ZHANG Jia-Wei, WONG Lam, CHAN Tak-Hang, CHIU Chi-Shing

Curriculum Adaptation in Special Schools for Students with Intellectual Disabilities (SID): A Case Study of Project Learning in One SID School in Hong Kong

Abstract Using a qualitative case study approach, the authors analyzed the curriculum adaptation process for one project learning activity in School K, which is a SID school in the context of school-university collaboration. Multiple sources of data were collected for triangulation, including interviews, documents and observations. Curriculum adaptation strategies in this study were analyzed from five perspectives: instructional goals, instructional content, instructional strategies, instructional settings, and student behavioral needs. It was found that curriculum adaptation efforts could help students with ID develop potential at their own level through project learning activates and teachers could also gain professional development during the university-school collaboration process. As for future studies, enlarging the sample size, involving teachers' past orientations and motivations in the project learning process, and collecting quantitative data could all be taken into account.

Keywords special education, students with intellectual disabilities (SID), curriculum adaptation, project learning

Introduction

In 1994, UNESCO published *The Salamanca Statement and Framework for Action*, which called on all governments to give the highest priority to inclusive education. Given this international context, the principle of inclusive education has also been adopted in Hong Kong as a matter of policy. In 1997, Hong Kong

ZHANG Jia-Wei(✉), WONG Lam, CHAN Tak-Hang, CHIU Chi-Shing
Hong Kong Institute of Educational Research, The Chinese University of Hong Kong, Hong Kong, China
E-mail: zhjiawei1981@gmail.com

Curriculum Development Council (CDC) issued the *Guide to Curriculum for Mentally Handicapped Students*, which pointed out that “all children whether or not requiring special educational services, have basically the same needs and should not be distinguished from each other. Therefore, the aims of the special education curriculum should basically be the same as those of the mainstream curriculum in that great emphasis is put on the development of students’ potential to the full. Accordingly, children should be exposed to similar experiences, skills, concepts, values, etc.” (CDC, 1997, p. 1). In 2001, the CDC developed “one curriculum framework for all students” (OCF) as the basic structure for learning and teaching throughout all stages of schooling. The curriculum framework allows for different interpretations of content and flexible use of different learning strategies and styles to suit individual needs. It has three interconnected components: (i) key learning areas¹, (ii) generic skills², and (iii) values and attitudes (CDC, 2001, p. 21). The CDC also suggested that less able students with special educational needs (SEN) should have the opportunity to learn under the central curriculum (recommended by the CDC) which is common to all students in mainstream schools (CDC, 2003, Chapter 4, p.10). The above series of policies have altered the curriculum in special schools from a separate-subject curriculum to a broad-field curriculum, which includes eight key learning areas, nine generic skills, values and attitudes. In the *Reform Proposal for the Education System in Hong Kong* published in September 2000 by the Education Commission, moral and civic education, promoting a reading culture, project learning and the use of information technology have been listed as the four key tasks of curriculum reform (p. 67). Under the OCF, these four key tasks should also be implemented in special schools. At present, there are 60 aided special schools in Hong Kong, and 41 of them are schools for SID. These SID schools have faced many problems in developing key tasks, especially in project learning.

Project learning “refers to focused study on a particular topic to be set by

¹ The eight key learning areas are: Chinese language education, English language education, mathematics education, personal, social and humanities education, science education, technology education, arts education, and physical education. See CDC, 2001, p. 22.

² The nine generic skills are: collaboration skills, communication skills, creativity, critical thinking skills, information technology skills, numeracy skills, problem-solving skills, self-management skills and study skills. See CDC, 2001, pp. 24–25.

