



Using public-private partnerships for the building and management of school assets and services

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Abstract

Purpose – The provision of school assets and associated services is essential for achieving a country's educational outcomes. Building and managing schools usually features large component of operation, multiple groups of stakeholders, relatively simple design and technical requirements and tight timeframes to be completed to meet the open date. Internationally, public-private partnerships (PPPs) were introduced as innovative delivery models to bring forward school projects. The purpose of this paper is to evaluate the PPP experiences in the school sector focusing on the critical dimensions impacting on the viability of using PPPs for school development.

Design/methodology/approach – Comparative case studies of two school PPP projects based in Australia and New Zealand were adopted as the main research method. Semi-structured interviews with key stakeholders were used as primary data collection method.

Findings – By examining the procedural and organisational arrangements from a comparative perspective, the research finds that, for a successful school PPP, the followings are critical: sound business case development; size-adjusted and streamlined tendering process; localised private sector partner and streamlined finance; extensive stakeholder engagement; and effective governance and organisational structure and enhanced partnership.

Originality/value – The findings provide practical implications for policy makers and public procuring authorities initiating school projects and private entities seeking investment opportunities. By implementing the strategies derived from this research and adjusting to their own social and economic environment, governments and industry would be at a better position to develop and manage schools using PPPs.

Keywords Australia, New Zealand, Case studies, Public-private partnerships, School assets and services

Paper type Research paper

Introduction

Elementary and secondary education is an essential policy regime for governments. The primary objective of education system is to equip citizens with knowledge and skills to succeed in the modern world. The delivery of educational services relies on the development of school assets. Building and managing schools plays an important role in achieving educational objectives. The provision of school infrastructure and services usually includes a large operation component, involves diverse groups of stakeholders and features relatively simple design and technical requirements (Hurst and Reeves, 2004). These special characteristics have raised the prospects for using alternative procurement methodologies to deliver school projects.

Public-private partnerships (PPPs) were introduced by governments for school development owing to advantages, such as whole-of-life considerations, better risk allocation and design and operational innovations (Yescombe, 2007; Grimsey and Lewis, 2004). PPPs have been widely used in the school sector in both developed



and developing countries. Design, build, finance, maintain (DBFM) model is a commonly used model, such as the New South Wales Schools Project and the Southeast Queensland School Project (Akyeampong, 2009; CCPPP, 2010). In the UK, PPPs were adopted for the Building Schools for the Future (BSF) programme to renew every secondary school in the country (NAO, 2009).

Despite the broad use of PPPs in schools, not all PPP practices have achieved equal success as some projects, such as the Ireland's first PPP school deal, did not yield the anticipated value for money outcomes due to the affordability issues (Reeves and Ryan, 2007). Factors identified from previous research, such as strong public opposition, high transaction and capital costs and lack of public sector capacity, are likely to threaten the long-term viability of school PPP contracts (Mertkan, 2011; NAO, 2009; Chan *et al.*, 2010b). This research aims to evaluate the experiences and implications of PPPs in the school sector, identify key challenges encountered and suggest strategies to overcome the challenges and further facilitate PPP implementation in schools. Comparative case studies of two school PPP projects, based in Australia and New Zealand, respectively, were used as the research method. Similarities and differences of the procedural and organisational arrangements between the two cases were analysed, with respect to their individual policy context, based on which strategies and measures specific to PPP application in the school sector are drawn. The research findings add to the international PPP best practice frameworks by showing that specific sector needs vary, especially with respect to public facilities, such as school development.

Special characteristics for building and management of school facilities and services

The building of schools usually requires comparably small capital investment. The long-term operating and maintenance expenses of school projects take relatively high proportion in life-cycle costing, as opposed to other capital-intense infrastructure sectors, such as land transport (Gibson and Davies, 2008). A whole-of-life approach is preferred for school development and emphasis should be placed on the long-term service delivery (National Infrastructure Unit, 2010).

Services in relation to school operation comprise educational programmes (e.g. teaching), community activities and facility management (Grimsey and Lewis, 2004). The facility management embraces a variety of activities, such as operational, security, cleaning, safety, utility, maintenance and repair services (Partnerships Victoria, 2001). Providing high-quality educational services is the primary objective for school development (CCPPP, 2010). The ability to achieve the objective largely depends on the performance of school assets delivery and the associated management (NAO, 2009). The operation of school services needs providers from distinct professional disciplines.

School development involves diverse groups of stakeholders including central procuring agencies, principles, teachers, parents, students and wider community. Different groups have varied roles at key decision-making points throughout the project life cycle. For example, in New Zealand, the Ministry of Education sets out the strategic objectives for school development, structures and implements the procurement process. Upon the completion of construction, the school board (typically comprised of principals, teachers and parents) takes the responsibility for service delivery and on-going maintenance of the facility and manages the annual maintenance funding allocated by government (National Infrastructure Unit, 2010).

The involvement of multi-group stakeholders contributes to increase the accountability of the educational services and ensures the community' interests. However, it is likely to result in duplication of roles and inconsistency of approaches towards the provision of school services, complicating the decision-making process at all stages (El-Gohary *et al.*, 2006).

