

Partnership among Schools in E-Learning Implementation: Implications on Elements for Sustainable Development

Siu Cheung Kong

Department of Mathematics and Information Technology, The Education University of Hong Kong //
sckong@eduhk.hk

(Submitted September 15, 2016; Revised June 18, 2017; Accepted August 8, 2017)

ABSTRACT

The study looked into how school partnership generates benefit. It aimed to identify the structures of partnership among collaborating schools and to examine elements that can contribute to sustainable e-Learning development. Six cluster project cases were purposefully selected from an e-Learning pilot scheme in Hong Kong to investigate how school partnership functions in e-Learning implementation through semi-structured focus group interviews. The findings identified five types of partnership structures that were adopted by the six e-Learning cluster projects, namely, a traditional leader-centered team leadership; a fusion of traditional leader-centered and distributed team leadership; a distributed-coordinated team leadership; an intermediate form of distributed-coordinated and distributed-fragmented team leadership; and a duplicated distributed team leadership structure. Elements including mutual benefit, active school engagement with dynamic communication and interaction, reasonable team size, and co-building of online sharing platform for channeling ideas and actions efficiently are critical to keep e-Learning school partnership sustainable.

Keywords

E-Learning, Partnership structures, School education, School partnership, Sustainable elements

Introduction

E-Learning refers not merely to the use of technology for learning and teaching (Stein, Shephard, & Harris, 2011), it concerns also the pedagogical issues, which focus on the ways of using digital resources, using digital communication tools and collecting learning data to effectively support learning, promote interaction and facilitate pedagogical decision making (Gebre, Saroyan, & Bracewell, 2014; Osborne, Dunne, & Farrand, 2013). E-Learning is multifaceted and requires talents of many parties in the formulation of a diversity of learning and teaching strategies, therefore collaboration is a key to carry out quality e-Learning implementation (Vandenhouten, Lepak, Reilly, & Berg, 2014).

Across-parties collaboration for e-Learning development is important, because different partners provide specialized supports and professional services for schools implementing e-Learning. Major stakeholders who play essential roles in e-Learning implementation include partnership schools, tertiary education sectors, business sectors and parents. This article focuses on the roles of partnership schools, which are crucial to schools that worked on a cluster basis and organized tenacious communities together in disseminating e-Learning practices and experience. Schools need to build a good partnership with different collaborating schools for the successful promotion of e-Learning. The collaborative initiatives and cooperation relationships can be delineated by studying the structures and related elements involved in partnership among cluster schools.

The distribution of leadership, division of labor and closeness of relationship are taken into consideration to investigate the structures of school partnership (Muijs, 2015; OECD, 2001). With partnership schools as an e-Learning stakeholder, teachers can benefit in various ways such as enhancing quality of lesson preparation and delivery, supporting fellows in resources sharing and management as well as reaching a larger pool of students (Wagner, Hassanein, & Head, 2008). The collaborative efforts generated from school clusters enable the schools to ease budget restriction for Information Technology (IT) infrastructure and human resources for e-Learning development, also to minimize the resistance from conservative teachers in adopting e-Learning strategies (Muijs, 2015; Wagner et al., 2008).

Research framework

Literature stresses the importance to identify the needs of school-based e-Learning in the first place; prior to schools' decisions on when, why and with whom to partner; and hence set clear and common goals, objectives and expectations between the schools and their partners (Duffy & Gallagher, 2015; OECD, 2001). Schools can

be strategic in terms of forming school partnerships, by understanding the cultural and organizational differences as well as similarities of the motives and management styles among different e-Learning partners. It is suggested that there is a variety of stakeholder groups who work jointly with schools, each plays specific roles and exerts influences on the operation and effectiveness of e-Learning implementation (Duffy & Gallagher, 2015; Wagner et al., 2008). In order to build a good e-Learning partnership, it would be more manageable for schools to begin with homogeneous affiliated members, namely the partnership schools. This study focuses on partnership schools as one of the stakeholders, who account for a major part in developing e-Learning initiatives especially in cluster projects.

Mehra, Smith, Dixon, and Robertson (2006) identified four team leadership structures in business domains: (1) traditional leader-centered team leadership structure, of which leadership is centered on a single individual within the team; (2) distributed team leadership structure, of which leadership is dispersed widely across team members; (3) distributed-coordinated team leadership structure, which is one of the derived forms of distributed team leadership that there is a reciprocal tie between the individuals who had emerged as leaders for coordinating team network; and (4) distributed-fragmented team leadership structure, which is another derived form of distributed team leadership that leadership is distributed over multiple team members without an obvious coordination within the team.

The four identified structures serve as the groundwork for the investigation of school partnerships in this study (Mehra et al., 2006). Essential to the concept of partnership, as pointed out by Nehring and O'Brien (2012), is reciprocity, collaboration and the development of mutually beneficial relationships. In the vision of Haines, Gross, Blue-Banning, Francis and Turnbull (2015), reciprocity is able to maintain a dynamic partnership with boosted trust and active engagement among partners, which generates mutual benefit to create a win-win situation. Duffy and Gallagher (2015) and Haines et al. (2015) further asserted that effective communication involving all parties listening to each other, sharing ideas and resources as well as ensuring reciprocal benefit is pivotal to establish a strong and trusting partnership. Another factor that may influence performance in the partnership is the team size. As characterized by Markette (2013), bigger team size is not necessarily the better, but a team with more members is probable to increase the lines of communication exponentially. Besides, although teams in smaller size can more quickly build up team cohesion, larger teams are more likely to contribute more collective intelligence, which also helps to enhance the partnership efficiency (Thompson et al., 2015).

Based on the conventional idea, traditional leader-centered leadership structures are featured as "fixed top-down institutional hierarchical models of leadership and management" with leaders exercising dominating power over the subordinate followers (Jameson, Ferrell, Kelly, Walker, & Ryan, 2006, p. 957). By contrast, frequent communication and close cooperation are associated with partnership structures with distributed leadership, in which "a mutual coordinated recognition of leadership authority and attributes by the formal and emergent leader(s) in teams" is emphasized (Jameson et al., 2006, p. 957). According to Mehra et al. (2006), distributed leadership structures in which leaders see each other as leaders within an atmosphere of trust and respect promote participation and information sharing among members, which in turn facilitate superior team performance and team outputs.

An increasing international interest in community of practice and knowledge management has developed along with the acknowledgement of significance of human networking and social capital (Duffy & Gallagher, 2015; Muijs, 2015). Jameson et al. (2006) endorse the view that without an obvious dominant position or hierarchical differentiation between team leaders in a cluster, school partnership structures with distributed leadership characteristics would be favorable for communities of e-Learning practice to function, in which partners share common values and beliefs for effective collaboration. Jameson et al. (2006) also recommended that clear accountability and authority in a cooperative relationship is imperative, especially for a time-limited e-Learning project aiming to achieve specific outcomes. When schools adopt a collaborative team-based approach to e-Learning management, it is anticipated that a healthy relationship in a partnership network relies on trust and reflexivity (Jameson et al., 2006). In other words, school partnership structures allow knowledge sharing and opinion exchange to take place among partner schools, based on respect and interdependence. There are two research questions guiding this investigation: (1) What are the structures of school partnership adopted by e-Learning schools in Hong Kong? (2) What elements pertaining to school partnership are beneficial to sustainable e-Learning development?