teachers or students. Students can either work alone or in groups” (Education Commission, 2000, p. II-2). In these years, “many other terms have been used for this instructional approach, including *problem-based learning*, *inquiry learning*, *authentic learning*, and *discovery learning*” (Bender, 2012, p. 8, original emphasis). “The *project method* teaching approach (PMT) or the project-based learning (P-BL) involves study/research of a topic in depth where students’ ideas, questions, predictions and interests form the experiences lived and the works/activities undertaken” (Filippatou & Kaldi, 2010, p. 17, original emphasis). Helm and Katz (2011) pointed out that not only normally developing children but also special needs children benefit from project learning if teachers make appropriate adaptations for children’s needs and development. Many researchers have also examined the effectiveness of project learning on pupils with learning difficulties and have revealed improvements in post-project academic performance (Barron et al. 1998; Filippatou & Kaldi, 2010; Guven & Duman, 2007; Liu & Hsiao, 2002; MacArthur, Ferretti, & Okolo, 2002). However, the lack of clarity regarding how to plan for projects, how to guide children’s inquiries and investigations, and how to assess learning has proven to be a major obstacle in adopting the project learning approach (Mitchell et al., 2009), especially for teachers in SID schools. To facilitate the process of implementation for project learning, government agencies have used many policy instruments, for example, extensive curriculum guidelines (CDC, 2001; CDC, 2002) to recommend project learning and project learning exemplars for schools and teachers, including curriculum design, curriculum implementation and even actual designs including worksheets and assessment forms (Fok, Kennedy, & Chan, 2010). These resources are helpful for teachers, but for teachers in special schools, such resources are still limited. In such circumstances, it is an extremely challenging endeavor to start implementing the project learning approach, as it requires making changes in all major aspects of teaching—the curriculum, the instructional strategies, and the roles of both the teachers and students in the learning process (Rogers et al., 2011). With the implementation of school reform since 2000, the partnerships between special schools and universities are emerging in Hong Kong. In this study we have chosen Project Q in University U as the case project: collaboration between more than 10 SID schools in Hong Kong. During the professional support process, university experts as school development officers (SDO), find that many SID schools are facing difficulties

when developing project learning in class. In this study, we select a SID school in Project Q as the case school, and try to explore how to adapt and develop project learning for students in SID schools.

Research Framework

Project learning is a powerful tool that enables us to embed skills while ensuring the educational outcomes of lifelong learning and enhanced personal qualities, including critical thinking, interpersonal, communication, and technological skills (Diffily & Sassman, 2002). The essential characteristics of project learning include anchoring, collaborative teamwork, driving questions, feedback and revision, inquiry and innovation, opportunities for reflection, a process of investigation, publicly presented products and student voice and choice (Bender, 2012, pp. 31–32). However, due to the level of development, the tasks included in project learning are difficult for students with intellectual disabilities. According to the definition of intellectual disability (ID) in *Intellectual Disability: Definition, Classification, and Systems of Supports*, ID is “characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18” (AAIDD, 2010, p. 1). A multidimensional classification system is proposed in the 2010 manual: Classification of ID should be based on intellectual abilities, adaptive behavior, health, participation, context, and the intensity of support needed. Support is stressed in the 2010 manual, which means that thoughtful planning and application of individualized support should be provided to people with ID to help them improve the mismatch between their personal competency and environmental demands. As stated above, OCF has been implemented in Hong Kong; however, there is bound to be some mismatch between the framework and the students with ID. Given this, it is necessary for teachers to provide individual support to the students with ID under OCF. Curriculum adaptation is one of the important types of support that teachers can provide to students with ID. Curriculum adaptation refers to modifying or supplementing one or more curricular elements in order to meet the needs of individual students (Hoover, 1988, p. 2). It involves both the content and enactment of curriculum, ideally creating a process of dynamic interaction among teachers, learners, subject matter, and settings (Sawyer, 2000). With regard to the curriculum adaption process, Hoover (1988) proposed three major components: (a)

determine the need for adapting curricular elements; (b) identify elements requiring specific adaptations; and (c) select and implement curricular adaptation strategies that meet content, instructional strategy, instructional setting, and student behavioral needs. Cole et al. (2000, p. 39) further proposed nine types of adaptations, including input (the instructional strategies used to facilitate student learning), output (the ways learners can demonstrate understanding and knowledge), size (the length or portion of an assignment), time (the flexible time needed for student learning), difficulty (the varied skill levels, conceptual levels and processes involved in learning), level of support (the amount of assistance to the learner), degree of participation (the extent to which the learner is actively involved in the tasks), modified goals (the adapted outcome expectations within the context of a general education curriculum) and substitute curriculum (the significantly differentiated instruction and materials to meet a learner's identified goals).