Special requirements for the design of elementary and secondary schools are generally minimal, although innovative design is desirable. This differs from other infrastructure sectors such as hospitals and university buildings, which have unique design requirements, given the complex nature of the services. For example, the architects of university buildings need to take the functions of teaching, research, laboratory and resting into consideration during the design stage. By contrast, the functions of school facilities are fairly simple, without unique design requirements for special purposes and technical challenges (Reeves and Ryan, 2007). The planning, design and construction of school projects are often subjected to tight timeframes as construction needs to be completed by the start of the school year.

PPPs in school: practice and theory

PPPs refer to long-term contracts for the delivery of a service, where the provision of the service requires the construction of a facility or asset, or the enhancement of an existing facility. The private sector partner finances and builds the facility, operates it to provide the service and usually transfers the control of it to the public sector at the end of the contract (National Infrastructure Unit, 2009).

The PPP model used for school development is mainly in the form of DBFM. In Canada, the Alberta Schools project consisting of the construction of 28 new schools was procured under DBFM arrangements with a 30-year concession period (Alberta News Release, 2008). In the UK's BSF programme, PPPs were implemented in the form of Joint Venture where a joint venture company was set up between a private sector partner, the local authority and partnerships for schools to deliver the entire scheme including the buildings, maintenance and other premises-related services (Aritua *et al.*, 2008). In some developing countries like Ghana, partnership involving local or international non-governmental organisations and local community groups work closely to respond to the educational needs of poor rural community (Akyeampong, 2009).

A number of reasons are identified as drivers for the adoption of PPPs for school development. PPPs underpin a whole-of-life approach towards capital asset procurement and service delivery through the integration of design, construction and facility management (Cheung *et al.*, 2009). The relatively high maintenance costs associated with school operation requires a life-cycle costing strategy. It is likely that the use of PPPs leads to synthesised and optimum design, construction and maintenance solutions for school development. The enhanced constructability and maintainability could contribute to whole-of-life cost saving (Carrillo *et al.*, 2008). PPPs may generate additional revenue sources from school facilities, resulting in increased efficiency in the usage of public resources (National Infrastructure Unit, 2009). It is common that school infrastructure has event halls, sports facilities or retail stores. The functions of these facilities have potential for wider community use. By utilising private sector's creative business ideas, additional revenues are likely to be accessed which would also assist with attaining greater community benefits (European Commission, 2003).

Research methodology

This research aims to evaluate PPP experiences in the school sector, identify the key challenges for using PPPs in building, management and operation of school projects, extract lessons and propose strategies to address the challenges and increase the likelihood of achieving success in school PPPs. Internationally, key aspects about PPPs have been well researched, including issues such as risk allocation, the government's responsibilities and payment mechanisms (Ke *et al.*, 2009; Kwak *et al.*, 2009). However, little is known about the critical dimensions affecting PPP implementation, with particular relevance to school development. Comparative case studies were therefore adopted in this research as they offer a useful means to identify themes and patterns emerging from the cases, which can be applicable elsewhere by adjusting to individual contextual situation (Eisenhardt, 2007). Also, a case study approach is preferred as it enables data collection from multiple sources, such as interviews/surveys, document analysis and direct observation (Yin, 2009). The implementation of PPPs is largely influenced by the country's social, economic and policy conditions (Zhang, 2005). A qualitative approach was used for this research as it not only captures experts' in-depth insights on key issues affecting the success/failure of using PPPs for school development, but also enables following discussions on how the key issues relate to the country's particular environments (Mcneill and Chapman, 2005).

Two school PPP projects, Partnerships Victoria in Schools (PViS), Hobsonville Schools (HS), based in Australia and New Zealand, respectively, were selected (the detailed background information of the two projects is given in Table I). The case selection took field accessibility and relevance to the research topic into account. Fieldtrips to Melbourne, Auckland and Wellington enable the researcher to collect qualitative data. The case selection was also determined by the intention to understand the variations arising from different economic and policy environments for PPPs, under which school projects are built and delivered. An examination of the two projects from a comparative perspective identifies the similarities and differences in PPP processes and organisations. By understanding the underlying reasons for the differences with regard to their different policies, the researchers can map the PPP development in the school sector across countries.

Name	Partnerships Victoria in Schools	Hobsonville schools
Infrastructure type	Social	Social
Sector	11 schools	Two schools
Location	Melbourne	Hobsonville Point, northwest of Auckland
Current status	Operation	Construction
Contract value	AU\$255 million (about GB£164.0 million)	NZ\$72.6 million (about GB£37.0 million)
Year of contract award	2008	2012
Concession period	25 years	25 years
Cost performance	Within budget	Not applicable
Time performance	On schedule	Not applicable
Procurement duration	Nine months	Ten months

Table I.
Background characteristics of the case study projects

Semi-structured interviews are the primary data collection instrument. The details regarding the data collection are presented in Table II. The stakeholders selected for the research include experts from central/state coordinating authority public agencies, the construction sector, facility manager, financial/legal advisors and financiers. Participants were chosen through a purposeful sampling procedure, allowing the selection of participants to be narrowed down to specific group of people who can provide rich information on the subject matter (Eisenhardt, 2007). The research targeted practitioners familiar with the project development, procurement and/or contract administration of the PViS and HS project and the PPP policies of respective jurisdictions. All participants have extensive local or overseas PPP experiences (more than ten years) and currently hold middle or upper management positions in their organisations. It is noted that end users, such as parents and members of the Board of Trustees were not selected as interviewees. This was because that both projects were at the early stage of contract management when the fieldtrips were undertaken. Not sufficient time has passed for the end users to evaluate the outcomes of PPP use. Despite the non-involvement of end users, their perspectives and concerns were reflected by participants from public procuring authorities or their advisors due to their frequent contact with stakeholders such as principals.

