Instructional leadership structure in Singapore: a co-existence of hierarchy and heterarchy

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Abstract

Purpose – The purpose of this paper is to explore the instructional leadership practices and structure in Singapore primary schools.

Design/methodology/approach – The study employs a qualitative approach. Data were collected from interviews of 30 Singapore primary school principals and 25 working-day observations of five principals. A grounded theory method was utilized to analyze the qualitative data.

Findings – The instructional leadership roles of principals can be categorized into four key themes: vision development and implementation, physical and organizational structure, professional development, and leading and managing instruction. Importantly, the study illuminates a hybrid structure of instructional leadership in which both hierarchical and heterarchical elements exist.

Originality/value – The current study expands the global knowledge base on instructional leadership by providing indigenous knowledge of how instructional leadership is enacted in Singapore schools. Simultaneously, this study suggests an agenda for future research on instructional leadership.

Keywords Singapore, Instructional leadership, Hierarchy, Heterarchy, Hybrid leadership structure

Paper type Research paper

1. Introduction

For the past seven decades, the research on educational administration and leadership has built a comparatively rich knowledge corpus with prominent contributions from empirical enquiries in Anglo-American societies such as Australia, Canada, the UK, and the USA. While the exercise of school leadership needs to account its particular cultural, political, economic, and societal perspectives (Bossert *et al.*, 1982; Hallinger, 2016; Hallinger and Ko, 2015), empirical research in non-Anglo-American contexts is still of relative infancy (Dimmock, 2011; Hallinger and Bryant, 2013; Walker and Hallinger, 2015). Specifically taking instructional leadership into account, the enquiry on this prominent model still lacks empirical evidence surfaced in Asian societies and other non-Anglo-American contexts, despite its longevity. Bush (2014) argues that instructional leadership knowledge has been underpinned by research and practice in (partly) decentralized contexts, while little is known about how instructional leadership is practiced in (more) centralized systems in Asia, African, and Eastern Europe.

Singapore is a city-state located in Southeast Asia. Singapore is reputed to possess a high-achieving school system in Asia (Mourshed *et al.*, 2010), which may stimulate the research interests in the education scene of the country. However, the volume of publications on school leadership is still modest. The 2013 review of Hallinger and Bryant identified only 16 articles relevant to educational leadership and management in Singapore published in leadership journals. Ng *et al.* (2015a) highlighted deficiencies in the empirical research on school leadership and particularly instructional leadership with a few exceptions (e.g. Ng, 2015; Wang *et al.*, 2016).

The present study was conducted to address the calls for more empirical research on instructional leadership in Singapore and Asia. This is part of an international project on instructional leadership that comprised Hong Kong, Mainland China, Malaysia, Singapore, Taiwan, Thailand, and Vietnam. The findings are hoped to enrich the comparative

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knowledge base on instructional leadership in non-western societies by providing indigenous knowledge of how instructional leadership is enacted in Singapore schools. Equally importantly, our study seeks to highlight possible directions for a further scrutiny on instructional leadership. To fulfill these objectives, we set out three key questions:

(1) What are the main instructional leadership roles of Singapore principals?

(2) How do Singapore principals exercise those instructional leadership roles?

(3) What is the overall instructional leadership structure in Singapore schools like?

2. Literature review

2.1 Historical perspectives of instructional leadership

Principals have been expected to concurrently assume multiple roles in leading school improvement. The emphasized roles of principals have functionally changed over time from "values broker" in the 1920s to "democratic leader" in the 1940s and "bureaucratic executive" in the 1960s (Beck and Murphy, 1993). In the 1970s, several empirical studies captured a scrutiny of factors determining school achievement (e.g. Brookover and Lezotte, 1977; Madden *et al.*, 1976; New York State Office of Education Performance Review, 1974; Weber, 1971). These four studies aimed to investigate determinants to the success of high-achieving schools. Synthesizing these studies, Edmonds (1979) suggested six hallmarks of effective schools: strong administrative leadership, high expectations for all students, orderly environment conducive to teaching and learning, academic emphasis, flexible resource mobilization to better teaching and learning activities, and frequent monitoring of student progress. These claims illuminate the importance of an optimal balance between effective management and instructional leadership of school leaders.

However, no substantial attempts in conceptualizing the construct of instructional leadership could be seen in the studies at that time. It was not until the 1980s that the competing and alternative conceptualizations on instructional leadership burgeoned in the scholarly works (e.g. Andrews and Soder, 1987; Glickman, 1985; Hallinger and Murphy, 1985). Of these early conceptualizations, Hallinger and Murphy's (1985) model has been the most fully tested and widely adopted in the research on instructional leadership (Southworth, 2002). This model proposed three dimensions of the instructional leadership construct: defining the school's mission, managing the instructional program, and promoting a positive school-learning climate. Reviewing studies conducted in the 1980s, Hallinger (2003, 2005) suggested a generic set of principals as effective instructional leaders: principals as "strong, directive leaders," principals as managers of instructional and curricular activities, principals as "culture builders," principals as "goal-oriented leaders," and principals leading from "a combination of expertise and charisma." The first two characteristics have aroused criticism for instructional leadership owing to its being heavily directive, hierarchical, and centralized. These instructional leadership models seem to consider the principal as a sole source of influence and expertise and downplay the influence of other leaders such as middle managers or teacher leaders.

Due to these concerns and school restructuring initiatives in the USA in the 1990s, scholars shifted attention to other models such as transformational leadership, distributed leadership, shared leadership, and teacher leadership (Gronn, 2000; Harris, 2007; Leithwood, 1992; Leithwood and Jantzi, 2005). The 2005 review of Hallinger indicated an intermediate drop in the number of studies on instructional leadership between 1991 and 2000.

Instructional leadership regained its prominence in the leadership discourse in the early 2000s. We conducted a review of articles relevant to instructional leadership published in eight core journals[1] on educational leadership from 2000 to 2015. The review revealed a

substantial number of scholarly works (at least 305 articles) on instructional leadership published in this period. This number will most likely increase if we search for articles in other journals and types of publications (e.g. book chapter, book, etc.). The very recent review of Gumus *et al.* (2016) similarly affirmed an upsurge in the number of studies on instructional leadership after 2005. Though the increase in quantity might not imply the super theoretical and practical advancement, it marks the dominance of instructional leadership in the educational leadership field. To redress the shortcomings of the traditional view, the broader understanding on instructional leadership has gradually emerged in this period. The concept has been interpreted to cover the roles of other instructional leaders such as vice-principals, middle leadership managers, teacher leaders, and external coaches. Accordingly, instructional leadership has been referred to principal instructional leadership, coach instructional leadership, and teacher instructional leadership (Neumerski, 2013). This emerging view has moved more toward the shared/distributed approach of instructional leadership, which will be presented in the following section.

