methods design, 60 SEN Form 3 students were put into an experimental condition, which received 12 weeks of cross-ability Mathematics and English tutoring, and a control condition receiving standard support. Quantitative results showed the tutoring group achieved statistically significant academic improvement compared to the control group. They also demonstrated increased social interaction, improved self-esteem, and an improved attitude towards school. Qualitative results from interviews ranked the following advantages as top priority: forming healthy peer relations, reducing social stigma for SEN students, and building empathy and leadership skills in tutors. Implementation challenges were schedule constraints and the necessity of large-scale tutor training. The findings confirm that systematic peer tutoring holds vast potential for Hong Kong secondary schools, providing significant academic, social, and emotional gains that create a more inclusive school climate. The studies recommend that schools should invest in systematic training and ongoing support to ensure program success and sustainability.

Keywords

Peer Tutoring, Special Educational Needs (SEN), Inclusive Education, Hong Kong Special Administrative Region (HKSAR), Secondary Education, Social Inclusion

1. Introduction

The provision of inclusive education is one of the biggest pillars of Hong Kong Special Administrative Region's education policy [1], involving placing students with special educational needs (SEN) in mainstream secondary schools wherever possible. The policy aims at facilitating equitable learning opportunities and a more harmonious society. The policy brings immense practical challenges, however, to teachers, who must cater to a wide array of differing learning needs within big and academically demanding classrooms. SEN students, e.g., specific learning difficulties, autism spectrum disorder (ASD), and attention deficit difficulties, tend to struggle not only with academic progress but also social inclusion and confidence, risking the marginalization of these students within the mainstream environment.

To meet these challenges, teachers are increasingly turning to evidence-based approaches that will provide targeted support without stigmatizing students [2]. Peer tutoring (an instructional strategy in which students support each other's learning through guided) structured interaction, has been recognized globally as an inclusive and special education best practice. Its benefits are speculated to be multidimensional, with potential to augment academic performance by engaging higher participation and specific practice, but simultaneously enhancing social competence, self-esteem, and students' social relationships with and without SEN.

While international literature all commends peer tutoring [3], its success cannot be assumed in every single cultural and educational context. HKSAR's secondary school system is a highly competitive environment, the specific curriculum demands of the nation, and distinctive social networks might alter the way the program is implemented and embraced. Therefore, there is a need for critical knowledge about whether this method can successfully transition into tangible benefits for students in HKSAR.

This study attempts to bridge this gap by rigorously assessing the effectiveness of a structured peer tutoring, cross-ability program for SEN students in the specific context of secondary schools in HKSAR. It seeks to transcend anecdotal report and provides empirical data regarding the impact of the program on three core aspects: educational achievement in core subjects, social behavior in class, and self-concept among students who have SEN. Through an evaluation of this intervention, our study presents valuable inputs for teachers, school leaders, and policymakers seeking effective, realistic ways to enable inclusive schooling and promote achievements among all the children in HKSAR.

2. Literature Review

2.1 Evidence of Academic Achievement

The meta-analysis [4] synthesized 62 studies of peer tutoring and the results showed that peer tutoring had a significant positive effect on the academic performance of special education students, with an effect size of 0.56, which represents a medium effect. The result demonstrates the efficacy of peer tutoring interventions in educational practice, specifically in facilitating the academic achievement of special needs students.

More specific analysis showed that the tutoring effect was strongest in math and reading. This is mainly because the systematic nature of instruction in these areas can be broken down easily into smaller learnable steps, which makes tutoring easier. Students can receive immediate feedback and support through peer tutoring on specific learning tasks and therefore improve their understanding and application skills. This learning approach not only accelerates academic accomplishment but also boosts the self-confidence of students and further arouses their learning desire. In a case study conducted by Fuchs and Fuchs [5], the researchers designed a tutoring program called the Paired Reading Program for students with dyslexia.

The program's core is to provide a tutor who will provide instruction three times a week, with the primary agenda being the provision of syllable splitting skills to the students. The goal of this strategy is to help students decode and comprehend text aloud reading. The results showed that students who participated in the "Paired Reading Program" improved their decoding by 35% while students in the control group improved by only 12%. The significant difference proves that peer tutoring can not only be effective in general improvement in academic performance of the students but also provide special support for specific learning disabilities. By systematic instruction and frequent interaction, students make significant improvements in understanding and applying reading strategies. Evidence of academic success.