The participants were approached via e-mail and telephone calls. A face-to-face and in-depth interview technique was used as it allows an in-depth understanding of research topic and the use of probing questions to obtain more insights to the subject matter (Liamputtong and Ezzy, 2005). A semi-structured questionnaire was adopted to solicit comparable qualitative data and allow follow-up discussions. The key themes of the interview questions include:

- key facets of the PPP transaction, including contractual structure, procurement processes, risk allocation strategy and payment mechanism;
- key challenges encountered when initiating, planning, delivering and/or managing school PPPs;
- initiatives taken to address the challenges encountered and their effectiveness; and
- additional strategies and means to facilitate the implementation of PPPs in the school sector.

Twelve participants (five of PViS and seven of HS) were interviewed. The interviews ranged from 45 minutes to one hour. All interviews were audio-recorded and transcribed. The transcripts were imported to NVivo 9 software, in which the qualitative data can be managed, coded and analysed. Keywords extracted from literature review were initially used for preliminary coding. Progressive categories or themes emerged, which were incorporated in the coding for subsequent interviews. Key procedural and organisational

	Date of the field trip	Document analysis	Interviewees
PViS	April-May 2011	Summary of contract agreement; published government documents	State coordinating authority (PS1); public agency (PP1-PP2); construction contractor (PC1); facility manager (PF1)
HS	January-May 2011 May 2012	Media release; official web site information	Treasury (HT1); public agency (HP1); construction contractor (HC1-HC2); advisor (HA1-HA2); equity provider (HE1)

Table II.
Profile of data
collection

dimensions were identified and corroborated and coded in NVivo 9. The establishment of the codes helped to track the identified themes across individuals. For example, by submitting a “coding query” on “business case development”, NVivo 9 can extract and display comments and quotations from interviewees, which will be compared and synthesised.

Description of case study projects

PViS

Australia has been one of the leading countries to use PPPs to deliver infrastructure and associated services. Prior to 2008, PPP activities in Australia were mainly undertaken at state level in accordance with individual policy settings and guidelines (Jefferies and McGeorge, 2009). In 2008, a central institution, Infrastructure Australia, was set up to coordinate PPP activities at federal level. A national framework of policies and guidelines has been published, enabling a consistent approach towards PPPs across states (Jefferies and McGeorge, 2009).

The PViS project was the first PPP attempt made by the State of Victoria in the school sector. The project was undertaken in compliance with the National PPP policies and supplementary Victorian PPP guidance material (DEECD, 2009). The project consists of 11 new government schools to be built in key growth areas of Melbourne (DEECD, 2009). Scheduled to open in 2010 and 2011 school years, the project formed critical infrastructure for outer Melbourne community with ecologically sustainable features (DEECD, 2009). The Young Men’s Christian Association (YMCA) facilities, built at six school sites, were the innovative aspects of the project, which was in line with the government’s policy to facilitate community use and children services at the same location (DEECD, 2009). Being the fastest closed PPP transaction in Australia, the project won the National Infrastructure Awards in 2009 (Minter Ellison Lawyers, 2011).

The project was procured under a PPP arrangement in which the state entered into a project agreement with a private consortium – axiom, to design, build, finance and maintain the new schools whilst the Victorian Government retaining the responsibility for core services including teaching and school curriculum (DEECD, 2009). An illustration of the contractual arrangement of the project is shown in Figure 1.

Hobsonville schools

New Zealand’s past experiences with PPPs were limited with few PPP activities undertaken at local government level (Grimsey and Lewis, 2005). A discussion paper issued by the Treasury (Katz, 2006) partly explained the reason why PPP development was delayed: “most of the advantages of private sector construction and management can also be obtained from conventional procurement methods”. The Treasury’s standpoints, to large extent, held back the use of PPPs in New Zealand.

The New Zealand government’s approach to PPPs has changed since the “Building Nations” symposium was held in 2009. A PPP project will proceed as long as it can demonstrate value for money (National Infrastructure Unit, 2010). Proposals with whole-of-life costs more than NZ\$25 (about GB.£12.8 million) are required to include a PPP option in the choice of procurement route (The New Zealand Treasury, 2011).