2.2 Distributed instructional leadership

The criticism of traditional instructional leadership has encouraged scholars to heed the practice of shared/distributed instructional leadership. A growing number of studies potentially pertaining to distributed instructional leadership have been published over the past decade. Marks and Printy (2003) suggested a model of "shared instructional leadership" to supplant a hierarchical and procedural perspective with a more heterarchical orientation. The model of "shared instructional leadership" highlights the active collaboration between a principal and teachers on curricular, instructional, and assessment matters. More specifically, a principal and teachers share responsibilities and accountabilities in supervision of classroom instruction, curriculum development, assessment methods, teacher professional development, and developing professional learning communities (PLCs). Marks and Printy claimed at least two benefits of shared instruction leadership: first, this model promotes synergy among individuals in the school; and second, it pragmatically allows principals to share their increasing workload.

Hallinger and Lee (2012) investigated how instructional leadership was distributed in International Baccalaureate (IB) schools. This sequential mixed-methods research has two studies. In Study 1,175 worldwide IB schools responded to the survey. These IB schools were offering either two continuum programs (Middle Years Program and Diploma Program) or three programs (Primary Years Program, Middle Years Program, and Diploma Program). The schools offering all three programs were called full continuum schools. Study 2 entailed qualitative data gathering from five IB schools in Hong Kong, China, Thailand, and Vietnam. It revealed a wide distribution of instructional leadership in IB schools and suggested that such practices enhanced the coherence and consistency between and among programs. Specifically, the researchers identified four distributed instructional leadership practices: the development of subject vertical and horizontal articulation documents, teachers teaching in more than one program, collaboration between program coordinators, and collaboration between teachers of each program.

Several other studies utilized frameworks of distributed leadership to investigate how instructional leadership is distributed in US high schools (e.g. Bredeson, 2013; Halverson and Clifford, 2013; Klar, 2012). Noticeably, Klar (2012) provided examples about how principals fostered distributed instructional leadership. They collected qualitative data in three urban high schools in the USA. Klar (2012) also illuminated these principals' practices in developing their department chairs' instructional leadership capacities such as: "creating opportunities to learn," "modelling distributed leadership," "modelling collaborative learning," and "setting department chairs up for success" (p. 373).

In summary, the literature has signaled the potential to take distributed perspectives into consideration, instead of solely focusing on studying principal instructional

leadership practices. Investigating instructional leadership from the distributed approach in diverse contexts would help to enrich scholarly insights into data and perspectives (Lee *et al.*, 2012).

2.3 Instructional leadership and school context

Scholars have long affirmed the significant influences of particular contexts on successful school leadership (e.g. Bossert *et al.*, 1982; Hallinger, 2016). Adapting the work of Bossert *et al.* (1982), Hallinger (2016) elaborated contextual features that have been evidenced to impact principal instructional leadership practices. These features comprise: institutional context, community context, national cultural context, economic context, political context, and school improvement context (see more details in Hallinger, 2016). The last feature – school improvement context – refers to a school's "improvement journey" (Jackson, 2000, cited in Hallinger, 2016). It suggests that the awareness of whether the student learning is in the "ineffective," "improving," or "effective" stage might determine a principal's leadership strategies and behaviors in the school.

In addition to school improvement context, the literature has indicated the influence of school level on principal instructional leadership. Primary and secondary schools are documented to considerably differ in terms of structures, processes and functions (Firestone and Herriott, 1982; Kelley *et al.*, 2005; Samy and Cook, 2009). Firestone and Herriott (1982) utilized two images: "rational bureaucracy" and "anarchy" to make a comparison between these two types of school. Their quantitative study concluded that the rational bureaucracy (e.g. goal consensus, vertical communication, or centralization of influence) is more dominant in primary settings while the anarchic characteristics (e.g. teacher classroom autonomy and openness to environment) are stronger in secondary schools. Primary principals were found to be more frequently involved in managing daily work and interacting with teachers while their secondary school counterparts in secondary schools attended more to allocating resources and extending external partnership (Herriott and Firestone, 1984). Heck's (1992) quantitative study found that principals in primary schools appear to devote more time to instructional leadership tasks (i.e. classroom observation, discussion with teachers on instructional matters, and analysis of achievement data) as compared with those in secondary settings. Similarly, Louis *et al.* (2010) emphasized that the instructional leadership of influencing student learning is "far easier" in primary schools than in secondary settings (p. 331). In a recent quantitative study conducted in Singapore, Nguyen and Ng (2014) pointed out, instructional leadership is more frequently exercised in primary schools than secondary schools in at least three aspects, namely, aligning teaching practices to vision, managing teaching and learning activities, and promoting professional development. By and large, it might be inferred that the effects of principal instructional leadership on instruction and student achievement are more substantial at the level of primary schooling (also see Hallinger and Heck, 1996; Louis *et al.*, 2010).

2.4 Hierarchy and heterarchy

Hierarchy is a familiar term in the organizational science. Gerard Fairtlough related hierarchy to "a single supreme ruler" who controls the entire organization by passing formal authority on to lower-ranked rulers, and so on down the levels of the organization (Fairtlough, 2005, p. 27). In the seventeenth century, Thomas Hobbes reasoned that without a sovereign to keep order, there would be a war of all against all (Parkin, 2015). Max Weber argued hierarchy as an indispensable feature in any organizations (1921/1980, cited in Diefenbach and Sillince, 2011). Locke (2003) similarly highlighted the inevitability of hierarchy in most successful organizations. Fairtlough (2005, pp. 39-41) claimed several reasons for the popularity of hierarchy, including: familiarity, naturalness, avoidance of chaos, discipline, use of scarce talent, personal motivation (to climb the top position),

personal identity (of the top ruler), and clarity (followers know where to go and what to do). In the educational leadership literature, Leithwood *et al.* (2007) denoted two points: "some hierarchy is unavoidable and necessary in a large organization" and "some leadership functions need to be performed by those in particular positions or with special expertise, not just anyone in the organization" (p. 57). Despite its advantages, longevity, and dominance, postmodernist scholars have criticized the hierarchical model and called for alternative models. Goleman (2007) argued that subordinates in heavily hierarchical organizations appear to feel insecure and vulnerable.