Methodology

The study was based on the data collected in the third year of a three-year e-Learning pilot scheme in Hong Kong schools about the processes and outcomes of e-Learning design and implementation, from which the school partnership on e-Learning is the focus of the current study. A multiple-case study approach was adopted to allow an intensive, holistic description and analysis of cases within each setting and across settings (Yin, 2003). Under the e-Learning pilot project, some schools worked individually as a discrete unit on a singleton basis, while some schools worked together with one or more collaborating schools on a cluster basis, the latter types of project schools were purposefully selected to address the scope of e-Learning partnership in the research questions. In total, six cluster project cases, which involved 32 pilot schools, i.e., 14 primary, 8 secondary, and 10 special schools, were selected for investigation. In each cluster case, the coordinating school worked collaboratively with one or more partner schools during the project. Each school was coded with a three-unit project case number: the first letter “C” stands for cluster project; the second digit indicates the number of school cluster; while the last one digit (except C610 which is the last two digits) refers to the individual partnership school within a particular cluster (see Table 1).

Table 1. Details of semi-structured focus group interviews with school partners

Project case	Partnership schools	Number of interviewees	Duration
C11	C11, C15, C16	3	111 min
	C12, C13, C14	5	103 min
C21	C21, C22	2	76 min
C31	C31, C32, C33, C34, C35, C36	7	130 min
C41	C41, C42, C43, C44	4	95 min
C51	C51, C52, C53, C54	4	118 min
C61	C61, C62, C63, C64, C65, C66, C67, C68, C69, C610	10	126 min
Total (Average):		35 (5)	759 min (108 min)

Note. C – Cluster case project.

Focus group interviews enable e-Learning stakeholders to make use of their experiences, knowledge and sensibilities to discuss different views of partnership issues (McPherson & Nunes, 2008). Data in this study was collected from semi-structured interviews with school senior management and leading teachers in both coordinating schools and partner schools (see Table 1). Project proposals in this pilot study were also used to examine the aim and objectives as well as the contexts for partnership and collaboration in these school clusters. Representatives from pilot schools commented on their collaborative model in scaling up e-Learning solutions and changes occurred across the cluster schools in the focus group interviews. Specific interview questions, such as, “How to describe the relationship among the e-Learning partnership schools in terms of responsibility, closeness and contribution?”; “What are the gains and advantages generated from the partnership for school e-Learning development?”; “What are the challenges and difficulties faced by the school cluster during the e-Learning implementation?”, were asked in order to collect views from the partnership schools on the (1) contexts, (2) beneficial outcomes, and (3) problems encountered during the collaboration in the implementation of the e-Learning projects. The audiotaped interview records were transcribed for analysis. Information on the three key features of partnership structure (i.e., context, beneficial outcomes and problems encountered) of the six project cases were systematically summarized. The research team with expertise in e-Learning development categorized the partnership structure of each project case by referring to the four team leadership structures empirically reviewed by Mehra et al. (2006), in order to ensure the validity and reliability of such categorization process.

Results and discussion

Five types of partnership structures from the six e-Learning project cases were identified. The categorization results were triangulated at two levels: a research team member who visited the representative schools in all school clusters for classroom observation and focus group interviews first agreed with the categorization results; and then another research team member who had no school visit but transcribed all focus group interview audio records agreed with the categorization results. The key features about the context, beneficial outcomes and problems encountered of the six e-Learning project cases were listed in Tables 2 to 7. Each project case is discussed with a brief description to elaborate the key features; and illustrated in a comprehensive figure (see Figures 1 to 6).

Partnership of project case C51

The school partnership of project case C51 (see Table 2) was initiated by the coordinating school C51 with C52, C53 and C54 as the partner schools in order to construct a Liberal Studies online learning platform with a question database for teaching resource management and students' knowledge assessment.

Table 2. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C51

C51 Partnership	Traditional leader-centered team leadership
Context	<ul style="list-style-type: none"> • C51 gathered schools to join efforts in constructing a Liberal Studies online learning platform with a question database for teaching resource management and students' knowledge assessment; established the online learning platform; shared IT information and support; provided iPad training and e-Learning workshops for teacher development. • C52, C53, C54 made contributions to designing the online learning platform, producing Liberal Studies test questions and trying out e-Learning practice in different Liberal Studies topics. • Example of feedback - from C51 representative: <i>“As the coordinating school, we focused on designing the online learning platform in the first year. Our partner schools at that stage mainly gave comments on the designed platform. We then provided training for partner schools to conduct trial teaching using the designed platform across different subject topics. We regularly gathered partner schools to exchange experiences and suggestions on e-Learning with the use of the designed platform.”</i>
Beneficial outcomes	<ul style="list-style-type: none"> • An online learning platform with a Liberal Studies question databank established [Element 4]; • E-Learning teaching materials and pedagogy enriched [Element 1]; • E-Learning teaching experience shared [Element 2]; • A division of labor [Element 3]; • Project outcome of e-Learning pedagogical designs, experience and resources disseminated through sharing sessions to non-project schools [Elements 1 & 2]. • Example of feedback - from C53 representative: <i>“We felt satisfied with the collaborative work on designing the online learning platform and exchanging e-Learning resources. There were a number of success factors for this cluster: first, the regular meeting and sharing arranged by the coordinating school for coordinating all member schools to collaboratively design tasks and collect resources for school-based e-Learning trials; second, the professional advice from the coordinating school on the possible challenges and feasible practices for school-based pedagogical integration of e-Learning resources in subject learning activities; and third, the opportunities among the member schools to make collaborative class observation and teaching reflection for valuable comments on improving e-Learning trial in each member school.”</i>
Problems encountered	<ul style="list-style-type: none"> • Insufficient time in preparing e-Learning lessons due to limited work force [Element 3]; • Partner schools not active enough to take initiative [Element 2]; • In need of technology company to provide free technical support to build e-Learning infrastructure in schools [Element 4]. • Example of feedback - from C53 representative: <i>“The partner schools were not active to start the assigned tasks in implementing the e-Learning initiative. We often waited for the start by the coordinating school, which tried hard to tackle challenges of insufficient time for an intensive technical and pedagogical guidance to the school-based e-Learning trial in each partner school.”</i>

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

The model of partnership in this school cluster resembled a traditional leader-centered team leadership structure. C51 was the single school at the center of the leadership, which played a starter role and coordinated communication among the partner schools. It took on the major responsibility for designing the teaching framework and building the online learning platform. Under the leadership of C51, partner schools made collaborative efforts to refine the teaching resources on the online platform and to share their ideas and experience for the improvement of the e-Learning practice. All partner schools agreed that the sufficient assistance from the coordinating school C51 was helpful in achieving the project goals in their schools. The

collaborative relationship was considered successful as it accelerated the establishment of the online learning platform with a resourceful Liberal Studies question databank. Meetings, workshops and classroom observations relating to e-Learning were organized for teacher development. For improvement, teachers mainly reflected that there was insufficient time to prepare the main contents and supporting measures for the e-Learning lessons, which was largely resulted from limited work force. Partner schools recognized their lack of initiative, but were motivated by the project leader C51 to move on in the process. The partnership could be improved if more tasks were involved by the partner schools.