Relevant policy settings have evolved around PPPs to facilitate PPP implementation. For instance, prohibitive provisions on PPPs, such as the restrictions on private sector management of prison services under the Corrections Act (2004) have been removed in legislation allowing the use of PPPs for prison development (National Infrastructure Unit, 2010). A central coordinating authority, the

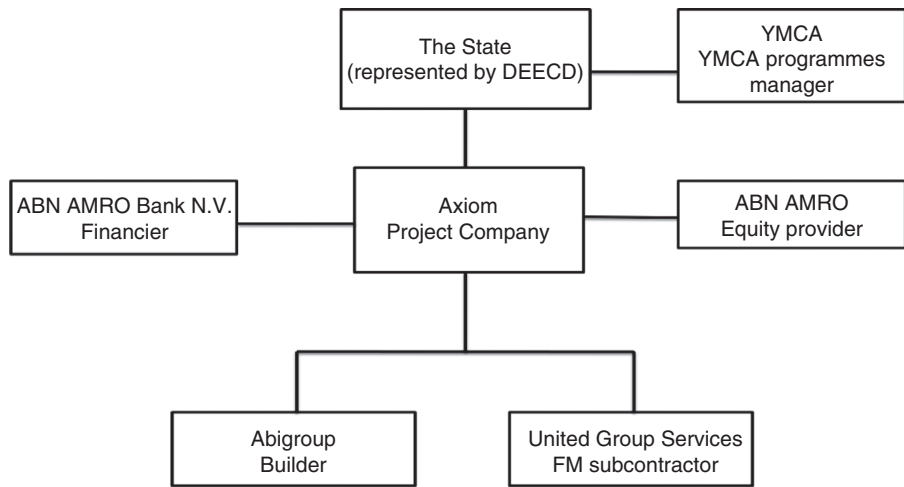


Figure 1.
Contractual arrangement
of the PVIS project

Source: DEECD (2009)

National Infrastructure Unit (NIU) was set up within the Treasury in 2009, acting as a centre of excellence for PPP programmes. A number of policies and guidelines on PPPs have been published by the NIU, including the Guidance for Public Private Partnerships (PPPs) in New Zealand, Draft Public Private Partnership Standard Contract – Version 2 (New Zealand Office of the Auditor-General, 2011).

The Hobsonville Schools project is New Zealand's first PPP school attempt and it is the nation's second PPP pilot project, following a Men's Prison to be built at Wiri (Department of Corrections, 2011). The project encompasses a primary school (Year 1-8) and a secondary school (Year 9-13) expected to accommodate 690 and 1,500 students, respectively. The primary school is scheduled to open in 2013, the Year 9 of the secondary school to open in 2014 and other year levels in subsequent years (Ministry of Education, 2011).

The school buildings and associated services will be delivered via a PPP. A private sector partner, the learning infrastructure partners, was appointed to design, build, finance and maintain the new schools under a 25-year PPP contract. The government will own the land and buildings throughout the contract term. The educational services rest with the principal and the Board of Trustees (Ministry of Education, 2011). A detailed contractual arrangement of HS school is presented in Figure 2.

Research results

An investigation of PPP processes and organisation of the PVIS and HS project in Australia and New Zealand, respectively, identifies the key dimensions influencing PPP implementation in the school sector, which are presented below.

Sound business case development

Six participants (two of the PVIS and four of HS) stressed the importance of undertaking a well-identified service need at both programme and project level. The initiation of school projects is driven by growth in the school-aged population and the student-to-teacher ratio policy (National Infrastructure Unit, 2010). The accuracy of

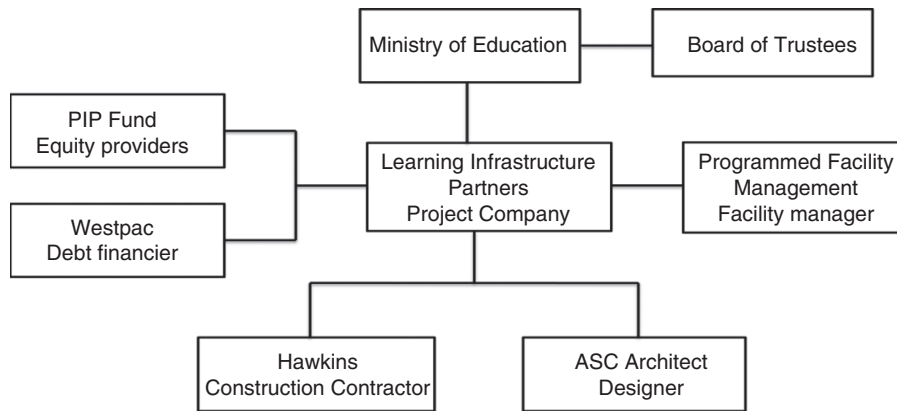


Figure 2. Contractual arrangement of the HS project

population projection has a key influence on the robustness of the service need analysis. However, other factors, such as different patterns of population changes in different locations and changes in migration patterns and birth rates, further complicate the forecasting of school-aged population. It is therefore important to focus on specifying service needs by understanding the status quo, conducting accurate projections and identifying the deficiencies in current provision.

An analysis at programme level is required for school projects, especially when PPPs are considered as possible delivery methods. Participants HP1 and HA2 asserted that when the government embarking on a school PPP, much focus was centred on whether the project has the sufficient size to attract the market. The viability of PPPs mainly depends on the market's interests with regard to the high bid costs. A programme-level analysis, based on which a number of suitable primary or secondary schools are bundled, would increase the capital volume needed to justify a PPP and enhance the attractiveness of the intended project. In the two cases examined, 11 and two schools were bundled for respective PPP project to sustain a viable PPP.