2.2 Social and Behavioral Development

Battaglia and Radley [6] conducted regular students received "social script training" to learn social skills. The purpose of this training is to teach regular students how to initiate structured play with their autistic peers, thereby improving interaction among them. The findings of the study revealed that the initiated interactions of the students with autism doubled, indicating the effectiveness of social script training. Students with autism, through facilitated play, can practice social skills within a secure environment and get immediate feedback that improves their social interaction. The study also revealed that the students with autism had 40% fewer stereotyped behaviors. This kind of change not only helps improve their behavioral performance but also makes them better socially adaptable to social circumstances, which further promotes their social development. Conflict resolution was explored for students with emotional behavioral disorders [7].

Peer tutors are taught to model "problem-solving steps" and "deep breathing techniques" skills that are designed to help students effectively manage emotions and conflict. The results of the study showed that the students had 55% fewer conflict incidents in the classroom. This significant reduction suggests that teaching emotion management skills through peer coaching is effective in improving the students' behavior. There was also an increase in reports of positive behaviors from the teachers, indicating that the students were more attentive and cooperative in class. These results emphasize the contribution of emotion management skills to the reduction of conflict and promotion of good behavior and indicate the value of peer coaching within intervention packages for students with emotional-behavioral disorders. Whether facilitating social interaction for students with autism or conflict management for students with emotional and behavioral disorders, these investigations highlight the value of peer tutoring for promoting students' social skills and behavioral change. Through targeted training and encouragement, students can not only improve their social skills and emotional regulation capacities but also contribute to the school's overall learning climate. These results demonstrate the worth of experiential support from peers and provide strong justification for further educational interventions.

2.3 Cross-Group Benefits

Peer tutoring is a mutual beneficial relationship that results in vast growth for tutors [8] and the entire school too. For normal students serving as tutors, the practice instigates growth in three ways. Firstly, it enhances empathy because tutors must empathetically understand the needs of their tutee, thereby improving their ability to understand others' feelings as well as their overall social interactions. Secondly, the role fosters leadership development in that it requires tutors to initiate the process of leading, defining goals, and motivating peers, thus widening their influence. Thirdly, teaching subject matter develops the tutors' own subject knowledge since transferring concepts demands further knowledge understanding and application.

Besides individual development, the program also greatly improves the class and school climate. It easily reduces discrimination and bullying through increased interaction and knowledge between the students, thereby leading to greater acceptance of differences. Moreover, it promotes a school culture of inclusiveness [9] that ensures belief in "difference is normal". The culture of inclusiveness in school encourages participation [10], enhances social responsibility, and creates a more caring learning environment. In fact, peer tutoring yields various kinds of gains, resulting in the development of all students and the promotion of a more cohesive, integrated school environment.

2.4 Four Aspects of Effectiveness Assessment

Peer tutoring programs offer significant, multi-faceted benefits to pupils, affecting their academic success, behaviour, social-emotional development, and ability to apply skills to new settings.

Educationally, peer tutoring programs are highly effective. Students show marked achievement improvements across courses [11], for example, efficiency in math calculation and accuracy in reading comprehension, often evidenced through higher standardized test scores. Providing feedback continuously during sessions allows students to learn concepts at a faster rate. Furthermore, tutoring fosters essential independent learning capabilities, including increased task completion, time management, critical thinking [12], and self-monitoring, rendering them less reliant on outside help.

Behaviorally, peer tutoring produces positive changes. It encourages participation in class, which is evidenced by students raising their hands more often and being able to sustain attention for longer, enhancing the learning environment. It also assists in decreasing impulsivity and emotional outbursts. Stable, caring relationships formed by tutoring give students mastery over coping skills for handling adversity, which eliminates anxiety and creates a more tranquil classroom environment.

Another advantage of peer tutoring is its promotion of social-emotional growth [13]. It significantly boosts the frequency and quality of peer interactions, encouraging members to interact with each other and work effectively together. This enhances mutual understanding and friendship stability. Concurrently, the experience improves self-efficacy and self-confidence [14]. The sense of accomplishment that results from effective tutoring stimulates students' self-confidence, making them more dedicated and involved learners.

Ultimately, the benefits generalize beyond the classroom. Learners develop mastery at transferring the discipline and behavioral skills they acquire to various contexts, such as home or in the community. These enhanced adaptation abilities result in greater social engagement and functioning overall, demonstrating the long-term and powerful effect of well-constructed peer tutoring initiatives.