Based on the context and style of partnership observed, it is identified that the school cluster adopted a traditional leader-centered team leadership structure (Mehra et al., 2006) (see Figure 1). The coordinating school C51 was leading in technology and thus the partnership mainly benefited teacher development at the technical level.

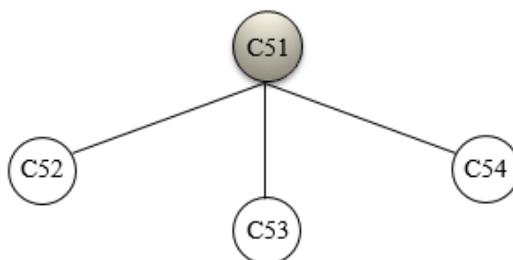


Figure 1. Traditional leader-centered team leadership structure in project case C51

Partnership of project case C41

Under the same school sponsoring body, C41 initiated the partnership of project case C41 with three partner schools C42, C43 and C44 (see Table 3), aiming to encourage student-centered learning, build up students' 21st century skills, and promote self-directed study along with the latest technological advances.

Table 3. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C41

C41 Partnership	Fusion of traditional leader-centered and distributed team leadership
Context	<ul style="list-style-type: none"> • C41 initiated the partnership for the common project goals; played the role as coordinator and decision-maker; sought outsourced support to develop teaching materials for the project; purchased IT infrastructure for partner schools; shared ideas and experience on e-Learning implementation; administrated the information hub on Facebook. • C42, C43 and C44 worked independently to try out e-Learning practice with advice and support from C41; produced tailor-made teaching materials with diverse vendors; shared information, experience and reflection about e-Learning practice within the information hub. • Example of feedback - from C41 representative: <i>“As the coordinating school, we initiated the partner schools to implement school-based e-Learning trials; launched innovative e-Learning practices for trial teaching among member schools; and coordinated the inter-school communication and financial administration issues for the smooth operation of the cross-school e-Learning initiative.”</i>
Beneficial outcomes	<ul style="list-style-type: none"> • The formation of an information hub on Facebook for information, ideas, experience sharing and teaching reflection among cluster schools [Elements 1 & 2]; • Experience, resources and project outcome of e-Learning implementation disseminated via the information hub to project and non-project schools [Element 2]; • A division of labor [Element 3]. • Example of feedback - from C44 representative: <i>“The coordinating school set up a Facebook group for the prompt uploading of e-Learning resources and the useful posting of pedagogical ideas and teaching examples related to the uploaded e-Learning resources. As a partner school, we valued these inputs for the convenience of experience sharing and feedback exchange among the four schools in the cluster.”</i>
Problems encountered	<ul style="list-style-type: none"> • Deficient human resources resulting in teachers' heavy workload [Element 3]; • Insufficient time for e-Learning development [Element 3]. • Example of feedback - from C43 representative: <i>“This collaborative e-Learning initiative was meaningful and successful. We noted the big challenge of the coordinating school to</i>

spend sufficient time and effort on giving each partner school intensive guidance and follow-up support for the existing implementation and future development of school-based e-Learning trial.”

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

As the project initiator, C41 coordinated tasks and communication among partner schools, made important decisions, sought outsourced support to develop teaching contents, and purchased IT facilities for partner schools. The three partner schools tried out e-Learning practice independently with advice and support from C41. E-Learning policies and pedagogical activities were different among the schools in this cluster. The cooperation mainly emphasized the sharing of ideas. C41 was highly appreciated by its cluster members for all the effort and information provided, especially the ideas and experience on e-Learning implementation with self-produced teaching materials.

In this cluster, classroom observations were held spontaneously and meetings were arranged when necessary, while WhatsApp and email were used as usual communication tools and video conferencing as the major means for “face-to-face” discussion. The attribute of this partnership was the formation of an information hub on Facebook for within-group sharing about teacher development courses, workshops, useful apps, description, reflection, photos and videos of e-Learning lessons. However, teachers found the workload heavy because of insufficient human resources and preparation time for e-Learning development.

With respect to partnership structure, on the one hand, C41 functioned as a traditional leader coordinating information dissemination, providing technical support and facilitating interactions. On the other hand, partner schools worked independently and automatically to design the appropriate pedagogy and teaching materials to adapt to their own school context, diffusing the leadership across the cluster members. With the aid of the information hub, school participation and information sharing were enhanced. This school cluster demonstrated a fusion of traditional leader-centered and distributed team leadership structure (see Figure 2), which is a derivative structure from the traditional leader-centered team leadership structure and the distributed team leadership structure (Mehra et al., 2006).

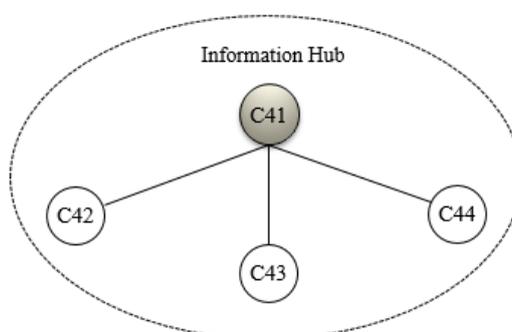


Figure 2. Fusion of traditional leader-centered and distributed team leadership structure in project case C41

Partnership of project case C21

The school partnership in project case C21 between C21 and C22 (see Table 4) was initiated for enhancing school learning and teaching with e-Learning resources and pedagogy as well as improving students’ self-directed learning and study motivation. As the initiator, C21 shared its IT knowledge and information with its partner school C22 that had less experience in e-Learning. It also took full responsibility for the coordinating and administrative work. Both C21 and C22 shared equal workload in developing e-Learning resources, which accounted for identical amount of different topics in Chinese Language and Mathematics for Primary 4 and 5.

Teachers in this cluster were in favor of the partnership because there was an equal division of labor for their work on preparing e-Learning lesson plans and teaching materials. Collaborative lesson planning and discussions, ideas and experience sharing, peer classroom observations, teaching reflection and evaluation, all provided inspiration and new insights into the pedagogical approach of e-Learning practice, which was of great significance for teacher development. Although the partnership between C21 and C22 was closely connected and in harmony in the cooperation, having only two members in the project gave teachers plentiful burden in academic workload due to insufficient work force. Both schools believed that if more schools engaged in the

partnership, more work force and ideas would be generated to elevate the quality and efficiency of the e-Learning implementation.