Three New Zealand participants (HA1, HA2 and HP1) emphasised the necessity of undertaking a thorough affordability analysis for determining whether PPPs are suitable procurement routes. Not specific to PPPs, affordability relates to government expenditure activities in general (Burger, 2008). Assessment of affordability is a critical step to evaluate the impacts of a proposed project on the government's fiscal position (The New Zealand Treasury, 2011). The affordability of PPPs, compared to that of traditional procurement, is mainly concerned about interest rate and efficiency differentials (Burger, 2008; Acerete *et al.*, 2012). Similar to the UK's practices, New Zealand's participants highlighted the affordability implications on the selection of PPPs. For example, HA1 asserted:

The biggest impediment of PPPs is the affordability. It is not market capacity to do them, to build them, lack of design, etc. It is the value for money of finance, which is the key thing, the affordability. Where PPPs worked overseas is the government addressing affordability issues by subsidies or PFI credits to help the procuring bodies be able to afford those projects.

Compared to that of New Zealand and the UK, the affordability issue seems to be of less a concern for Australian procuring bodies due to their special requirements in relation to capital asset management. In the case of PViS, under the Victoria State's policy, the decision about how the project was delivered was separated from how it was funded.

The funding was approved prior to the choice of procurement, as pointed out by Australian participants. Despite the seeming disconnection between the budgetary allocation and the selection of PPPs, the participants maintained that, in Victoria, potential PPPs need to compete with other capital projects to ensure their affordability.

Size-adjusted and streamlined tendering process

All participants expressed concerns over the high transaction costs and lengthy procurement duration of PPPs given the generally small size and simple features of school projects. PP1 and HC1 admitted that without a sufficient scale, school PPPs may result in sub-optimal value for money as the cost savings generated from a whole-of-life approach and innovations cannot offset the high transaction costs. Participant PC1 also highlighted the time pressure to design and build under school PPPs:

All schools had to be opened by the start of the school year. This therefore put a lot of pressure on the government to let the works in a timely manner. They (the government) need to reduce the tender duration to ensure the contract was let in enough time to design and build (PC1).

Having been aware of the concern for procurement durations, all participants advocated a size-adjusted and streamlined tendering process. As suggested by the participants (PP1, HT1, HA1 and HA2), a commensurate procurement procedure is preferred. "We (the government) are always considering how we need to streamline the process or make the process more efficient to make the small projects work" (HT1). Participants PS1 and HA1 elaborated that a streamlined process is basically reflected in lower level of details in bid requirements, short-listing to no more than three proponents, and moving fast to the preferred bidder stage. Participant HA2 elaborated on the means adopted to streamline the procurement of HS:

We reviewed the bid requirements and try to get a balance between asking for everything and getting it sensible [...] We did things like geotechnical investigations and paying for site surveys so the bidders don't need to do it themselves (HA2).

The fast-tracked procurement of PViS (nine months) and HS (ten months) demonstrates the respective government's determination to structure and implement a size-adjusted and streamlined tendering exercise. Despite an emphasis on a streamlined process, all participants emphasised that the project team should take their time to develop high-quality project briefs. Participants PP1 and PC1 acknowledged the difficulty of developing and interpreting output specification for the PViS project. PC1 elaborated on the challenges that the project brief documents, "the output specification and services specifications sometimes were contradictory to each other, leaving much room for the Project Director to interpret the requirements" (PC1). The participants of HS agreed that public agencies in New Zealand were willing to accept the concept of providing output specification, but found it difficult to implement in practice. For instance, participant HA2 commented:

It is not too difficult putting them into documents. They (procuring agencies) have to think about how people are going to interact in these buildings. It is the level of details and robustness over time that takes time and costs in the process (HA2).

Six participants (two of PViS and four of HS) insisted that it was of equal importance to maintain a sufficient level of competition. This is especially the case for the New Zealand project. Unlike the Victoria State, where a number of PPP projects have been undertaken and a relatively mature market has developed, New Zealand's general

economic conditions (small size of project and lacking of a pipeline of infrastructure projects) are not conducive to attract prospective private entities in participating in PPPs. Given the limited existing PPP experiences, not sufficient time has passed for private companies to build up confidence and the required expertise to invest in New Zealand's PPPs. Four participants of HS stated that the private sector players therefore tended to push the New Zealand government to structure a quick PPP procurement. However, the participants were of a view that the streamlining should not threaten competition. In both cases, the government tried to achieve the balance by keeping constant contacts with main market players, undertaking extensive marketing sounding and conducting an interactive tendering procedure. Participant PP2 also pointed out that a useful means to improve the effectiveness of tendering is to keep the bidders informed at various stages by holding a series of interactive sessions of communication in the presence of probity officers. Participant HP1 reinforced that without compromising competition and bidders' intellectual properties, the procuring authority should disclose as much information as possible to the bidders in the interactive workshops so that they can be better equipped to prepare bid submissions.

Localised private sector partner and streamlined finance

Eight participants (three of PViS and five of HS) felt that school PPPs present business communities both opportunities and challenges. The Australian participants indicated a lack of depth in facility management industry. For instance, participant PC1 reported, "there are limited facility management companies that can handle placing a risk profile on 25-year maintenance". Participant PF1 agreed with the point, arguing that there are only probably three to four organisations with the capacity to engage with a PPP:

When you taking life-cycle risk over a period of 25 years, you need to have a level of understanding what maintenance cycle applies to that equipment. So from our perspective, we certainly have to bring in a lot of engineering support compared to our normal, less important maintenance contracts (PF1).