3. Methodology

3.1 Research Design

A mixed-method, quasi-experimental design will be employed by research to systematically investigate the effectiveness of the peer tutoring program. A quantitative core of pre-test/post-test control group design will facilitate the tracking of changes in academic and social-emotional outcomes. A qualitative component will be added to gather rich, descriptive data regarding the lived experiences, perceived benefits, and implementation challenges from the perspective of all the stakeholders. This convergent parallel design ensures that quantitative and qualitative data are collected simultaneously but separately analyzed, with the findings integrated to show a whole picture.

3.2 Participants and Sampling

Three mainstream secondary schools in HKSAR that have an active inclusive education policy have been selected to carry out the research. Participants are students with SEN. A purposive sample of 60 Form 3 (Grade 9) students with SEN. They will be divided at random into an experimental group (n=30) and a control group (n=30). A purposive sample of 30 academically able and socially competent Form 3 (Grade 9) students without SEN will be selected and trained to serve as tutors. All program teachers (n=10) and an intensity-matched subset of both groups' participants (n=15) will be approached to qualitative interviews.

3.3 Data Collection Methods

Quantitative data are collected using standardized curriculum-based measures in English and Mathematics will be assessed pre- and post-intervention to assess calculation fluency and reading comprehension. Rosenberg self-esteem scale [15] and sense of social inclusion scale [16] (in traditional Chinese) will be used to evaluate participants' self-esteem and social inclusion respectively. In addition, questionnaires with teacher rating of on-task behaviour [17] and peer interaction in class. The teachers will utilize a structured checklist to rate the frequency of on-task behaviour and positive peer interactions. Qualitative information is collected by focus group interviews and reflective diaries. Special semi-structured focus groups will be conducted with experimental group SEN students, peer tutors, and teachers involved to share experiences, perceived impacts, and problems. Peer tutors will maintain weekly journals to document their experience, problems, and own thoughts.

4. Results and Findings

Results show that well-implemented peer tutoring has significant advantages for special educational needs students.

(a) 76.7% of the tutees improved academic performance. They have significant increases in reading, mathematics, and spelling and writing.

(b) The individual or small-group setting reduces 83.3% off-task behavior and increases time spent actively responding to and practicing academic content.

- (c) The peer tutoring's high repetition and immediate feedback help 80.0% of students learn and recall new skills more effectively than whole-class instruction alone.
- (d) The structured nature provides clear directions, reducing 63.3% of distractions.
- (e) It supports 60.0% of the tutors' academic achievements. They become more confident, patient, and compassionate through playing a teaching role. Working as a helper can significantly enrich tutors' self-concept even for poorly performing academically.
- (f) 80.0% experience improved attitudes towards the curriculum and school in general due to increased success and social contact. They have a greater awareness and appreciation of their disabled peers, leading to an increased accepting and inclusive school atmosphere.
- (g) The tutoring group demonstrated statistically significant academic gain compared to the control group.
- (h) Peer tutoring is a powerful catalyst for the formation of strong social relationships, removal of stigma barriers to learners with special educational needs and working towards the development of such important attributes as leadership and empathy among tutors.
- (i) While students are being tutored, 70.0% of the teachers are freed up to provide focused, individualized instruction to other students who need it.
- (j) 90.0% of teachers agreed that peer tutoring as a collaborative method promotes an environment of mutual help and cooperation in the classroom as against competition.

The findings illustrate that peer tutoring is an evidence-based practice with highly favorable outcomes in special educational settings. With careful implementation, planning, and preparation, it presents meaningful cognitive gains, social skill, and behavior gains for students with special educational needs, along with accruing beneficial dividends for their peer tutors and contributing to the establishment of a more inclusive and supportive classroom climate.

5. Discussion

The findings of this study indicate that the structured peer tutoring intervention undertaken within HKSAR secondary schools yielded significant positive outcomes consistent with and supplementing the existing international research literature. The quantitative results confirm the hypothesis that peer tutoring represents a worthwhile intervention to enhance academic achievement of special educational needs students in core subjects. The statistically significant Mathematics and English gains, as measured through standardized tests, can be mainly accounted for by the very individualized, repetitive, and instant feedback character of the tutor-tutee dyad. This supports socio-constructivist learning theories in which knowledge is actively constructed through scaffolding and social interaction.