A heterarchical model has been arguably advocated as one of the alternative models in organizational structure to minimize the weaknesses of hierarchy (Fairtlough, 2005; Stephenson, 2009). Stephenson (2009) defined heterarchy as "an organizational form […] that provides horizontal links permitting different elements of an organization to cooperate while individually optimizing different success criteria" (p. 6). This definition accentuates three hallmarks of heterarchy: operating horizontally, stimulating cooperation, and leveraging individual resources of an organization (thereby entailing greater engagement of organizational members across levels). Stephenson differentiated hierarchy from heterarchy in at least two aspects: hierarchical relationship is underpinned by authority while the relationship in a heterarchical structure is highly collaborative; hierarchy is heavily influenced by policies whereas heterarchy is agreement-based. Kontopoulos' (1993) theory of the logic of social structure showed, "various levels exert a determinate influence on each other in some particular respect" within the heterarchical structure (p. 55). Like hierarchy, a sole heterarchical model has its own challenges such as: difficulty to implement as compared to hierarch (Stephenson, 2009) and reduced effectiveness in big-size organizations (Fairtlough, 2005).

3. Methodology

Qualitative research has become a legitimate and prominent approach in social and educational sciences over the recent decades. Stern (1980) claimed that qualitative approach is ideally suited to uncovering substantive areas "about which little is known or about which much is known to gain novel understanding" (Strauss and Corbin, 1998, p. 11). More specifically in leadership enquiry, Parry *et al.* (2014, p. 133) highlighted the ultimate advantages of the qualitative research over quantitative approach in three important ways: first, it offers additional flexibility to see "unexpected ideas" during research; second, it attends to "sensitivity to contextual factors"; third, it gives enquirers more opportunities to develop "empirically supported new ideas" and enjoy in-depth "explorations of leadership phenomena."

While school leadership is a complex phenomenon that is highly sensitive to surrounding contexts (Hallinger, 2016), the current state of documented knowledge about instructional leadership in Singapore and Asia is still limited (Hallinger and Bryant, 2013; Ng *et al.*, 2015a). Our qualitative study, therefore, targets at exploring the phenomenon of instructional leadership in Singapore context. Qualitative approach best suits this exploratory purpose due to its aforementioned benefits. Two main sources of data were semi-structured interviews and observational data. A grounded theory approach was adopted to analyze the data (Glaser and Strauss, 1967; Strauss and Corbin, 1998). This inductive analysis approach allowed the frequent and dominant categories/themes to emerge from raw data without the restraints imposed by prior structured frameworks.

3.1 Data collection

Thirty interviews with school leaders in the first stage. Data were collected in two iterative stages. In the first stage, we conducted in-depth interviews with 30 primary school principals in Singapore from May 2013 to March 2014 (see Table AI). We recruited the

participants on the basis of convenience and willingness. We studied primary school principals because reviewers of this literature found that the effects of principal instructional leadership seem to be more substantial at this level of schooling as mentioned in the section of literature review. The purpose of the interviews was to establish the principals' individual views of their work and work places. Their prior professional, personal experiences and current position and leadership styles were explored in relation to Singapore's context. This helped us generate propositions concerning how instructional leadership practices were exercised in these specific organizational and socio-cultural contexts (Belchetz and Leithwood, 2007; Dwyer *et al.*, 1983). Each interview lasted between 60 and 90 minutes in the participants' offices. The participants were assured about the confidentiality of their sharing before each interview. Interviews were recorded and verbatim transcribed.

Observations of five cases in the second stage. Following the formal interviews, we shortlisted a group of interviewees who seemed to be more articulate about their job. These shortlisted principals were invited for continued participation in the project. Five principals expressed their interests and willingness in continued participation in the project.

Data collection in this stage entailed observations of participants' activities and reflective interviews. Each principal was observed over the course of five working days in a period of approximately eight weeks. Each observation day in the school lasted from four to eight hours. Descriptive fieldnotes were generated and organized to record the participants' activities and happenings around them after each occasion of observation.

The researchers conducted observations of the practices of each principal as she/he interacted with staff, teachers, parents, students, and visitors. The other activities included observing classes, recesses, lunch periods, meetings, and conversations with teachers and students about their work and the school. Critical documents such as school plans, test score reports, descriptions of special programs, and other documents were examined, collected, and recorded into the fieldnotes that accrued for each principal and school.

At the end of the day or on the day following each observation, the researchers conducted a short interview (when appropriate) with the principal about some of the activities and interactions. Principals were asked to clarify actions when the intent was not clear, and encouraged to reflect on their decisions and activities.

3.2 Data analysis

All transcribed interviews and descriptive fieldnotes underwent a coding process that comprises three iterative key stages: open coding, axial coding, and selective coding (Strauss and Corbin, 1998).

We followed two main steps to openly code the data with an attention to reflexivity. The researchers read the collected documents (mainly interviews and fieldnotes) in a careful manner. Each document was usually perused several times to ensure a thorough understanding of the incidents, statements, contexts and others either explicitly or implicitly mentioned in the document. Next, the researchers flexibly used three strategies of open coding, that is, line-by-line analysis, whole-sentence analysis, and whole-paragraph analysis. For the first few interviews, we particularly focused on the line-by-line analysis that entailed a detailed coding procedure (phrase by phrase or even word by word). This micro-analytic approach helped us to generate initial categories quickly and effectively.

We reviewed all preliminary open codes and then selected "focused" codes to better manage the analyzed data. These focused codes contain the key ideas through the document or seem to have greater potential for category generation. Potential categories accordingly emerged from the focused codes.

The key aim of our axial coding stage is to systematically develop categories and link the identified categories in the open coding stage with their potential subcategories.

A category represents a phenomenon while its sub-category elaborates on "when, where, why, who, how, and with what consequences" of the phenomenon (Strauss and Corbin, 1998, p. 125). The categories and their subcategories continued to be integrated and refined in the process of selective coding to generate themes. This process happened in a non-linear way with high reflexivity. Within this paper, we are presenting four broad themes and their categories/properties in the following section.

4. Findings

The study identified four key themes that illustrate the broad instructional leadership roles and how these roles were enacted. The four themes comprise: vision development and implementation, physical and organizational structure, professional development, and leading and managing instruction.