Table 4. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C21

C21 Partnership	Distributed-coordinated team leadership
Context	<ul style="list-style-type: none"> • C21 initiated the partnership in the hope of enhancing school learning and teaching as well as improving students' self-directed learning and study motivation; shared IT information with the partner school; took charge of the coordinating and administrative work. • C21 and C22 shared equal workload in developing e-Learning teaching materials; conducted collaborative lesson planning and provided feedback and advice for improvement; organized meetings and peer classroom observations beneficial to teacher development. • Example of feedback - from C21 representative: <i>"As the coordinating school, we took charge of major administrative tasks in the cross-school e-Learning initiative, such as external liaisons and meeting arrangements. For the academic design of subject-specific e-Learning trials, we and the partner school equally shared the workload for both the Chinese Language learning stream and the Mathematics learning stream. Regular meetings were organized by the two streams for various partnership supports, including checks on trial progress, reminders on trial implementation, sharing of experiences and difficulties, collaborative preparation of e-Learning trial lessons."</i>
Beneficial outcomes	<ul style="list-style-type: none"> • An equal division of labor in lesson plans and teaching materials preparation [Element 1]; • Teachers' insight into e-Learning implementation enlarged [Element 1]; • The co-building and sharing of an online platform with well-prepared teaching resources [Element 4]; • E-Learning resources, experience and project outcome disseminated within and beyond the cluster schools through the closing ceremony [Elements 1 & 2]. • Example of feedback - from C22 representative: <i>"The collaborative efforts for school-based e-Learning implementation widened the horizons of both member schools in the cluster for e-Learning development. We benefited much from the teaching resources and lesson plans co-prepared by both member schools; and the open sharing and discussion of teaching ideas related to e-Learning trials on the online platform co-developed for the cluster."</i>
Problems encountered	<ul style="list-style-type: none"> • Heavy teacher workload due to insufficient human resources [Element 3]; • More partners wanted for more ideas and work force to enhance the quality and efficiency of the e-Learning implementation [Element 3]; • In need of more funding for the allocation of human resources, the maintenance and update of e-Learning facilities [Element 3]. • Example of feedback - from C21 representative: <i>"We were very satisfied with the co-development of teaching resources for e-Learning trials. However, the workload for teachers who took charge of this aspect became too heavy. We expected more peer support and less teaching workload for those teachers, with the maintenance and update of e-Learning infrastructure for efficient preparation of e-Learning resources."</i>

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

Notwithstanding C21 took charge of the overall planning and external contact in this project, C21 and C22 had the same level of academic responsibility in e-Learning implementation. Dissimilar with the traditional leader-centered team leadership structure with only one single leader standing at the core of the leadership network, C21 and C22 recognized each other as the leader in preparing and designing the teaching materials in different topics with shared equal workload, and made consensual decisions to achieve concerted practices. Their leadership contributed to a harmonious and reciprocal relationship by synchronizing their leadership efforts in such a way that decisions and actions could channel more effectively within the partnership (Jameson et al., 2006; Mehra et al., 2006). However, the lack of school partners resulted in a partnership with restricted team size. Therefore, the partnership in the C21 project displayed a distributed-coordinated team leadership structure (Mehra et al., 2006) in a small scale (see Figure 3).



Figure 3. Distributed-coordinated team leadership structure in project case C21

Partnership of project case C31

C31 initiated the partnership in project case C31 (see Table 5) with five other schools under the same school sponsoring body for developing e-Learning materials and establishing an effective learning management system for two key subjects to promote teaching efficiency and students' self-directed learning. C31 was the partnership initiator and coordinator for making the overall administration, and providing its partner schools with technical backup to reduce their time and ease their financial burden of acquiring hardware groundwork. C33 was another leadership school. C31 led C32 and C35 as a subgroup for compiling e-Learning materials for the subject Putonghua as a Medium of Instruction in Teaching Chinese Language, while C33 directed C34 and C36 as another subgroup for producing e-Learning materials for the subject General Studies. The two subgroups exchanged their e-Learning materials, demonstrating a combination of intimate interaction and interdependence.

C31 and C33 directed and supported partner schools in their subgroups for collaborative lesson planning, classroom observations in turns, and follow-up meetings for discussion. The formation of "Study Circle," in which members in this cluster interacted through both in-person meetings and virtual communications using email, instant messenger and cloud storage, was highly treasured for improving communication and ideas sharing, establishing a functioning and sustainable teacher network, and increasing confidence and willingness to try e-Learning practice. However, the participating teachers called for a better school policy to improve their working condition by cutting down their teaching time and increasing the work force so that they could concentrate on experimenting e-Learning.

Table 5. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C31

C31 Partnership	Distributed-coordinated team leadership
Context	<ul style="list-style-type: none"> • C31 initiated the partnership for compiling e-Learning materials and establishing a learning management system for two subjects to promote teaching efficiency and students' self-directed learning. • C31 as the coordinating school and C33 as the leading partnership school each formed a subgroup responsible for e-Learning development in either of the subjects. • C31 took charge of the overall administration, provided technical support, and contacted external partners for supporting the whole project. • C31 and C33 provided administrative and operational backup, gave directions to designing e-Learning teaching materials and pedagogy within the subgroup, and organized sharing talks and sessions for teacher development. • Partner schools engaged in subgroup-based collaborative lesson planning, took turns to organize classroom observations and arranged follow-up meetings for sharing and discussion. • Schools modified the lesson plans and contacted their own external partners to ensure the teaching materials suitable for the school context before using. • The adoption of a "Study Circle" improved interactions, knowledge exchange and experience sharing within the cluster. • Example of feedback - from C31 representative: <i>"The six member schools in this cluster shared the same objectives and coherent rationales for e-Learning development to facilitate students' self-directed learning. As the coordinated school, we not only took charge of the administrative issues in the cluster, but also provided pedagogical and technical supports for each partner school to arrange school-based e-Learning trials. The strong link and extensive communication within the cluster fostered all six member schools to regularly organize joint-school professional development activities such as classroom observation and training seminars for increasing knowledge and sharing experience of e-learning development."</i>
Beneficial outcomes	<ul style="list-style-type: none"> • Teaching materials including lesson plans and technical devices shared [Element 1]; • A division of labor [Elements 1 & 3]; • Teachers' insight into e-Learning implementation broadened with increasing confidence in