The New Zealand participants (HT1, HA1 and HC1) strengthened the challenge with the depth of market. "There is no very sophisticated private sector market, which basically means that you have to be very careful about your project in the market and the market's ability to respond to it" (HA1). With regard to the limited private sector players, three participants (PF1, HC1 and HC2) maintained that private companies should be clear about their objectives in engaging with PPPs and a strategic development scheme needs to be adopted accordingly:

A long-term contract is a good way to provide a stable business opportunity. PPPs are predominantly government contracts. So we also consider being involved in a PPP (because it) gives us access to market more generally even PPPs are not necessarily involved (PF1).

Driven by a long-term, strategic business development scheme, private companies are likely to utilise alternative mechanisms to build up their capacity, such as referring to external advisors and employing experienced internal staff. Also, private companies are suggested to establish a sustainable and good partnership with other organisations acting as different roles in a PPP. Being familiar with other partners' strengths and weaknesses and working collectively, the private companies are more likely to prepare a robust submission for a PPP deal.

Six participants (two of PViS and four of HS) showed concerns over obtaining finance in capital market. Participants PP1 and PP2 claimed that the PViS reached financial prior to the global financial crisis (GFC) and therefore the effects of GFC were

not reflected in the financial arrangement. Yet, they pointed out the cost of debt largely increased as a result of GFC and the bond became unavailable for funding PPP projects in Victoria. Participant PC1 also highlighted the issue of lacking of financiers acting as a project sponsor, given the commonly used financier-led approach in Australia. “There are few financiers in the market that will take on this model, again restricting the number of consortia in the bid” (PC1).

Participants of HS generally felt little impact of the GFC on financing this project, although they admitted that the bank sector in New Zealand lacks of depth to support multiple bidders and the terms and conditions tend to be tight for New Zealand PPPs, giving rise to refinancing issues. They further mentioned the potential constraint – no alternative financial instrument to bank debt (e.g. bond) for funding New Zealand PPPs, although not reflected in the HS project, is likely to limit a sustainable PPP programme. Participants HA1, HA2 and HP1 also stated that the New Zealand market has exhibited a scarcity of specialised equity providers to support PPP projects, posing constraints on accessing capitals and preparing bids.

With regard to the impacts of the GFC, participants PP2, HP1 and HA1 suggested that the government should not request committed finance prior to request for proposal stage as it is comparatively difficult to support multiple bidders in competition. With respect to obtaining equity finance, HE1 and HA1 advised that medium- or small-sized PPPs, such as school projects, are suitable investment opportunities for pension funds such as the Superannuation Funds and Accident Compensation Corporation. For example, the Public Infrastructure Fund, with New Zealand Superannuation Funds as the main investor, invested in the HS project as the equity provider.

Extensive stakeholder engagement

All participants from the public sector side agreed that satisfying the stakeholders’ needs and addressing their concerns were the priorities in their planning and decision making. As maintained by participants PP2 and PA2, for both projects, the public sector tackled the issues by extensively involving various stakeholders in the project preparation, procurement and execution. Participants PP1 and PP2 reported that the 11 schools of the PViS project were greenfield projects without existing stakeholders such as principals, teachers and community. Risks arose that the outcomes specified were not favoured by the students, teachers and other stakeholders. An education reference group comprising of some school principals and independent education experts was therefore set up to provide inputs in specifying the outputs. Participant PP2 added, “We use that reference group to guide us to put the brief together”.

Likewise, in the case of HS, the stakeholder issue was heavily emphasised by the participants, in light of the existing institutional arrangements for the school services provision. In New Zealand, the responsibilities of infrastructure investment and management of state primary and secondary schools are shared by the Ministry of Education and individual Boards of Trustees (Kensington Swan and NZCID, 2006). Participants HA1 and HA2 commented on the problems embedded in such practices that apply to the most state schools:

[...] the key thing is that Board of Trustees get appointed but they have no property experiences whatsoever. And they start to control the development of 50 or 60 million dollars’ assets, which is fundamentally wrong as they should not be able to do it [...] You don’t need to be a property expert to get onto a Board. So it is completely skill gap missing. This process gives them influence on the property stuff, but less focused on what they do, which is teaching students and community (Synthesis of views from HA1 and HA2).

As for a PPP, like the HS project, the Board's role is different, being focused on education delivery rather than property maintenance. Despite the different role of the board, a series of arrangements were in place by the Ministry to capture the needs of the various stakeholders and ensure that the PPPs are contributing to better service quality. In the case of HS, the Board of Trustees including two appointed principals, teachers and wider school communities such as parents, was established at early stage. Participant HA2 commented on the Board's involvement:

The Board of Trustees was consulted in the development of output specifications. They were informed in some of the procurement stages. The Board was invited to help to assess the tenders. So they contributed to the work streams that are relevant to them, in the design, construction and whole-of-life service specifications. They are quite involved, but it is a different involvement. Their focus is very much on the educational delivery (HA1).