4.1 Vision development and implementation

Developing vision. Most of the participants externalized their central roles in developing and sharing school vision and values. Principals generally had three options on vision development when they commenced their principalship term: keeping predecessor's vision, adapting the current vision, or developing a new one. Principals in high-performing schools with a long history and long tradition of high-achieving academic results tended to keep their predecessor's vision when taking on principalship. This was argued to promote continuity and stability, and maintain their unique school identity. A principal from a premier school rationalized her decision to retain the school vision:

> They had an envisioning exercise at the end of 2007 or 2008. I joined in 2009 and this is the school vision since then. I didn't change the vision because I don't believe that when you have a new principal, you change the vision. I wanted, in some sense, stability (Excerpt from Interview 14).

The other principals chose to adapt the vision or develop a new one for a closer alignment between the school direction and the evolving educational landscape. Most principals involved middle managers and teachers in reviewing the current vision collectively over staff meetings. One of such principals rationalized the need for a re- envisioning exercise in her school:

> The school vision is "every child is extra ordinaire." When I first joined the school […] I felt the need to concretize it [the school vision] and provide platforms for the children to display their uniqueness. So in that first year, we went on a journey of revisiting, re-envisioning our vision, mission and philosophy as a school (Excerpt from Interview 3).

Implementing vision. Principals generally realized the importance of clarity in the school vision among stakeholders and they strategically aimed to achieve it by leveraging on a myriad of platforms and encouraging ownership. Common platforms leveraged by principals to make the school vision physically visible included the infrastructure, mascot, school handbook, and website. In the investigated schools, it was quite easy to see prominent displays of vision and school values via the infrastructure and mascots. To make the school vision conceptually visible, principals, together with teachers, typically unpacked the school vision into observable learning outcomes through schoolwide events and activities. For example, storytelling and role modeling were regularly carried out in assemblies, discipline time, as well as integrated into lessons to articulate the school vision. A principal who was personally involved in implementing the school vision shared her experience in the following manner:

> We [together with vice-principals and teachers] actually take turns to speak to the school on school values. We bring in good examples, good stories and talk to the children about school values [as interpreted from the school vision] (Excerpt from Interview 30).

Commentary. Principals are mainly accountable for direction setting; they decide the retaining, revision or change of school vision and values. Teachers get involved in the process of vision development by contributing ideas to constitute a school vision and values. Both school leaders and teachers take active and equal roles in promoting vision implementation and ensuring an alignment between school vision and teaching and learning activities.

The data of the present study additionally suggested, the vision development is influenced by different contextual factors. First, Singapore schools seem to be acutely alert to the international trends in setting the vision and goals. Participants in this study emphasized defining or revising the school vision according to the needs for the twenty-first century learners. They claimed to pay attention to student holistic development and Information and Communications Technology (ICT) proficiency. Second, the previous studies have suggested national culture as a noteworthy factor that influences the leadership practice of goal setting (Ng *et al.*, 2015a; Sharpe and Gopinathan, 2000; Stott and Low, 2000). The current study additionally specifies the school leadership styles that reflect the characteristics of the local culture: long-term vision and pragmatism. Interviewed principals and staff of visited schools agreed on the need of both a long-term direction and a pragmatic perspective to establish annual goals.

The third factor influencing the vision building is key national policies and initiatives. These include broad-based holistic education, bilingual policy, teach less learn more, and twenty-first century competencies. Principals highlighted the importance of a strong alignment between national policies and school goals. Last but not least, school improvement journey (Hallinger, 2016) has an influence on vision development. As mentioned earlier, school leaders who started their principalship in a school that had been consistently in the "effective" status tend not to change the existing school vision.

4.2 Physical and organizational structure

Developing a school physical structure conducive to instructional activities. Bolman and Deal (2003) reasoned that the physical structure of a school is likely to affect an organization's circumstances, including workforce, environment, and efficiency. Many of our study participants believed that the physical school structure has a significant impact on the teaching and learning quality. Physical structure hereby refers to the physical space, facilities, and furniture found within the school compound. Most principals attended to two important features of physical structure, that is, safety and conduciveness to student holistic development.

Principals ensured the provision of facilities for teachers and students to implement educational initiatives. For instance, a principal revamped the ICT climate by first allocating budget to equip every classroom with desktops, projectors and curtains to shield out glare. She then engaged professional trainers to conduct ICT classes to staff, scheduled weekly in-house ICT training and created platforms to facilitate peer learning. The principal attributed the vast improvement of the ICT climate in her school to the financial capacity of her school and staff collaboration.

To promote the ownership, principals usually encouraged staff and students to propose initiatives for making the learning environment more conducive. "In one of the participating schools, teachers initiated the setting up of English Corner in order to promote the learning of the English Language through fun and games. Through getting student leaders to organize the games and implement the reward system, the teachers successfully leveraged on students as a resource whilst developing their leadership capacity" (Fieldnote Excerpt).

Developing a collaborative and open structure. Almost all principals in the study developed collaborative organizational culture through promoting PLCs. PLC is a professional

development initiative formally launched in Singapore by Ministry of Education (MOE) in 2009 (Hairon and Dimmock, 2012). In the investigated schools, PLC typically comprised professional learning teams of teachers who teach at the same grade level. According to Lee and Lee (2013), Singapore is the rare case outside the Euro-American zone where PLCs are implemented on "an extensive scale via state-led initiatives" (p. 439). Our empirical data indicated at least two key roles of school leaders in promoting the PLCs in their school. First, they ensured the "time structure" for PLCs activities to garner teachers' more engagement. "I think it is important and over the years we have put in place what we call professional learning teams. I will say this year we even have our professional learning team meetings during curriculum time, which is like part of their curriculum time […] it is well-received around people because we are not like after school or before school" (Excerpt from Interview 1). Second, principals aligned PLC activities with school vision. As a principal said: "In 2013 actually we structured 17 our PLCs to align with the school's strategic challenges. We get every department to surface departmental needs aligned to school strategic direction, school strategic challenge. And the KP [key personnel] are the one who actually define the learning problem, the gaps of the department, and therefore even select teachers to be in the different teams to work on the gaps. So it was more focused, it was more aligned" (Excerpt from Interview 30). However, most principals did not directly lead the PLC meetings; instead, teachers are encouraged to take turn to lead PLC meetings, and principals take facilitative and encouragement roles. Principals and teachers worked together as communities of learners in discussing instructional alternatives rather than directives. The following quotation supports this point:

> We do have PLCs, but not all of them do action research, some of them do inputs, some of them do learning circles. I leave it to them, though there is a certain structure [alignment with vision] they have to follow. Their team leaders must be strong in that area. They have to be comfortable with that. I give each team a lot of space and time to do that (Excerpt from Interview 24).