	<p>e-Learning [Element 1];</p> <ul style="list-style-type: none"> • Communications improved and a well-functioning teacher network established by forming a “Study Circle” for knowledge and experience sharing [Elements 1 & 2]. • Example of feedback - from C35 representative: <i>“The cluster formed a ‘Study Circle’ which facilitated the six member schools to engage in professional sharing of e-Learning development. Through the continuous observation and sharing of school-based e-Learning implementation within the cluster, even the teachers who at first felt reluctant to e-Learning in our school became adapted to integrate e-Learning into subject lessons for improving teaching and learning effectiveness.”</i>
Problems encountered	<ul style="list-style-type: none"> • Heavy workload for teachers [Element 3]; • More funding needed for purchase, maintenance and update of e-Learning infrastructure, such as the tablets and an integrated self-sustaining e-Learning platform for the cluster [Element 4]. • Example of feedback - from C34 representative: <i>“We concern most the provision of tablets for e-Learning implementation. The total number of tablets in our school now is insufficient for every student in one class to use in an e-Learning trial lesson. Moreover, the existing model of tablets cannot fully support the smooth operation of the designed e-Learning activities. We need funding support for purchasing the updated model of tablets for maintaining the e-Learning initiative.”</i>

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

With C31 and C33 as two leaders each directing a subgroup to compile e-Learning materials for either of the two subjects, the leadership of this cluster was distributed. The successful cooperation and intimate interaction relied not only on the leadership of the two leaders within and between the subgroups, but also the active teamwork performance of the partner schools (Jameson et al., 2006; Mehra et al., 2006). Being both interdependent and autonomous in preparing the suitable e-Learning materials, each school in this cluster had made its own contributions in the course of e-Learning development. With a six-member-school composition, the partnership in the C31 project was of distributed-coordinated team leadership structure (Mehra et al., 2006) with a relatively reasonable team size (see Figure 4).

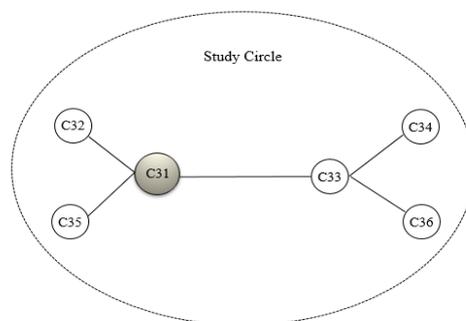


Figure 4. Distributed-coordinated team leadership structure in project case C31

Partnership of project case C11

Similar with project case C31, the coordinating school C11 started the partnership with five partner schools for trying out e-Learning in four subjects and nurturing students’ capacity for self-directed learning (see Table 6). The work in this cluster was equally assigned to two subgroups led by C11 and C12 respectively. According to school expertise, C11 led C15 and C16 for developing Mathematics and English Language e-Learning materials, while C12 led C13 and C14 for developing Chinese Language and General Studies e-Learning materials. The two subgroups worked separately with limited interactions between each other, though they shared their well-prepared lesson plans and teaching materials. The overall administrative and operational support was provided by the coordinating school C11.

Different from project case C31, project case C11 first assigned the two subgroups leaders to independently design lesson plans and teaching materials. Partner schools in each subgroup then practiced the lesson plans and teaching materials in class, with follow-up feedback and advice for amendment. Each subgroup conducted classroom observations and discussions, and on-site technology training and e-Learning workshops. The cluster

schools maintained a positive attitude towards the partnership with a clear division of work. Teachers in each subgroup found they enriched pedagogical experience, gained important visions and built teaching confidence in e-Learning implementation. However, teachers expected more preparation time and less teaching duty for designing e-Learning lessons.

Table 6. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C11

C11 Partnership	Intermediate form of distributed-coordinated and distributed-fragmented team leadership
Context	<ul style="list-style-type: none"> • C11 initiated the partnership with 5 partner schools for the common goals to try out school e-Learning in 4 subjects and enhance students' self-directed learning. • C11 as the coordinating school and C12 as the leading partnership school each formed a subgroup accountable for e-Learning development in 2 different subjects based on school expertise. • The 2 subgroups worked separately with limited interactions but shared the teaching materials when well-prepared. • C11 provided overall administrative and operational support for the cluster. • C11 and C12 designed the lesson plans and teaching materials independently, invited their partner schools for classroom observations and discussions, and offered assistance in teacher development programs within the subgroup. • Partner schools practiced the lesson plans and teaching materials designed by their leading schools on a subgroup basis, gave feedback and advice for refinement. • Partner schools in C11 subgroup began to develop the teaching materials on their own in the third year while those in C12 subgroup kept on following and practicing the lesson plans developed by C12. • C13 in C12 subgroup only cooperated to develop the teaching materials of one subject due to the use of different textbook of the other subject from its subgroup members. • Example of feedback - from C11 representative: <i>"The member schools in the cluster all shared the similar rationale for e-Learning development and aimed to collaboratively develop suitable teaching and learning resources for e-Learning trials according to school needs. As the coordinating school, we tended to be an initiator and then a supporter, but not a director, to stimulate the planning and support the implementation of school-based e-Learning trials among the partner schools. We focused on organizing classroom observation activities with post-observation meetings for the partner schools to concretely gain insights into the design and implementation of school-based e-Learning trials."</i>
Beneficial outcomes	<ul style="list-style-type: none"> • A division of labor [Element 1]; • A school network established [Element 1]; • Information, knowledge and experience in e-Learning obtained [Element 1]; • Lesson plans and teaching materials shared [Elements 1 & 2]; • Teachers' insight into e-Learning implementation expanded [Element 1]. • Example of feedback - from C15 representative: <i>"The greatest benefit in this cluster project is widening the horizons of e-Learning development. At the level of school planning, we gain insights into the desirable directions of e-Learning implementation in primary school classrooms. At the level of teacher development, we gain knowledge of effective e-Learning pedagogies for addressing students' learning difficulties. We value the sharing of lesson plans and teaching resources co-developed by the member schools."</i>
Problems encountered	<ul style="list-style-type: none"> • Insufficient time and human resources for e-Learning development [Element 3]; • Deficient school infrastructure for e-Learning lesson implementation [Element 2]. • Example of feedback - from C16 representative: <i>"We faced two major challenges: there were insufficient tablets for classroom use in e-Learning trial lessons; and the teachers were overloaded to prepare for e-Learning pedagogies and resources."</i>

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

The project case C11 adopted a similar partnership structure with similar team size as in project case C31, that is, the distributed-coordinated team leadership structure, with two teams devoting to subjects of expertise. Despite the fact that the two subgroups equally shared the workload in designing the teaching plans and materials which would be exchanged within the cluster when well-prepared, the bonding between the two subgroups in project case C11 was not strong to form a concrete distributed-coordinated team leadership structure owing to rare inter-

group communication and interaction (Haines et al., 2015; Nehring & O'Brien, 2012). Correspondingly, project case C11 could be regarded as a halfway structure from distributed-coordinated to distributed-fragmented team leadership structure (see Figure 5) derived from the structures termed by Mehra et al. (2006).