In addition to engagement at critical decision making, the government attempted to make the Board to be acquainted with the uniqueness of the project (the philosophies of PPPs and the implications for school development) since the appointment process. According to participants HT1, HP1 and HA2, the Board has been comfortable and satisfied with their involvement in a PPP school. "They like the fact that if something breaks, they can pick up the phone and call and get someone fix it. It is already all paid for and no need for negotiation" (HA1).

Effective governance and organisational structure and enhanced partnership

Seven participants (three of PViS and four of HS) stressed that an effective governance structure with clear lines of communication is vital to ensure that all key decisions are made in accordance with the schedules and the contract is administered in an organised and efficient way. Participant PP2 elaborated on the features of an effective governance structure of procurement:

You set up a steering committee to oversee the project. In some cases, we set up a project board. There are a range of stakeholders involved in the steering committee. They probably meet every month. At key milestones you need key decisions from the government, a project board is set up [...] trying to keep the decisions made within the government. Then when we get on the Cabinet agenda, we ask the Cabinet to set up a sub-committee.

During the contract management phase, an effective inter-firm organisational structure needs to be in place. The participants (PC1, PF1, HP1, HA1 and HA2) recommended the establishment of clear lines of communications, based on which constant contacts and communications can be done. Regular meetings attended by various parties are useful tools to ensure the communications to be undertaken in an efficient way. Written interim reports benchmarking the actual performances against the key performance indicators specified in PPP contract provide feasible means to enforce the rewards and penalties of payment mechanisms, which are central to ensure the private sector's compliance. An advanced information system with high level of automation is required to complete, store and keep track records of the reports. As commented by participant HA2:

The reporting comes from the help desk. The whole thing is automatic. There is a person responsible for it. The school operator has a role on site to call the help desk and so on. If the call goes to the help desk, it gets recorded and there is a report generated every time. So it is fully documented. The contract administrator doesn't need to be on site every moment (HA2).

All participants acknowledged the issue of interface management between various stakeholders – the government's contract management team, educational staff (Board of Trustees) and the private sector partner. Conflicts may arise due to the varied mind-sets,

culture and objectives between different organisations. For instance, participants PC1 and PP2 highlighted the challenge of interface between various parties:

The problem of this particular contract is that the private company designed and built 11 schools, all of which have strong headed Principals operating the schools. They all have totally different ideas on how they want to operate their schools. Being a brand new model for schools, the operations manager and end users sometimes struggle to understand their obligations and the private sector's obligations (Synthesis of views from PC1 and PP2).

The government's operations manager has a different philosophy on what the private company has provided [...] (Sometimes) the operations manager needs to try and satisfy the end users' needs and get the most out of the consortium under the PPP model (Synthesis of views from PC1 and PP2).

The interface issue is referred by the New Zealand participants as a potential challenge for running the HS project, especially in the presence of the Board of Trustees, acting as a different role in a PPP than in a traditionally procured school. The participants therefore emphasised the partnering philosophy in school operation. Participant PP2 argued, "In addition to a contractual-based mechanism, enhanced partnership is encouraged for the project". Participant HA1 added, "It is much about the school operator, the Board of Trustees, and the Ministry working together. The Board is on site all the time. This is where the primary day-to-day relationship needs to be from, genuine living arrangements". Participant PC1 maintained that the best way for the private sector partner to encounter disagreements or misunderstandings occurred during the operational phase was "constant communication and reasoning of what the intent is, and to convince them that what we designed and built is of long term interest rather than a wish list" (PC1).

Discussion

This paper evaluates the PPP experiences in the school sector by examining two cases based in Australia and New Zealand from a comparative perspective. It attempts to add to the on-going debate on the suitability of PPPs for school development, focusing on the key issues emerging from PPP planning and execution and extracting strategies on addressing the issues.

Existing literature on PPPs identified that a thorough and accurate cost-benefit economic analysis is a pre-condition for a successful PPP (Li *et al.*, 2005a; Qiao *et al.*, 2001). The practice of school PPPs strengthens this point and emphasises that in addition to an accurate cost-benefit analysis at project level, it is of equal importance to undertake a programme-level assessment. Bundling a number of school projects based on a programme approach helps to ensure the project's economic viability, which is highly stressed in PPP literature (Li *et al.*, 2005a). Unlike economic infrastructure projects such as toll roads, where user pays are main revenue sources, social infrastructure sectors like schools are ultimately funded by the government, on a regular basis, once the services are available. Affordability issues are raised concerning the government's fiscal ability to make the payments specified in contract. As claimed by Hurst and Reeves (2004), the first pilot school PPP projects in Ireland not achieving the expected outcomes was partly attributed to failure to set an affordability cap (i.e. a spending limit). This research further confirms that the affordability is the central issue in initiating and planning school PPP projects. Reaching a balance between the profit-oriented, self-structured company and a public interest-oriented government is the solution to the affordability issue. Modelling a prospective private sector bid,

including life-cycle costs and cost of finance, is recommended prior to commencing procurement to gain a realistic view about the affordability. A sensitivity analysis is required to test the impacts of key issues, such as cost of finance and incomes from general tax, on the affordability implications.