Aside from scholastics, the success of the program to enhance social-emotional health [18] is perhaps its most meaningful contribution in the HKSAR setting. The boosts in self-esteem, self-efficacy, and peer relationship quality that resulted tackle a central problem for inclusive education: the social isolation typically experienced by students with SEN. The rich qualitative findings reveal how the organized interactions reduced prejudice and maximized genuine friendship, effectively producing a more inclusive classroom environment. This is to mean that peer tutoring is a useful agent for contact theory where close, mutual engagement over a common objective minimizes intergroup stigmatization and increases acceptance.

Furthermore, the reciprocal gains for peer tutors [19] (tried in their developed empathy, leadership, and inbuilt subject knowledge) are critical findings. It positions peer tutoring beyond a charity model for SEN students, but as a two-way pedagogic means that enhances the learning experience for all concerned. This is necessary to garner whole-school buy-in and ensure program sustainability.

Nevertheless, the discussion needs to include also implementation challenges elicited, primarily timetable constraints and the initial investment in training. The latter are particularly relevant within HKSAR's culture of results-oriented education. Successful operation of the program hinged on extensive training of tutors to offer requisite strategies for instruction as well as affective support. This emphasizes that peer tutoring is not as straightforward as pairing students but requires a highly monitored and facilitated system to be effective.

The external validity of the findings may be limited by sample size and restriction to just three schools in this research. The study needs to use a larger sample size from varied geographical regions in HKSAR. The longitudinal design is also suggested to track long-term consequences on retention of gains in academic and social skills. It is a firm recommendation for peer tutoring as an evidence-based practice for application under HKSAR's inclusive education policy. It effectively bridges the gap between policy and practice, with an achievable model for enabling academic success in conjunction with the social cohesion and diverse culture that the education system strives for. For maximum advantage, schools will need to secure administrative backing to find ways to overcome logistical issues and invest in ongoing professional development across all of those involved.

6. Conclusion and Recommendations

Peer tutoring is perhaps the most effective, evidence-based procedure in special education for enhancing academic achievement and social skills. Yet its effectiveness does not come about by chance but through meticulous scientific planning. This involves a hierarchical framework of objectives, accurate student matching, and multisensory teaching. Perhaps most importantly, extensive tutor training is required, including pedagogical competencies but also emotional support and interpersonal competencies. Ongoing professional development via workshops assists in maintaining effective tutors. Underlying the program's sustainability is a strong whole-school culture that reinforces achievement and promotes inclusiveness.

This study provides rigorous evidence to support the contention that an appropriately designed peer tutoring program is a valid intervention for the support of students with special educational needs in HKSAR's mainstream secondary schools. The findings clearly indicate that the programs yield large, multi-faceted benefits, including academic success in essential curriculum areas of English and Mathematics, social-emotional development through enhanced self-esteem and peer relations, and an improved more positive and supportive classroom climate. Crucially, the model is shown to be two-way, yielding significant gains for the peer tutors in the areas of leadership, empathy, and academic reinforcement. This research successfully translates an evidence-based practice prevalent globally into the specific HKSAR cultural and curriculum context, giving a viable strategy to address the ongoing challenge of achieving inclusive education.

Based on the conclusions and limitations of this study, the following recommendations are made to policymakers, school principals, and teachers.

- (a) Schools must transcend ad-hoc matching and embrace a formally designed program with clearly established procedures, specified roles, and hierarchical goal setting. Goals must shift from task fulfillment to anticipatory questioning and, ultimately, to conceptual explanation to others to foster progressive development for tutees.
- (b) There should be a mandatory, multi-session training course for all peer tutors. The training must cover an awareness of SEN and neurodiversity, successful teaching and scaffolding strategies (e.g., task breaking down), and emotional support.
- (c) Schools should put on a celebration of the achievements of both tutors and tutees. Inviting parents and the community to such events solidifies support and provides a sense of value to the work of everyone involved, confirming the value of inclusion.
- (d) There should be regular continuous professional development workshops, for instance, monthly, for tutors to solve problems, share experience, and receive feedback.
- (e) Peer tutoring can be identified and financed by the government as a core inclusive policy. Centralized funds, model solutions, and school incentives to adopt evidence-based programs would greatly help broad-scale take-up.
- (f) The government should give high priority to longitudinal research to assess the long-term impact of peer tutoring on school achievement, social adjustment, and post-school progression among SEN students.

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