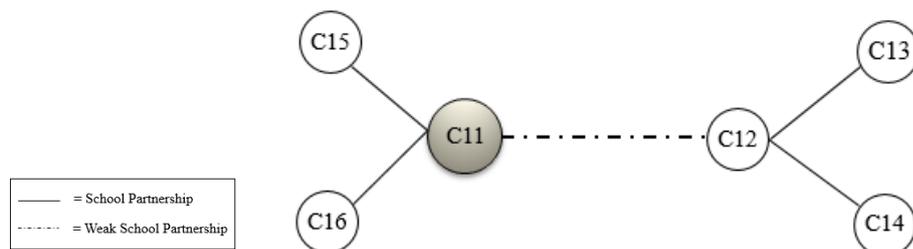


Figure 5. Intermediate form of distributed-coordinated and distributed-fragmented team leadership structure in project case C11

Partnership of project case C61

The school partnership in the last project case directed by the coordinating school C61 was established among 10 special schools with a partnership background under a previous project (see Table 7). It aimed to build an online platform with suitable teaching plans and materials to support teachers in implementing e-Learning in schools for students with physical or intellectual disabilities, and to improve these students' learning efficiency by adopting student-centered approach assisted with e-Learning pedagogy.

This project case focused on two learning areas, namely Personal, Social and Health Education (PSHE) and Chinese Language. All cluster schools arranged teachers and staff to engage in the e-Learning preparation process in both learning areas. C62 and C63 were the two leading partnership schools coordinating the efforts with the other nine schools to develop e-resources of PSHE and Chinese Language respectively. Meanwhile, C61 was the overall coordinator and invigilator of the whole project for the support of cluster communication, project logistics, project finance, system operation, and teacher development programs.

A steering committee consisted of 10 school principals was authorized to oversee and review the work progress for a well-structured organization and so the smooth operation of the project among the 10 cluster schools in two writing teams for e-Learning development of PSHE and Chinese Language. An accelerator team composed of representatives from C61 (IT coordinator), C62 (PSHE teacher), C63 (Chinese teacher) and C68 (speech therapist) was set up to formulate work schedule and monitor the progress in teaching plans and materials development by regulating the tasks and communication between the two writing teams. A technical team constituted of teachers with higher IT competency from each school was formed to solve the problem hindering e-Learning particularly due to students' physical disability by designing special devices, such as installing a panel with buttons on the wheelchairs. Furthermore, schools catering for similar special needs of students paired up and formed small groups with varied assigned duties. Tasks were distributed to different schools in accordance with specialty of fellows in the schools to guarantee optimal quality of work.

Table 7. Details of context, beneficial outcomes and problems encountered of partnership structure in project case C61

C61 Partnership	Duplicated distributed team leadership
Context	<ul style="list-style-type: none"> The partnership network was established under a previous project with 10 special education schools aiming to build an online platform to support teachers in e-Learning implementation, and to enhance students' learning efficiency by promoting student-centered pedagogy with the aid of IT devices. C61 as the overall coordinator and invigilator provided assistance to all the details in the events. C62 and C63 each formed a writing team leading the other 9 partner schools to develop e-Learning resources on one of the two key learning areas respectively. A steering committee consisted of 10 school principals to oversee and review project progress. An accelerator team was set up as a middle management to formulate the work schedule and coordinate tasks between the writing teams. A technical team constituted of teachers with higher IT competency from each school was responsible for system maintenance and IT support.

	<ul style="list-style-type: none"> • A learning platform with lesson plans and teaching materials was constructed by joint efforts of all schools in the cluster. • Example of feedback - from C61 representative: <i>“This cluster consisted of 10 special schools of which all had a common motivation that there was a great need of an online learning platform tailored for special schools to efficiently share e-Learning resources for different subjects. Each of the 10 schools assigned a teacher with high IT competency to join the technical team in the cluster to contribute expert knowledge for integrating accessible technological devices with suitable e-Learning pedagogies for teaching students with different special educational needs.”</i>
Beneficial outcomes	<ul style="list-style-type: none"> • An online learning platform with scheme of work and e-Learning resources shared [Element 4]; • E-Learning implementation efficiency improved due to the clear division of labor [Element 2]; • An upgrade of teachers’ ability of IT usage [Element 1]; • An enhancement of IT application in schools [Element 1]; • An excellent environment created for e-Learning implementation with teamwork spirit [Elements 1 & 2]; • Insight into e-Learning implementation gained in schools for students with physical or intellectual disabilities [Element 1]; • A change of mindset of teachers and parents on the impact of e-Learning [Element 1]. • Example of feedback - from C63 representative: <i>“We collaborated to prepare e-Learning lesson plans, develop and try the online learning platform, and conduct e-Learning trial teaching. This cluster consisted of the hierarchies of steering committee with school principals, accelerator team with middle management teachers, and technical team with teachers with high IT competency. The strong team spirit fostered all member schools to actively use the online learning platform and regularly organize cluster meetings to report implementation progress, exchange pedagogical experience, and share teaching resources in school-based e-learning trials. All member schools worked closely for the common goal of benefitting students in special schools to receive e-Learning opportunities in lesson time.”</i>
Problems encountered	<ul style="list-style-type: none"> • Insufficient time and resources for e-Learning development - desire for more funding to better allocate human resources and to develop tailor-made software to cater for learner diversity [Element 3]; • Heavy workload for teachers - desire for more technical support to solve the difficulties in integrating pedagogy with technology and technical problems in implementation [Element 3]. • Example of feedback - from C61 representative: <i>“We gained a great satisfaction in this cluster through successfully designing a set of e-Learning resources suitable for students with different special educational needs. However, we faced a great challenge in sparing time from the daily heavy teaching workload for an extra effort on designing e-Learning resources. We expect more human resources and technical supports for the design and implementation of e-Learning resources co-developed in this cluster.”</i>

Note. Element 1 - Mutual benefit; Element 2 - Active school engagement with dynamic communication and interaction; Element 3 - Reasonable team size; Element 4 - Co-building of online sharing platform for channeling ideas and actions efficiently.

This cluster constructed a platform with scheme of work able to be accessed and modified according to school-based teaching plans. Due to the distinct expertise of the cluster schools, this platform accumulated a wide range of resources systematically to serve as a central management system to facilitate lesson preparation and increase teaching quality. The most delighting part in the partnership was the creation of an exceptional environment for e-Learning through teamwork, in which information and ideas on e-Learning pedagogy and practices were shared and exchanged. Teachers gained insight into e-Learning in schools for students with physical and intellectual disabilities in the hope of transferring e-Learning to the other learning areas.

This cluster indicated the room for improvement by putting adequate funding in order to have a better arrangement of human resources for e-Learning development and to design tailor-made software to meet the needs of different students. The teachers expected sufficient time and resources for school e-Learning development. They also expected more technical support not only to help them integrate pedagogy with technology for special school students, but also to fix the IT problems happened during e-Learning lessons. The teachers also hope for preventing the assignment of several roles at the same time, e.g. an operation manager of the writing team for the e-Learning development of either PSHE or Chinese Language could simultaneously be a member of the accelerator team.