In Hong Kong, Intelligence Quotient (IQ) score is the key criterion used for identification and admission purposes in SID schools. "The scores used to determine the various grades are: Mild (IQ 50–69), Moderate (IQ 25–49), and Severe (IQ below 25)" (Education and Manpower Bureau, 2005, p. 8). This classification is just based on the IQ score; while in the 2010 manual, classification of ID should consider six dimensions: intellectual abilities, adaptive behavior, health, participation, context, and the intensity of needed supports. Therefore, in the SID schools, the IQ of students would be at a similar level, but students' diversity may exist in other dimensions. Facing such circumstances, teachers should pay more attention to adapt the curriculum for students with ID. According to the 2010 manual, and the research about curriculum adaptation of Hoover (1988), a research framework was developed (see Fig. 1) to analyze the curriculum adaptation in the case school. This framework includes three major components: (a) determine the mismatch between students' abilities and the requirements of OCF; (b) identify elements requiring specific adaptations and select the curricular adaptation strategies; and (c) implement the curricular adaptation strategies to decrease the mismatch and improve individual student achievements in OCF. In the actual practice of implementing the total curriculum, there exist at least four major elements: content, instructional strategies, classroom instructional settings, and student behaviors (Hoover, 1987; Hoover & Collier, 1986). Based on the four major elements and Cole et al. (2000)'s nine types of adaptations, the curriculum

adaptation strategies involved in the framework are grouped into five categories: instructional goals, instructional contents (difficulty, size and substitute curriculum), instructional strategies (input, output, time and degree of participation), instructional settings (physical settings and group arrangement) and student behavioral needs.

Fig. 1 Research Framework

Methodology

The purpose of this study is to analyze the curriculum adaptation process in the context of school-university collaboration. The case study approach was adopted for the study. We selected School K as the case school, which is a SID school mainly admitting students with moderate intellectual disabilities, that had collaborated with Project Q for two years. One project learning activity in the subject of general studies for primary schools is taken for analysis purposes. We try to explore the elements, effects and sustaining of adapting project learning activity for students with ID. We collect multiple sources of data for triangulation of information, including interviews (one principal and one deputy principal), documents (accessing school records, support meeting records, collective preparation lessons records and teachers' reflection records), and observations of project learning activities. The data analysis was conducted using NVivo 8, and to ensure reliability, the codes and themes used in this study required consensus with two additional coders.

Case Study

School K is a SID school mainly admitting students with moderate intellectual

disabilities. Under the OCF, the curriculum in School K has also been changed to meet the requirements of OCF. However, in the external school review report it said that “school K should strengthen the guidance to students in project learning.” However, teachers are confused about how to guide their students to undertake project learning. Project learning in School K is mainly implemented through the subject of general studies once every term. In the past, when doing project learning, students were asked to collect data by themselves, but teachers said that students’ abilities were limited and that they had to give hints or even stand in for students, especially in situations where students with different learning difficulties were asked to do the same topic.

It is always a problem for us to ask the low ability students to do a project learning task. They cannot concentrate on the task. They don’t even want to look at me. How could they do the project learning? ...So many things have to be prepared by the teachers. (I-B-21)

In order to help teachers to develop suitable project learning tasks for students, expert H of Project Q, who is in charge of the collaboration with School K, has provided intensive professional support to the teachers in School K. The topic theme of project learning in this study is “exploring the community.”

The Strategies for Curriculum Adaptation

“Exploring the community” is a relatively broad theme. In the outline of the subject of general studies, this theme contains five areas: knowing the community characteristics, knowing the traffic facilities and functions, knowing the facilities near the community and knowing the rules and manners when using the facilities. As the theme encompassed broad contents, SDO H collaborated with teachers to adapt the curriculum task based on students’ abilities.

Analyzing Students’ Ability Levels

Identifying students’ needs and ability levels is as important as the starting

point for a school’s action (SCCC, 1992, p. 11). In *Special Educational Needs Code of Practice* (DfES, 2001) four areas of need are addressed for the group: (a) communication and interaction, (b) cognition and learning, (c) behavior, emotional and social development, and (d) sensory and/or physical needs. Based on the four areas of needs, SDO H observed and recorded 21 students’ abilities and after discussing with teachers, they divided students by learning abilities into three homogeneous groups: high ability, medium ability and low ability. The *Dictionary of Education* defines homogeneous ability grouping as “the classification of pupils for the purpose of forming instructional groups having a relatively high degree of similarity in regard to certain factors that affect learning” (Good, 1959, p. 269). From Table 1, it can be seen that the students in the high ability group are able to communicate with others, have basic learning skills, and are less prone to behavior problems and temperamental moods; the students in the medium ability group could interact in a simple way, and could follow teachers’ straightforward instructions but some have associated sensory, physical and behavioral difficulties that compound their needs; the students in the low ability group have severe or profound communication and learning difficulties, present challenging behaviors, and some demonstrate features along the autistic spectrum. The grouping details are listed in Table 1.