In addition to efforts to enhance the effectiveness of PLCs, the current study identified two popular strategies employed by school leaders to promote an open, and caring structure and positive relationships with student and teachers. First, most principals adopted an open door policy to teachers, students, and parents. This practice was not only confined to physical openness but was also expanded to virtual communication platforms such as e-mail, SMS, or WhatsApp. The open door policy was regarded as an effective channel through which school leaders informally collected feedback from stakeholders. Second, principals leveraged "walkabouts" as a mode to maintain high visibility, oversee instructional activities, and interact with teachers and students. They, however, cautioned against the only focus of walkabouts to monitor students and teachers, which likely creates counter-productive effects. During our research visits to participating schools, principals were seen to pay short visits to classrooms in order to give students spiritual support over the pre-examination periods or to have informal talks to teachers when appropriate.

Commentary. Principals played a critical role in school structure design that provides teachers and students a sense of safety and conduciveness to instructional activities. Both physical and organizational structures (e.g. time structure) contribute to the existence of a positive working climate. The previous research in Singapore has indicated the crucial roles of principals in developing such a school climate. Morriss *et al.* (1999) noted that principals share a desire to develop a collaborative work environment and to foster an open, supportive atmosphere responsive to the needs of students and staff. Yu (2009) showed that effective principals have ability to set the tone for a learning climate in which the open communication thrives. To enact these roles, principals created conditions in terms of time, resources allocation (e.g. facilities), and encouragement for teaching and learning.

Principals equally paid attention to creating platforms for teacher collaboration. On the one hand, principals supported teacher autonomy and both structured and spontaneous collaboration. On the other hand, they took up gate-keeping role to ensure that formal collaborative activities are aligned to the school vision and goals.

4.3 Professional development

Goal setting whole school professional development. The interview and observational data illustrated the important role of school leaders in setting vision for professional development. Specifically, they voiced out goals for whole school yearly professional development activities and ensured that these goals are aligned to the school vision and emergent needs. When questioned how these goals were established, most participants acknowledged the equal contributions of school leaders, middle leadership managers, senior teachers, and teachers. Sources for developing these goals included school surveys, classroom observations, and teachers' informal feedback. Principals highlighted the efficiency of the School Climate Survey[2], an annual on-line survey mandated by MOE, in helping them and middle managers identify their staff training needs. In summary, setting goals for professional development highlights the inclusive participation of all school stakeholders, rather than the sole principal.

Personalizing teacher professional development. Singapore provides various opportunities for teachers' career paths by structuring a three-track system, namely, teaching track, leadership track, and senior specialist track (see Nguyen and Ng, 2014). After three years of service, teachers are assessed to choose which of these three tracks would best suit them. Participants in this study revealed that the choice was dependent on an individual teacher' preferences and feedback from her/his direct supervisor and mentor. School leaders played an advisory role, and the decision was mostly negotiation-based to optimize teacher strengths.

When it comes to promoting teachers' lifelong learning, schools stressed efforts in having an optimal balance between teachers' own interests and school emergent needs or school gaps. As a principal in the following quotation shared:

> Each teacher is entitled to one hundred hours of training every year. It's both bottom up and top down. We will ask teachers not to plan to the full hundred hours because around half will be directed from school. So top down, there are things we want them to learn and bottom up, they will inform their reporting officers [direct supervisors] what they want to learn (Excerpt from Interview 26).

The "top-down" plan was undertaken on the basis of school needs identified from analysis of different feedback sources (e.g. surveys and informal teacher feedback) and student learning results. Similar to selecting the career path above, allocating professional development hours served a combination of teachers' personal preferences and school goals. This shows another sign of effort from schools in aligning activities to school goals and vision. Personalizing teacher professional development is also reflected in the ways schools structured staff development process. A principal explained how he involved middle managers and teachers in planning and reviewing staff development:

> We have a staff development framework, which guides the development of our staff in different stages: for growth, development and excellence. We believe that teachers at every stage need to be developed, so we did a staff competency checklist where the Senior Teachers involve staff and have them identify where they're lacking (Excerpt from Interview 30).

Mentoring teachers. Almost all schools in Singapore have mentoring programs for teachers, particularly novice teachers. Principals in the study emphasized structuring teacher mentoring process as an effective method to guarantee continued support to every teacher

throughout their teaching career. The commonality in the structured mentoring programs was the engagement of various personnel in mentoring an individual teacher that formally included a direct supervisor who was responsible for both teacher evaluation and development, an experienced teacher as an advisor, and an assigned buddy as a "formal" peer. In this mentoring structure, the relationship between an advisor, a "formal" peer, and a mentee was characterized to be more of horizontal collaboration than vertical authority. For evaluation, a supervisor was required to collect feedback from various personnel and the reflections from the mentee himself/herself. The supervisor was equally expected to fulfill the developmental responsibilities for the mentee, rather than sole evaluation. Principals were only directly involved in the mentoring process as a direct supervisor of certain key personnel (KP), rather than all individual teachers. Their key roles were to ensure the smooth function of the structured mentoring process. Similar to other direct supervisors, a principal relied on different sources of feedback from the relevant parties to evaluate a direct mentee. Interview and observational data indicated that supervisors and advisors, and "mentoring" buddy learned from mentees as well. Noticeably, a mentee in this network might take a formal or informal mentoring role in another network of the same school. This interdependency among personnel in mentoring work helps to minimize unchecked power and enhances democracy.

In addition to the formal mentoring structure, teachers leveraged on informal sources and networks for their professional development. The novice teachers can tap on other experienced teachers who willingly help them to enculture in the school and improve instructional practices. At this point, the informal mentoring is highly collaborative and spontaneous. However, developing and nurturing such a collaborative culture requires deliberate efforts of schools leaders to create a sense of trust and collaboration among staff, for example, voicing out the encouragement of peer learning through informal lesson observation.