The project case C61 displayed a duplicated distributed team leadership structure, a derivative of the distributed team leadership structure identified by Mehra et al. (2006), in which two structurally identical writing teams were formed under the leadership of C62 and C63 respectively (see Figure 6). Each writing team was responsible for the e-Learning development of one key learning area, with C61 as the overall coordinator to assist and facilitate the communication and interaction between the writing teams. All schools within the cluster sent teachers and experts to engage in both of the teams. Joint efforts of members were much more emphasized instead of great reliance of work on a dominant leader. Since more participants played a more active part, or even took up multiple roles in knowledge, experience and resource sharing, collaboration was reinforced with boosted mutual benefit (Haines et al., 2015; Jameson et al., 2006; Markette, 2013; Thompson et al., 2015). The partnership in project case C61 exerted constructive influence on e-Learning development.

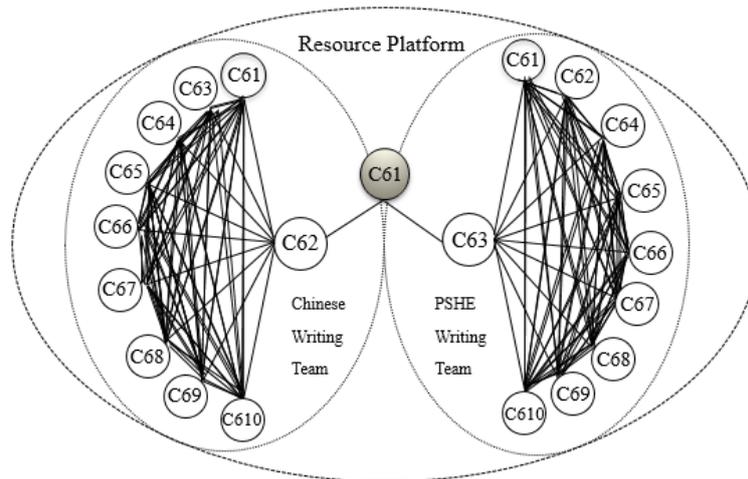


Figure 6. Duplicated distributed team leadership structure in project case C61

Implication

From the five types of school partnership structures identified from the six e-Learning cluster projects, this study reveals four elements critical for school partnership to effectively maintain e-Learning implementation. They are mutual benefit, communication and interaction, team size, and the online sharing platform.

Mutual benefit

Mutual benefit among the participating schools served as the most essential reason to practice and continue the partnership (Nehring & O'Brien, 2012). Results from the six project cases C11, C21, C31, C41, C51 and C61 indicated that they did share mutual benefits. Based on the specific needs of different schools and cluster projects, leadership schools emerged by virtue of their knowledge and experience in implementing e-Learning, which were able to offer partner schools advice and guidance (OECD, 2001). In return, partner schools engaged in lesson planning, teaching material preparation, trial classes, co-building of the e-Learning online platform, helping to improve the e-Learning pedagogy and teaching quality and to accelerate the development progress. Reciprocal benefit generated by school partnership thus performed as a bonding tie to draw these schools into a collaborative network (Haines et al., 2015; Nehring & O'Brien, 2012). Findings indicated that mutual benefit in these project cases included the sharing of IT information, ideas and experience on e-Learning implementation, the exchange of lesson plans and teaching materials, and the division of work to ease the workload of teachers.

Communication and interaction as well as team size

In spite of the aforementioned mutual benefit, the communication and interaction among the associated partners as well as the team size of the partnership structure also significantly affect the practice and effectiveness of school partnership for e-Learning development. This explains why the following project cases employed similar partnership structures but resulted in various outcomes.

Case C41 and C51 were similar in team size and model. However, case C41 was in a more dynamic structure; compared with case C51 in which a single school C51 was at the center of the leadership network with superior performance in directing and propelling the collaboration with its less technologically experienced partners due to its competency in technology use. In case C41, the leadership was distributed when the partner schools took charge of designing tailor-made teaching materials based on their own school context with the technical support from the coordinating school C41. This kind of fusion of traditional leader-centered and distributed team leadership structure enhanced team performance when being compared with the pure traditional leader-centered team leadership structure in project case C41. It is because partner schools took more initiative and involved in more active team communication and interaction, which, in turn, expedited the process of information, experience and reflection sharing about e-Learning practice (Jameson et al., 2006; Mehra et al., 2006).

The comparison of case C11, case C31 and case C21 further highlights the importance of these two critical elements. The partnership structures of these three cases all belonged to distributed team leadership patterns. Each of the three cases could be regarded as a combination of two subgroups sharing the equal division of academic workload.

Case C11 and case C31 adopted a similar partnership structure with similar team size. Case C11 operated in a mechanism with two subgroup leaders each directing two partner schools to develop e-Learning teaching materials for two diverse subjects respectively. Although partner schools in this cluster cooperated closely within the subgroup, there was scarce inter-group communication and interaction, which contrasted strikingly with the case C31. Even if the e-Learning lesson plans and teaching materials would be exchanged, as a whole the link to support the partnership between the two subgroups was weak and likely to be torn apart since actions and efforts were hard to be synchronized (Mehra et al., 2006). This made the partnership structure of case C11, which could be considered as an intermediate form of distributed-coordinated and distributed-fragmented team leadership structure, not effective to maintain or promote the reciprocal influence and thus not a very desirable type of partnership for e-Learning development in the long run.

Case C21 and case C31 demonstrated features of the distributed-coordinated team leadership structure. These two cases were different in team size, but both comprised two teams working simultaneously with an exchange of information and developed resources in the e-Learning project. Though the two cases involved active engagement of the team members and systematic division of labor, the approach of work allocation were different. In project case C21, academic tasks were assigned to the two teams with topics equally distributed. In project case C31, two subgroups were formed each responsible for one subject. The divergent team size in these two cases also brought a noticeable difference between the two projects on e-Learning development. In project case C31, each team was made up of three school members; and there were in total six schools in the cluster making joint efforts to develop e-Learning resources. In project case C21, the team size was small with only one member in each team. The work force was therefore weakened, which restricted not only the circulation of information and knowledge, but also the efficiency of school partnership (Markette, 2013; Thompson et al., 2015).