Table 1 Record of Students’ Abilities and Preliminary Grouping Result

Group	Student Code	Record of Students’ Ability
Group of high ability	SW (South Asian)	Has the courage to express him/herself, but some pronunciations are not accurate;
	SH (South Asian)	Has the ability to speak and can help classmates to tie their shoes;
	KS	Asks questions when he/she doesn’t understand and likes to express him/herself;
	ZY	Can tell the whole process of buying something in the supermarket, are proactive in the class and even could teach other students;
	GH	Goes back to School S when in Grade 5 from mainstream school, can answer questions, but is easily distracted;
	JQ	Can understand teachers’ instructions, but is afraid of looking at others’ eyes and reluctant to speak;
	HY	Has high ability to speak and study, and could read and copy the test and work independently;

(To be continued)

(Continued)

Group	Student Code	Record of Students' Ability
Group of medium ability	LX	Has the ability to learn and express, and can understand teachers' instructions. Is quiet, but always puts hands in pockets;
	SX	Can answer teachers' questions and put clothes on by self;
	HJ	Is very shy and afraid to talk, but can understand teachers' questions and requirements;
	JX	Cannot speak but can understand others and follow teachers' instructions, but cannot concentrate;
	ZY	Is quiet and shy, and can work independently and reply with single words, but cannot concentrate;
	KY	Is curious about strangers, active in saying hello to others and able to work independently, but sometimes forgets procedures;
	GW	Cannot speak, but can communicate with cards and hands signal, can understand teachers' instructions and work independently and eats with the help of the nursemaid;
Group of low ability	YS	Is shy and needs continuous touch stimulation, cannot speak. Has basic living skills and can eat and sit down quietly;
	TY	Has autism, cannot speak, has involuntary behaviors and hits own head;
	YZ	Has autism, slobbers, has involuntary behaviors, and continuously puts hands up. Can understand simple instructions, such as "open the jar," and can reply to others with single words. Cannot look in others' eyes and lives in his own world;
	YT (Japanese)	Must hold something in hands and refuses to open hands. Self-injures and cries when feeling bad; sometimes understands instructions;
	DZ	Has good understanding; pulls others' and self's hair when in a bad mood. Likes fire hoses very much and desperately looks for fire hoses when walking in the street;
	JQ	Has autism, brain epilepsy, and needs to wear a helmet. Often absent from school, and has low learning motivation. Can say simple things, such as "good morning";
	ZF	Needs to wear a helmet, is very active and cannot sit down. Cannot speak, but cries loudly to draw attention. The ability for self-control is very low and needs the help of school care workers to attend class.

In order to meet the needs of all students both curriculum differentiation and curriculum adaptation strategies are required (SCCC, 1992, p. 32). After grouping the students, SDO H communicated with teachers about students' previous experiences and family background. For example, the non-Chinese students would mail their own photos to the hometown; for the high ability group, they have the chance to use restaurants in their daily life; for the

middle ability group, they could use the public facilities in the local community; for the low ability group, their family members often take them to the neighborhood parks to relax. According to their abilities and previous experiences in the community, SDO H helped teachers to adapt the curriculum for the students. As stated above, the curriculum adaptation strategies involved in this study are classified into five domains: instructional goals, instructional contents, instructional strategies, instructional settings and student behavior needs.

The Adaptation for Instructional Goals and Contents

The instructional goal for this project learning is helping students to learn more about the community and the required rules and manners when using the community facilities; while, the goals had to be modified according to students' abilities. After communicating with teachers, SDO H adapted the goals based on the following considerations: The project learning tasks for students with high ability should be around application and communication; for students with medium ability, the inquiry tasks should be around identification; while for students with low ability, the tasks should be around experiencing more community facilities. Considering the number of students in each group, students were further grouped into five groups; two high ability groups, two medium groups and one low ability group. Collins et al. (1991) described four possible task structures: (a) the same task and the same stimuli for all members of the group; and (b) the same task and different stimuli for each member of the group; (c) different tasks for each member of the group using the same stimuli; and (d) different tasks and stimuli for all members of the instructional group. In this case study, the same task/same stimuli structure was utilized, which means each student in the same group, is taught the same skills using the same materials. SDO H helped teachers to develop five different tasks for the five groups: selecting the restaurants near schools (high ability group 1), buying stationery and then walking to the post office to post the letter (high ability group 2), playing table tennis in the park (medium ability group 3), doing exercise in the park (medium ability group 4), and walking to the neighborhood park (low ability group 5). Details for the grouping results and learning tasks could be seen in Table 2.