Commentary. This theme elucidates three important points pertaining to leadership for professional development in Singapore schools. First, unsurprisingly principals played a crucial role in articulating direction for whole school professional development, and ensure that professional activities are aligned to the school vision. This direction was surfaced from contributory ideas of different stakeholders such as middle managers, teacher leaders, and teachers. Second, schools share a commonality in structuring the process of teacher professional development. They had a structured mentoring program for novice teachers as well as a professional development framework for all teachers at different stages. On the one hand, the structuredness was accentuated as a reference for involved personnel to minimize uncertainty and chaos. This makes sense because "uncertainty avoidance" has a great influence on professional learning engagement and quality (Ning *et al.*, 2016, p. 250). On the other hand, schools disapproved of the heavy rigidity of a formal structure. Accordingly, all parties in this structure were assumed to have comparatively equal voices; the decision must be agreement-based. The operation depended on each team as long as it was aligned to school vision. An optimal balance between individual interests and school needs was emphasized in this structure as well. Last but not least, there were typically informal networks for peer professional development in addition to the institutionalized structure. This is clearly reflected through the way teacher mentoring was enacted in schools.

4.4 Leading and managing instruction

Leading instructional change. To identify instructional gaps, principals tended to rely on both external and internal sources of data. Benchmarking is a popular strategy adopted by principals as they employed external data. Principals tended to select benchmarked schools

based on its proximity and comparability of social economic status of the student population. In schools where benchmarking is more pervasive, principals formed benchmarking teams, consulted and strategized with the team members over meetings and visited the benchmarked schools. For example, a principal modeled subject-based meetings after a benchmarked school as it facilitated same-subject pedagogical conversations among teachers. For internal data to assess the instructional quality in the school, principals relied mainly on regular walkabouts, feedback from key stakeholders such as teachers, parents and students and periodical analysis of student work (e.g. examination results, book checking, and file checking). One of the principals described a typical post book-checking meeting with his middle managers in the following manner:

> We have sessions with our middle managers after they checked books from the various subjects. In our management meeting, I would request for a status and irregularity report of their book checking. The middle managers will talk about general observations and at times, raise specific areas of concern (Excerpt from Interview 14).

Being aware of the importance of teacher buy-in and engagement in successful instructional change, most principals took a cautious approach when initiating change for instructional improvement. These principals highlighted the need to gain teachers' trust, readiness and support and hence would strategically involve enthusiastic teachers to initiate a small-scale change. The following interview excerpt described a typical bottom-up way in which a principal formed a group to prototype instructional change:

> As a first time principal I started very small. I started piloting at two levels so I could be more involved to ensure success. With success, others buy-in and they too want to be involved. So the level system was very successful and the teachers love it because there's a lot of autonomy on the ground (Excerpt from Interview 13).

The results of prototyped changes were subsequently reviewed. The initial success in this stage would help to increase teachers' confidence in the feasibility and benefits of the instructional change. Based on these data, principals, their teams of middle managers, and catalysts made necessary revisions before proceeding with a larger-scale change implementation. Noticeably, our interviews with principals and talks with teachers in the visited schools revealed that teachers are given autonomy to enact instructional changes in their own classrooms.

Managing classroom instruction. Most participants in the investigated schools relied on middle manager as subject experts to assist them in managing classroom-instruction activities. Middle managers usually assisted principals in staffing instructional programs, conducting periodical classroom observations, developing individual teachers, and implementing instructional change while principals developed KP's leadership capacity through platforms such as courses, workshops, local and cluster PLCs, work attachment and collaboration with external organizations. The following comment from a principal on his role as an instructional leader in the school is typical:

> I leave it [managing classroom instruction] to the Heads of Departments because they are the master teachers for that. I provided the resources, monitored and gave them suggestions and then it's up to them to take it off (Excerpt from Interview 4).

In a similar manner, another principal attributed improved staff capacity to his competent team of middle managers:

> It is very important to have a strong team of KP [key personnel]. In my case, I have a particularly strong school staff developer and through working closely with her and the other KP, I was able to build the teachers up […] In my opinions, a very strong KP must possess good interpersonal relationship skills so that others want to follow and listen to him/her, they believe in him/her, that is important. But, if they don't have content knowledge, there is also no point (Excerpt from Interview 9).

Commentary. This theme illuminates principals' role in overseeing the whole school instructional quality and their less direct involvement in managing teachers' classroom instruction. There reasons stood out as possible explanations for this finding. First, Singapore primary schools generally have a big population. An average primary school has about 80 teachers and over 1,000 students (see Table AI). When interviewed, many principals attributed the large school size as the very reason to their less direct involvement in managing teachers' classroom instruction. This reasoning parallels the report of Louis *et al.* (2010) about the influence of school size in the enactment of principal instructional leadership.

Second, principals considered themselves as "leader of instructional leaders" (Glickman, 1989, p. 6). Pragmatically, they chose to oversee the whole school instructional direction and delegate to middle managers to manage the instructional leadership practices (e.g. supervision of classroom instruction). Most principals expressed their trust in their middle managers' content knowledge and leadership capacities, which corresponds with the findings from Koh *et al.* (2011).

Finally, the previous study has accentuated Singapore principals' leadership style as a combination of task-oriented, people-oriented, and change-oriented styles (Ng *et al.*, 2015b). The current study reiterates the claim of Ng *et al.* (2015b) and further contends that, relationship is considered as a key to the success of instructional leaders where specifically, maintaining a positive relationship with teachers is a necessity. Meanwhile, direct supervision of classroom instruction may create negative resistance from teachers who still consider classroom as their traditional "territories," even in such a "more hierarchical" society as Singapore. This finding mirrors those from previous studies (e.g. Walker and Dimmock, 2000). Moreover, supervision of classroom instruction can be undertaken in two forms: formative supervision and summative evaluation (Range *et al.*, 2013). The former attends to teachers' capacity development, while the latter is mainly to evaluate teachers' performance for the purposes of promotion and appraisal (Holland and Garman, 2001). While teachers can be more receptive to formative supervision, supervision of classroom instruction nonetheless demands substantial time commitment from principals, for example, to frequently conduct classroom observations (Danielson, 2011; Range *et al.*, 2011). This practice, therefore, is deemed to be less feasible in Singapore primary schools due to school size.

5. Discussion

The analysis of principals' enactment of five broad roles accentuates a structure for instructional leadership in Singapore primary schools as shown in Figure 1. The three-layer structure can be briefly depicted as follows:

- Layer 1: this layer comprises a principal and (a) vice-principal(s). The principal is accountable for: defining school academic vision, aligning in-school activities with vision, encouraging staff, and promoting supportive environment for teaching and learning activities. A principal is usually assisted by a small group of senior leaders (usually vice-principals).
- Layer 2: there is a team of instructional leaders who directly manage instructional and curricular matters. These teams usually comprise KP such as heads of department (HODs), subject heads, level heads, senior leaders, and lead teachers.
- Layer 3: this layer includes classroom and subject teachers. A school develops PLCs. Both formal and informal teacher leaders play a key role in PLC development. These PLCs help to promote instructional practices of the school.