Co-building of online sharing platform for channeling ideas and actions efficiently

Compared with the partnership structures of five previously mentioned project cases, the last structure identified in project case C61 might have more possibility to maintain sustainability. Case C61 was in a complicated structure, which consisted of two identically structured writing teams led by two partnership schools C62 and C63 respectively. With C61 as the overall coordinator, the partnership functioned systematically with 10 participating schools all dedicating themselves to both of the writing teams, each of which was working on the e-Learning resources of one key learning area. The relatively large team size and the clear division of labor according to expertise were the apparent characteristics of this structure, which provided more work force and knowledge to operate the partnership (Jameson et al., 2006; Markette, 2013; Thompson et al., 2015). However, what made it more productive and energetic was the dynamic communication and interaction among the cluster members via both face-to-face meetings with support from the school principals and an online sharing platform, so that ideas and actions could be channeled within the cluster efficiently (Haines et al., 2015). Dissimilar with case C51, in which the online learning platform was incomplete and being constructed under the leadership of the coordinating school C51 to inspire the three partner schools in the cooperation, the online learning platform in project case C61 was mature, well-structured and resourceful, which was an effective outcome of joint efforts from a larger scale of member schools with more enthusiastic participation in case C61. Meanwhile, the boosted mutual benefit including the enrichment of teaching resources, the enhancement of pedagogical quality and the improvement of implementation efficiency through the partnership structure in turn motivated more teachers'

engagement, making the partnership a well-run ecology (Haines et al., 2015; Nehring & O'Brien, 2012). Therefore, the duplicated distributed team partnership structure in project case C61 was regarded as an ideal partnership structure for schools to practice long-term e-Learning collaboratively.

Conclusion

Although some previous researches have tested the relationship between different team-level leadership structures and have discussed the structure-related elements affecting the team performance, seldom of them were in connection with the promotion of sustainable school e-Learning development. This study contributes to the empirical literature in this area by examining the network of leadership and the collaborative relationship of the school partnership structures in an e-Learning pilot project in Hong Kong. This study gained insights from the business-domain perspectives for an innovative analysis of the school partnership of the six project cases in an e-Learning pilot scheme in Hong Kong, in order to inform the employment of school e-Learning partnership which meets the needs and achieves the goals of individual school in long-term e-Learning implementation. This study identified five partnership structures for school e-Learning development, and four critical elements associated with sustainable e-Learning implementation in school partnership.

The duplicated distributed team partnership structure is found favorable to realize all four critical elements for the sustainable school partnership for e-Learning development. The project case C61 in this study, of which had an insightful co-building of online platform for sharing the use of tangible products among the member schools in the cluster, can best illustrate this research conclusion. First, partnership schools share common goals, objectives and expectations in e-Learning collaborate for mutual benefit on technical, resource and pedagogical supports for e-Learning implementation. Next, partnership schools actively engage in dynamic communication and interaction in the cluster to facilitate exchange flow of experience, resources and project outcome of e-Learning implementation within the partnership. Furthermore, school clusters in reasonable team size balance the work force in preparing and trialing e-Learning materials in the collaborative relationship for a significant impact to maintain mutual benefit. Finally, cluster-based online sharing platforms serve as the fourth critical element to synergize the joint efforts of the partnership schools for realizing the first three critical elements through providing a channel for communication and sharing tangible outcomes.

Results from this study reveal that policy support on funding school clusters to co-build online sharing platforms will be beneficial to encourage teachers to continue their give-and-take actions to keep the dynamic ecology and sustainable environment for e-Learning development. It is noted that the generalization of the above research conclusion is limited due to the small sample size and the self-reported data nature in this study. Further research is recommended to look into more project cases on school partnership in e-Learning development for a concrete generalization of the success models and factors for schools to collaboratively and sustainably develop e-Learning initiatives in cluster projects.

Acknowledgements

The author would like to acknowledge the support of the “Provision of Services for Conducting the Research Study on the Pilot Scheme on e-Learning in Schools (Part 2)” project of the Education Bureau of the Government of the Hong Kong Special Administrative Region, PRC.

Reference

- Duffy, G., & Gallagher, T. (2015). Collaborative evolution: The Context surrounding the formation and the effectiveness of a school partnership in a divided community in Northern Ireland. *Research Papers in Education*, 30(1), 1-24.
- Gebre, E., Saroyan, A., & Bracewell, R. (2014). Students' engagement in technology rich classrooms and its relationship to professors' conceptions of effective teaching. *British Journal of Educational Technology*, 45(1), 83-96.
- Haines, S. J., Gross, J. M., Blue-Banning, M., Francis, G. L., & Turnbull, A. P. (2015). Fostering family-school and community-school partnerships in inclusive schools using practice as a guide. *Research and Practice for Persons with Severe Disabilities*, 40(3), 227-239.
- Jameson, J., Ferrell, G., Kelly, J., Walker, S., & Ryan, M. (2006). Building trust and shared knowledge in communities of e-learning practice: Collaborative leadership in the JISC eLISA and CAMEL lifelong learning projects. *British Journal of Educational Technology*, 37(6), 949-967.

- Markette, J. N. (2013). The Structures and conditions of effective team leadership. *Soccer Journal*, 58(1), 50.
- McPherson, M. A., & Nunes, J. M. (2008). Critical issues for e-learning delivery: What may seem obvious is not always put into practice. *Journal of Computer Assisted Learning*, 24(5), 433-445.
- Mehra, A., Smith, B. R., Dixon, A. L., & Robertson, B. (2006). Distributed leadership in teams: The Network of leadership perceptions and team performance. *The Leadership Quarterly*, 17(3), 232-245.
- Muijs, D. (2015). Improving schools through collaboration: A Mixed methods study of school-to-school partnerships in the primary sector. *Oxford Review of Education*, 41(5), 563-586.
- Nehring, J. H., & O'Brien, E. J. (2012). Strong agents and weak systems: University support for school level improvement. *Journal of Educational Change*, 13(4), 449-485.
- Organisation for Economic Co-operation and Development (OECD). (2001). The Nature of partnership and its place in E-learning. In *E-Learning: The Partnership Challenge*. (81-100). Paris, France: OECD Publishing.
- Osborne, R., Dunne, E., & Farrand, P. (2013). Integrating technologies into "authentic" assessment design: An Affordances approach. *Research in Learning Technology*, 21, 1-18.
- Stein, S. J., Shephard, K., & Harris, I. (2011). Conceptions of e-Learning and professional development for e-Learning held by tertiary educators in New Zealand. *British Journal of Educational Technology*, 42(1), 145-165.
- Thompson, B. M., Haidet, P., Borges, N. J., Carchedi, L. R., Roman, B. J. B., Townsend, M. H., Butler, A. P., Swanson, D. B., Anderson, M. P., & Levine, R. E. (2015). Team cohesiveness, team size and team performance in team-based learning teams. *Medical Education*, 49(4), 379-385.
- Vandenhouten, C. L., Lepak, S. G., Reilly, J., & Berg, P. R. (2014). Collaboration in e-Learning: A study using the flexible e-Learning framework. *Online Learning: Official Journal of the Online Learning Consortium*, 18(3), n3.
- Wagner, N. L., Hassanein, K., & Head, M. M. (2008). Who is responsible for e-Learning success in higher education? A Stakeholders' analysis. *Educational Technology & Society*, 11(3), 26-36.
- Yin, R. K. (2003). *Applications of case study research (2nd ed.)*. Thousand Oaks, CA: Sage Publications.