Table 2 The Final Grouping Result and Learning Tasks of Each Group

Group	Student Code	Student Abilities	Learning Task
Group 1 (high ability)	HY, ZY, KS, GH	<ul style="list-style-type: none"> • Relatively higher understanding ability, • relatively higher speaking ability, • relatively higher order thinking ability, • do not have the experience of going out alone; 	<p>Selecting the restaurants near schools.</p> <p>Supposing that the food supplier could not provide lunch for the school, then students should know how to choose different restaurants, such as Starbucks, McDonald's, and so on.</p>
Group 2 (high ability)	JQ, SW, SH	<ul style="list-style-type: none"> • Relatively higher cognitive ability, • relatively higher understanding ability, • unclear pronunciation, • SW and SH are non-Chinese students, and sending letters to their hometown is one of their life needs; 	<p>Buying stationery and then walking to the post office to post a letter:</p> <ul style="list-style-type: none"> • finding out the post office according to the guided map, • buying stationery, • posting letter;
Group 3 (medium ability)	HJ, JX, SX	<ul style="list-style-type: none"> • Medium understanding ability, • tractable; 	<p>Playing table tennis in the park:</p> <ul style="list-style-type: none"> • walking to the neighborhood park, • watching swimming pool, • watching indoor stadium, • knowing where to find toilets, • playing table tennis; <p>preparing and playing;</p>
Group 4 (medium ability)	LX, ZY, KY, GW	<ul style="list-style-type: none"> • LX and ZY has the speaking ability but said little; weak attraction, and could identify selected pictures; • KY and GW do not have speaking ability, weak attraction, and could identify selected pictures; 	<p>Doing exercises in the park:</p> <ul style="list-style-type: none"> • watching indoor stadium, • doing exercises in the outdoor stadium, • knowing where to find toilets, • eating lunch at the McDonald's restaurant;
Group 5 (low ability)	YS, JQ, TX, DZ, YT, ZF	<ul style="list-style-type: none"> • Weak understanding, • some students don't like to walk, • selfish, • have behavior problems when walking in the street, • do not have speaking ability. 	<p>Walking to the neighborhood park:</p> <ul style="list-style-type: none"> • enjoying the facilities of the park, • obeying the rules in the park, • knowing where to find toilets.

The Adaptation for Instructional Strategies

The adaptation for instructional strategies includes adapting input, output, time and degree of participation. Based of the analysis of students’ ability, SDO H utilized a “context-role-task” (CRT) model to do the project learning. In the CRT model, firstly, teachers would create some contexts which are interesting or closely related to students’ daily lives to stimulate students’ motivation; secondly, students would be asked to play some roles in the given contexts; thirdly, teachers would propose the tasks that students should complete. Students’ participation is highly stressed in the CRT model. The CRT model is a kind of community-based instruction, and community-based instruction is widely recognized as a critical element of effective secondary programs for students with significant cognitive disabilities (McDonnell, 2010; Wehman, 2006). As students with ID have difficulties with generalizing the skills learned in simulations to actual performance settings, it is better if the simulations are designed to approximate as closely as possible the stimuli found in the actual performance site (Branham et al., 1999; Browder, Snell, & Wildonger, 1988; McDonnell, 2011). Given this, the context in the CRT model is designed to be close to these students’ everyday life. Table 3 listed the contexts and roles of each group. Moreover, research has shown that many students with significant cognitive disabilities will need explicit instruction in actual performance settings to become independent (McDonnell, 2011). Therefore, before beginning the project learning, teachers have given students an introduction class first to set the context, clarify students’ roles and explain the procedures for finishing the tasks.

Table 3 The Contexts and Roles of Each Student Group

Group	Contexts and Students’ Roles
Group 1 (high ability)	The food supplier could not provide lunch for our school, and you should arrange lunch by yourselves;
Group 2 (high ability)	Seeing travel photos and sending them to your relatives in your hometown;
Group 3 (medium ability)	Teachers will play table tennis with you but you find that it is not suitable to play in the school, and then you need to find another place to play;
Group 4 (medium ability)	Tomorrow is students’ activity day and teachers will take you to visit the indoor stadium, do exercise in the outdoor stadium and eat food in a McDonald’s restaurant;
Group 5 (low ability)	Tomorrow is students’ activity day, and teachers will take you somewhere to play.