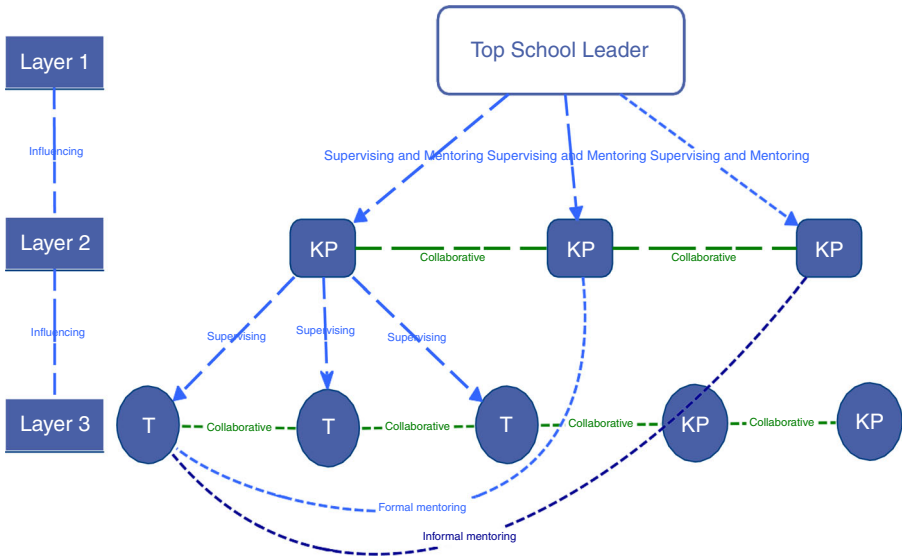

Figure 1.
Instructional leadership structure in Singapore primary schools

Notes: KP, key personnel; T, teacher

5.1 A co-existence of hierarchy and heterarchy

On the surface, the three-layer instructional leadership structure seems to be hierarchical, which is typical of organizational charts elsewhere in the world. However, our data suggest a co-existence of hierarchical and heterarchical elements.

Heterarchy in parallel to hierarchy. Heterarchy exists in parallel to hierarchy. Viewing this proposed structure vertically, the first layer comprises a principal and vice-principal(s) who have the most authority in a school. Those who are in the third layer have the least formal power. The formal instructional roles and responsibilities of all members in each layer are explicitly defined generally as follows: a principal makes the final decision about schoolwide policies; middle leadership managers interpret policies, and guide and supervise teachers in their respective departments; and teachers implement those policies. Regarding evaluative and developmental purpose, more senior teachers inhabit higher ranks, supervise and mentor junior colleagues. For social and professional relationships, the typical process is: teachers report issues (if applicable) to their direct supervisors/mentors and this supervisor/mentor discusses with a higher level manager or directly to the school leaders. Such vertical orders reflect the formal hierarchy as defined by Weber (1921/1980, cited in Diefenbach and Sillince, 2011).

The heterarchical elements can nevertheless be seen within each layer of instructional leadership, particularly the second and third layer. Individuals in the same layer have comparatively equal power. For example, HODs in layer 2 have more or less the same power. In the third layer, individuals interact with one another for professional discussions in both formal and informal occasions. Formal occasions include weekly meetings of PLC, seminars, and workshops. Teachers take turn to lead PLC meetings; formal instructional leaders in layer 2 and occasionally layer 1 play the role as participants rather than formal leaders. In informal occasions, spontaneous interactions and collaboration take place within a group and among groups of teachers. Through these horizontal professional interactions, individuals exert reciprocal influences on one another with the minimal effects of authority power.

Another evidence supporting the idea of the co-existence of heterarchy and hierarchy pertains to performance evaluation. School leaders in layer 1 and KP in layer 2 are

responsible for yearly teacher evaluation. Teachers have opportunities to give feedback on the performance of their direct supervisors and school leaders through surveys and different channels of feedback. For instance, through the online annual survey administered by MOE, staff can evaluate their principals' leadership performance and school climate. Most of the investigated schools publicized the survey results to all teachers. This evaluation mechanism creates conditions for heterarchical emergence and helps to increase the accountability of instructional leaders as well as reduce tyranny.

Heterarchy nested in hierarchy. Heterarchy is subsumed within hierarchy in the proposed structure. The school leaders set the school vision, make a final decision about school instructional policies, and ensure the instructional activities are aligned to the vision and policies. This is clearly reflected in the aspects presented in the section of findings such as vision development, developing PLCs, professional development, and leading instructional change. Thus far the hierarchical elements pervade all those aspects. Nonetheless, many enactments of heterarchy are displayed in the process of vision and policy development. Teachers and other stakeholders are engaged in the decision making process of the vision and policies. Often, policies are derived from the feedback and initiatives of the grassroots level. On leading curriculum and instruction, principals leverage on internal and external data and staff feedback to identify gaps for improvement. Principals work with their group of instructional leaders to identify solutions for change. Issues are discussed in the level meetings and teachers' ideas are considered as well. At the implementation stage, teachers have a considerable degree of autonomy to translate policy into real classroom practices and opportunities to suggest for effective change implementation. This finding on teacher autonomy corroborates with the previous studies in Singapore (Ho *et al.*, 2015; Lim-Ratnam *et al.*, 2016).

Investigated schools emphasized working toward formal structuredness of processes to achieve clarity, certainty, consensus, and tangible outcomes, which is quintessentially hierarchical. These structured processes can be teacher professional development or practice of instructional initiatives/changes. Meanwhile, there are elements of flexibility and spontaneity nested in such formal structures, which is indicative of heterarchical leadership.

Hierarchy hidden in heterarchy. Third, hierarchical elements might be hidden in heterarchy. The third layer displays strong heterarchy in which teachers collaborate with one another formally and informally for improved instruction. In many schools, formal PLC meetings are led by HODs or level heads; alternatively, teachers (with temporary titles such as PLC facilitator) take turns to periodically lead meetings. Assigning an individual a (temporary) title to manage meetings inevitably creates an element of ordering that entails certain hierarchy within the learning communities.