The tendering practice of school PPPs is in line with Zhang (2005) and Chan *et al.* (2010a) finding that an efficient and competitive procurement framework is vital for ensuring value for money in PPPs. Compared to other infrastructure projects with higher capital value or involving operational services, such as land transport, urban rail and prisons, relatively small-sized school PPPs emphasise a size-adjusted and streamlined procurement process. Despite the possible push by the private sector to simplify the procedures, the public sector must not rush to the preferred bidder stage and get into a non-competition situation. Instead, the project team is suggested to focus on developing high-quality and coherent project briefs, conducting an extensive market sounding, and structuring an effective interactive tendering exercise.

A strong private sector with technical and managerial capabilities is broadly recognised as a critical success factor for PPPs (Jefferies *et al.*, 2002). The practices of school PPPs also highlighted the issue in relation to the depth of relevant service sectors, business strategy shift and capacity building. As opposed to PPPs in other infrastructure sectors with sufficient scales to attract international experienced private companies, school projects open up the opportunities for local firms to participate in PPPs.

The participants' opinions reinforce Zhang's (2005) point that accessibility to capital market and a sound financial arrangement are instrumental to secure a viable PPP deal. Compared to large-size infrastructure projects with enough attractions to international investors (e.g. banks and equity providers), school PPPs seem to be more difficult to acquire debt and equity finance. In this case, the governments may require a lower level of committed finance at competitive stage. Despite lacking of international appetite, local pension funds such as the Public Infrastructure Fund in this case, provide a viable vehicle for school PPPs to access to equity finance.

Early engagement of stakeholders and acquiring community' inputs confirms El-Gohary *et al.* (2006) and Papajohn *et al.* (2011)'s point that gaining community and wider public support is central for the fruition of PPP transactions. Particularly, the principals, teachers, parents and community' views and needs should be captured for developing a school PPP to match the infrastructure delivery and asset management with optimum educational outcomes. Compared to other economic infrastructure sector, such as land transport, in which operating services are relatively simple as opposed to construction works, school PPP developers are required to extensively interact with relevant stakeholders throughout the project development due to the large operation and maintenance component of school development and the policy emphasis on high-quality educational outcomes and community interests.

The practices of PViS and HS reinforce the previous research findings that good governance structure is necessary for a successful PPP (Li *et al.*, 2005a; Mahalingam, 2010). In addition to setting up and maintaining effective governance structure at the procurement phase, school PPPs focus on establishing an appropriate governance and inter-firm organisational structure at contract management stage to guarantee the private sector's performance specified in PPP contracts. Compared to infrastructure projects where the private operator is in charge of operation, such as toll roads, exhibition and event venues, the interface issue seems to be of particular importance for school PPPs. An effective contract management mechanism is considered crucial for a school PPP. The research result is consonant Gibson and Davies's (2008) finding,

based on an in-depth case study of Victoria Dock Primary School project in the UK, that a partnering approach rather than merely administering a contract lies at the heart for achieving successes in PPP schools. It also reinforces Reeves' (2008) assertion that a relational approach is preferred to govern the relationships between schools and the private contractor.

Conclusions

This study investigates the application of PPPs in the school sector and draws on critical strategies specific to school PPPs. By examining two school PPP projects from a comparative perspective, the research finds that the key dimensions affecting venue PPP application have deviations with general PPP practices as a result of the special characteristics of building and management of schools. Five categories of strategies are extracted through capturing several key trends, similarities and differences from the practices of the two cases.

The relatively small capital size of school projects determines that a programme approach should be opted for at business case stage as bundling a number of projects can increase project scale, which is central to justify a PPP and attract the potential private bidders. Also, in light of the tight timeframes to meet the open date, a size-adjusted and streamlined procurement process is advocated. However, it is noteworthy that the streamlining should not be achieved by compromising the competition and the quality of relevant specifications formulating the basis for the PPP contract. Lacking of enough scale to attract international private entities, school PPP projects provide long-term stable business opportunities for local companies. School PPPs are viable for local firms as school projects are usually characterised by comparatively simple design and operational requirements without particular technical challenges. Given the large operation and management component of school projects, a well-defined project brief, such as output specification and service specifications are necessary to ensure the private sector's compliance at contract management stage. Effective governance structure with clear lines of communications is perceived essential for ensuring the services are delivered to required standards. With respect to the multiple stakeholders involved in school services, this research finds that extensive engagement with the end users and community is instrumental during the project development and procurement to ensure that their needs are fully addressed and taken care of in the design and construction. A relational approach is instrumental to ensure the interface issues can be well addressed and all parties can work collectively.

It is important to acknowledge the limitations of the research. The two cases examined do not exactly mirror the population of school projects in which PPPs are used, raising questions about the generalisation of the critical dimensions identified from this research. Also, the end users were not included in the interviews due to the relatively early stage of PPP application. Once the projects have been operational for a sufficient period of time (i.e. five years), future research may further advance the on-going debate of the suitability of PPPs for school development by incorporating the comments from end users.

Despite the limitations, the findings provide practical implications for policy makers, public procuring authorities intending to initiate school projects or enlarge existing school facilities and private entities seeking investment opportunities in the school sector. By implementing the strategies derived from this research and adjusting to their own social and economic environment, governments and industry would be at a better position to develop and manage schools using PPPs.

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