The pace of learning is a key feature of the education of students with ID because they are likely to have learned at a slower pace than others, “however, a balance is struck between a pace that ensures learning and one that keeps interest and enthusiasm” (Farrell, 2012, p. 54). In the past, one project learning process would last two or three weeks in School K, and SDO H suggested adjusting the learning days into three days because some teachers complained that students would forget what they had learned before in a long-term process. The arrangement for the three days is as follows: first day, introduction class; second day, doing project learning outside school in the morning and processing the collected data in the afternoon; third day, presenting the results by group.

The Adaptation for Instructional Settings

The adaptation for instructional settings includes adapting physical settings and group arrangements. The topic theme for this project learning was “exploring the community” and students were asked to go into the real local community to complete the tasks; therefore, the key point of these tasks was helping students to walk following the given route. However, in the real settings, it was difficult for teachers to change the settings, for example, changing the existing buildings and facilities. Given this, SDO H helped teachers to set the routes from the perspective of students. In the route direction map there were several pause points, and every pause point was illustrated with pictures of building or facilitators that students could see at the corresponding pause points. The route direction map for Group 2 was showed in Fig. 2.

Fig. 2 The Route Direction Map for Group 2

For the group arrangements, as indicated above, homogeneous grouping was adopted in the project learning process, which meant that students with similar abilities were assigned into one group. As students should walk outside to do project learning this time, homogeneous grouping could give students, especially those with low abilities more chances for inquiry by themselves.

The Adaptation for Student Behavior Needs

Students' behavior needs "may arise from physical, neurological or metabolic causes that only require appropriate access to educational facilities and equipment; others may lead to more complex learning and social needs; a few children will have multi-sensory difficulties some with associated physical difficulties" (Wearmouth, 2012, p. 55). From Table 1, we could see that the understanding and memory of most of the students were weak, and some students would slobber, injure themselves or have other behavior problems. For the topic of this project learning, students should experience real community life, but at the same time safety issues and getting along with others were also had to be well considered. Therefore, each student was allocated a project learning booklet, and the rules for going outside, a route direction map and some necessary pictures were printed in the booklet. Moreover, as five groups would do the tasks at the same time, more teachers from other subjects were asked to help the process and Project Q also allocated some staff to give support. In general, more hands were allocated to support the groups with lower abilities, and even some parents were involved in some groups.

The Effects of Curriculum Adaptation

After finishing the project learning process, SDO H asked the participant teachers to write their reflections on the degree of accomplishment of students, which were listed in Table 4. From the table, we could see that each group had finished the inquiry task.

Table 4 The Attainment Status of Instructional Targets of Each Group

Group	The Attainment Status of Instructional Targets
Group 1 (selecting the restaurants near schools)	<ul style="list-style-type: none">• Students could select the food sold by some restaurants from posts,• Students could collect data from different ways and it was a good chance for them to learn more about the restaurants in the local community and they could justify their judgments from their own experiences;
Group 2 (buying stationery and then walking to the post office to send letter)	<ul style="list-style-type: none">• Could use direction map to find place,• Could buy the needed stationery,• Could post photos to their families;
Group 3 (playing table tennis in the park)	<ul style="list-style-type: none">• Students could judge the suitable place to play table tennis,• Students could show their ID card to register, book a venue, take the tennis balls and take photos;
Group 4 (doing exercise in the park)	<ul style="list-style-type: none">• Students could identify the differences between the pictures on the photos and the real contexts in the park;
Group 5 (walking to the neighborhood park and enjoying the facilities of the park)	<ul style="list-style-type: none">• Students did not have enough time to explore and experience, but some students could positively try the activities in the park,• Most of the students in the group could repeat the rules learned in the introduction class.

Through the analysis of teachers’ reflection forms, interview data and observation record, we found that the effects of curriculum adaptation could be reflected from the following three aspects.

Enriching Teachers’ Understanding about Project Learning

Teachers in School K were confused about project learning and had often used the same framework for all the students in the past, which meant designing the same tasks for students in different grades. After the collaboration with Project Q, teachers learned that project learning could be developed from different views, for example, variety tasks could be designed for students with different abilities at the same time.

Our teachers have got lots of insights from the university experts, such as the concepts of project learning, how to prepare the process, and how to develop suitable tasks for students with different abilities. In the past, we used one-line development, which means developing one topic for students in different grades. But now we know that project learning could be designed in different ways. My colleagues all have a great sense of satisfaction through the activity. (I-A-1)

Giving Students More Chances to Develop their Potential in the Project Learning Activity

Due to the great variety in students' abilities, different contexts and tasks were developed for different groups of students, and the homogeneous grouping method could give more chances for students with low abilities to develop. This homogeneous grouping is great. We don't have to accommodate to students with different abilities in one learning task. The heterogeneous grouping could meet students' needs. (I-B-24)

At the same time, this project learning has changed the teacher-directed approach and given students more opportunities to play their roles in self-regulated learning. Moreover, teachers began to realize the importance of an introduction class before the inquiry process.