The relationship between teachers in the same third layer is fundamentally heterarchical in the light that it is highly collaborative and horizontal (e.g. through informal peer learning and mentoring) and lack of explicit ordering (Gronn, 2008). However, there might be some hierarchy nested in that relationship, which can be regarded as informal hierarchy (Diefenbach and Sillince, 2011). This informal hierarchy is caused by factors such as age, experience, or degree of expertise. It comes from more of the national culture rather than the school structure itself. At this point, it depends on the skills of the involved in the relationship and school climate to prevent degeneration of heterarchy into a "façade" or an "epiphenomenon" (Fairtlough, 2005, p. 43).

A hybrid structure of instructional leadership. In the final analysis, it is safe to say that hierarchy with its historical entrenchment is still a dominant model to get things organized in organizations, including schools. The top leader's over-reliance on a heterarchy model might nevertheless create hindrances to the sustainable organizational development. Heterarchy is a preferred model, but it may take "centuries" to completely transform from hierarchy into heterarchy (Fairtlough, 2005, p. 92) and its success is highly context-dependent.

A hybrid leadership structure can be an appropriate choice for organizations in the forthcoming decades. We therefore wish to argue that a hybrid instructional leadership structure should be promoted in Singapore schools. First, hierarchy is still dominant in Singapore as well as other Asian societies such as Hong Kong, Taiwan, and South Korea (Dimmock, 2011). As mentioned earlier, the national culture has a significant influence on school leadership. A complete transformation into heterarchy does take ages. Second, the optimal effectiveness of complete heterarchy in Singapore schools is in question due to their large size. Last but not least, we wish to note evidence of hybrid leadership practices in the contexts that are presumed to be "less hierarchical" (than Asian societies) such as the USA (Spillane *et al.*, 2007), Canada (Leithwood *et al.*, 2007), and New Zealand (Higgins and Bonne, 2011; Timperley, 2005).

5.2 Toward a distributed instructional leadership approach

The three-layer structure above illustrates the existence of both hierarchical and heterarchical leadership in Singapore primary schools. This structure affirms the claim that instructional leadership may emanate from different sources. Clearly, the work of instructional leadership is not confined to a principal alone, but is expanded to the other school members regardless of whether they have a formal leadership title. Distributing instructional leadership might be a pragmatic solution to reduce principals' growing workload. More importantly, data analysis in our study supported the purpose of distributed instructional leadership that goes beyond pragmatism. Distributed instructional leadership also aims to foster teachers' interdependent collaboration and agency. The data showed evident signs of reciprocal influence and collaboration among teachers, as discussed earlier in the themes of physical and organizational structure and teacher professional development. However, a hybridity of hierarchy and heterarchy is only indicative, rather than being definitive evidence of distributed instructional leadership. According to Peter Gronn, the hybridity of hierarchy and heterarchy "reflect more accurately the mix of the work of solo, dyad and team leadership than 'distributed,'" and "distributed" should be understood as "instances of conjoint agency" (Gronn, 2008, p. 152). Conjoint agency means, "agents synchronise their actions by having regards to their own plans, those of their peers and their sense of unit membership" (Gronn, 2002, p. 431).

Within this paper, we have not been able to illuminate reliable and generalizable patterns of instructional leadership distribution. When we set out this study, we focused on investigating principal instructional leadership practices. We fundamentally fulfilled our initial objectives. The findings, however, additionally revealed the enactment of instructional leadership in different situations and forms. We share the view held by Neumerski (2013) that incorporating three concepts "principal instructional leadership," "teacher instructional leadership," and "coach instructional leadership" in a study might be an advanced step in researching instructional leadership. In other words, investigating instructional leadership from principals' perspectives is needed but insufficient in illuminating patterns of distributed instructional leadership. This leaves a niche for future research in Singapore as well as the other societies.

6. Conclusion

The current study aimed to investigate instructional leadership practices in the context of Singapore primary schools. This was a deliberate effort to fill the knowledge gap of instructional leadership in non-western societies. Singapore's model of instructional leadership could be described in the hybrid structure. The principals maintain a high level of oversight on the school's direction and vision through the hierarchical structure. This reflects the centripetal role of principals where all school's instructional processes, programs and activities are deliberately organized to achieve the school vision, educational policies, and initiatives. Clear direction and alignment of all instructional processes are emphasized through the strategic thrusts in the school vision.

The hierarchical structure's inherent reliance on a "supreme leader" is greatly mitigated through the emergence of heterarchical elements. In this structure, instructional leadership appeared to be intentionally distributed. KP and teachers work in collaborative teams and supported by organizational structures promoted by the principals. This is where various instructional improvement programs and strategies are initiated and led by staff. This would be highly impossible if the principal practices are heavily based on hierarchical instructional leadership. Therefore, this suggests that principals practice the centrifugal role of enabling staff through stimulating cooperation, and leveraging on individual and collective expertise resources. Finally, the paper has proposed a research agenda forward where there is still much to investigate in a (more) centralized education system that is generally the norm in Asian societies. Specifically, there is a strong case to further investigate instructional leadership from the distributed perspective.

Notes

1. These journals are: *Educational Administration Quarterly*, *Journal of Educational Administration*, *Educational Management Administration and Leadership*, *International Journal of Leadership in Education*, *Leadership and Policy in Schools*, *School Leadership and Management*, *School Effectiveness and School Improvement*, and *International Journal of Educational Management*. These are recognized as "core international journals" in educational administration, leadership, and management (Leithwood and Jantzi, 2005; Hallinger, 2013).
2. Teachers respond to this annual survey.

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Appendix

Principal gender	Years of professional experiences	Years of principalship	Number of current staff
1. Male	11	3	170
2. Female	8	6	103
3. Female	14	12	97
4. Female	15	3	80
5. Female	15	14	130
6. Female	15	2	80
7. Male	16	6	115
8. Female	13	5	95
9. Male	18	13	90
10. Female	12	6	111
11. Male	10	4	90
12. Female	20	1	95
13. Female	7	3	110
14. Female	26	6	73
15. Male	10	6	180
16. Female	8	4	128
17. Male	19	2	90
18. Female	18	5	120
19. Female	23	8	144
20. Female	14	10	138
21. Female	19	18	186
22. Female	14	14	95
23. Female	14	5	115
24. Female	11	4	110
25. Female	18	14	117
26. Male	29	13	80
27. Female	7	10	120
28. Female	16	7	119
29. Female	20	5	86
30. Female	16	15	100

Table AI. Demographics of participants and respective schools

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