Now we have adjusted our approach and given students more chances to be involved in and let students know their roles in the process. We learned that an introduction class is necessary. In the past, we did not prepare enough for the project learning, and just walked to visit the places. We have added the introduction class and let students understand the learning task. (I-B-21)

Through this project learning process, I learned how to develop inquiry learning from students' views. The whole process was designed using student-directed ways, including identifying students' ability and needs, pre-trip and so on. What's impressed me most is the designing of the direction map. (D-Z-6)

Each student was allocated a project learning leaflet and it could help students to follow the procedural steps. Every student has been allocated one leaflet which could make students participate more in the process. We could use the arrangement in our future class design. (D-LI-6)

Bringing Teachers with Improving Motivation

We asked teachers to record the most commendable behaviors of students in the project learning process. From the records in Table 5, we could see the excitement and joy of teachers as they have found students' potential in different groups.

Table 5 The Most Commendable Behaviors of Students in Teachers’ Eyes

Group	The Most Commendable Behaviors of Students
Group 1 (high ability)	Students were dedicated to the learning task. Although the weather was cold, they were trying their hardest to seek the information. They could bravely interview the strangers. (LAI), Students were patient to look for food in the cold weather, and they were confident to interview strangers, which was worth being appreciated. Moreover, when they discussed the restaurant where to have lunch, they had different opinions. But after the discussion, they reached a consensus. We could see that students could resolve problems by themselves. (LIN);
Group 2 (high ability)	Students could use the guided map to search for places and could also resolve the problems (buying stationery and then walking to the post office to send letters) and they devoted themselves to learning in the process. (X);
Group 3 (medium ability)	Students actively engaged in the learning process, especially HJ, he was always smiling. They were willing to try and engage in and could accomplish the tasks. (S), Students actively engaged in the process. HJ, who was always very shy, showed high excitement when playing table tennis, which impressed me. Although the weather was cold and raining, students could be patient to finish the tasks. They were worthwhile are appreciated. (LI);
Group 4 (medium ability)	Students devoted themselves to the whole learning process. They were willing to try and participate. Although the weather was cold, they were still willing to do exercises in the park, which should be applauded. (ST);
Group 5 (low ability)	Students were active in the introduction class. Although the weather was cold and time was short, they could still perform well considering their qualities. (Z), Students were devoted and happy in the introduction class. On the project learning day, because of the bad weather, this group of students was asked to stay in the school to repeat the introduction class, but they still could concentrate on the work. On the presentation day, they could participate in the whole process, which greatly surprised me. (C).

Furthermore, in the collaboration process, university experts brought new ideas, insights and support for teachers, which also became the impetus for teachers to improve.

We have the questions on project learning, but we had to wade across the stream by feeling the way. We are keeping trying, but we don’t know if we are right. When the university experts came, we knew that the direction was right, and we had the confidence to do it. Before doing this project, I doubted that if this topic was suitable for these students. But now I could see that these students could construct their own knowledge from the learning process. (I-B-26)

The Sustaining of Curriculum Adaptation

We have interviewed the principal and the school curriculum leader one year after the support work provided by Project Q, and we find that some elements of curriculum adaptation have been sustained in the school, which could be seen from two aspects.

Continuing to Use the CRT Model in the Subsequent Activities

The CRT model has been used in many activities in School K now. Introducing, summarizing, and reflecting as a whole learning process is emphasized in School K.

Even for some informal project learning activity, we have added an introduction class in some cases, such as holding family activities. We would summarize the whole process, and review the effects in the end. We try to follow the CRT model. (I-B-22)

Increasing the Chances of Students for Self-Regulated Learning

The project learning activity, “Exploring the community,” let teachers see students’ potential especially the students with low and medium abilities. The progress of students has reinforced teachers’ confidence in giving students more chances to think independently.

Now we have learned to reflect on whether we have given students chances to think independently. You could not just ask students questions “what’s such this?”/ “what have you seen?” and so on. You should first make sure that students could see the pictures clearly, and then you let them choose the pictures. If the student could not see them clearly, it is meaningless to do the choice. It’s important for teachers to give students more time to think and respond. (I-B-26)

Besides encouraging students to think independently, teachers have begun to guide students to collect data by themselves and cultivated students to record and analyze the data through multiple ways. Taking pictures has now played an important role in our project learning process. We encourage students to collect data in different ways. If their abilities are high, they could make a record in written form; while for others with low abilities, they could take pictures. (I-B-23)

Concluding Remarks

The *Reform Proposal for the Education System in Hong Kong* in September 2000 is aiming at building an education system conducive to lifelong learning and all-round development for all students. Under the educational reform aims, the OCF promotes special education in stepping towards integrated education in Hong Kong and the curriculum in special schools is getting close to the curriculum in mainstream schools. Project learning is one of the four key tasks in the curriculum reform and it “can help students enhance their learning abilities and confidence as well as identify their interests and potential” (Education Commission, 2000, p. II-2). Westwood (2006) indicated that project learning may not be an effective teaching method for pupils with learning difficulties who lack adequate baseline skills in reading and writing. However, this study supports the view that students with ID can gain benefits and can engage in learning experiences through project learning at their own level after the curriculum adaptation process. In this study, the curriculum is adapted from five domains based on students’ abilities, including instructional target, instructional content, instructional strategies, instructional settings and student behavior needs. These adaptation efforts have made students with ID able to develop potential at their own level through the project learning process. As Helm and Katz (2011) pointed out, children with mental disabilities have many limitations compared to normally developing peers; however they may also learn lots of things if given the opportunity and educated in an appropriate way.

With these advantages noted, implementing project learning can be somewhat daunting for the teachers (Grant, 2002), as project-based learning completely changes the role of the teacher: from lecture and director of instruction to that of resource provider and participant in the learning activities; and from expert to advisor/facilitator (Newell, 2003, p. 5). Facing these challenges, teachers in School K felt frustrated when implementing project learning for students with ID. Rogers et al. (2011) pointed out that extended professional development for teachers is an important condition for successful implementation of project learning. When teachers report higher intrinsic motivation in the project learning, their students tend to perceive that they are receiving more support from them and to report higher intrinsic motivation in the learning experience (Lam, Cheng, & Ma, 2009). Therefore, it is critical to help and motivate teachers to step out of their comfort

zones. In this case, during the collaboration process, the experts from the university played important roles for teachers' extended professional development, for example enriching teachers' understanding about project learning and making teachers have a greater impetus to improve. Fullan (2001) proposed three phases of school change process: initiation, implementation, and institutionalization. The third phase about institutionalization refers to whether the change gets built in as an ongoing part of the system or disappears by way of a decision to discard or through attrition. In this case, the university experts did not do everything for the teachers but communicated and discussed with teachers about the curriculum adaptation plans in the whole process, which is part of the reason why the effects could be sustained after the collaboration with the university experts. As if the teachers are added to the program after the initial vision and mission have been established, you run the risk of having teachers in the school who do not share in that same philosophy of education (Newell, 2003, p. 97).

Limitation and Future Directions

Despite the above contributions, the study has some limitations. First, the low sample size. This study examines only one topic of project learning in one SID school. Although we have given a rich and deep analysis about how to adapt project learning for students with ID in this case, to ascertain the generalizability of our findings, future studies may include more experiences of implementing project learning in SID schools. Second, teachers' past orientation and motivation in project learning are not included in this study. Researches have demonstrated that teachers' intrinsic motivation in project learning and orientations toward teaching and learning some subjects play an important role in their implementation of project learning (Rogers et al., 2011; Lam et al., 2009). In this study, our focus is on students with ID, while for future studies teachers' attitudes and their past experiences about project learning and curriculum adaptation should be added in the research framework. Third, we just use qualitative data to examine the effectiveness of curriculum adaptation for the project learning activity; while some quantitative data could be considered in future studies, such as using one-group, pre-post-test design to examine students' academic performance.

In conclusion, ID used to be thought of as a personally internal competency;

however, in the recent years, ID is gradually being seen as a personally functioning status, which suggests there is a mismatch between personal competency and environmental demands. With the transition of the ID concept, more concern has been paid to providing individual supports for people with ID rather than focusing on individual deficiencies. In teaching and learning domains, curriculum adaptation is a critical support for students with ID. Project learning is a learning process which could integrate different knowledge domains and skills into one learning process, and it could support students with special educational needs to learn through alternative routes, such as multi-sensory approaches, hands-on experience and co-operative learning (Filippatou & Kaldi, 2010). However, if the support for students with ID is to be effective, project learning should be also adapted carefully according to their intellectual, conceptual, social, and practical adaptive skills in the learning process.

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