

A large, stylized red dragon illustration on the left side of the page. The dragon is depicted in a dynamic, coiled pose, facing upwards and to the right. It has a long, flowing tail and a fierce expression with its mouth open, showing teeth. The dragon is rendered in a solid red color with white highlights on its underbelly and claws.

School Report (Organizational Capacities) — Missing Link II: School Improvement and Student Learning in Hong Kong Primary Schools

Philip Hallinger

James Ko

Joanna Li Lijuan

Rebecca Li Jia

The Joseph Lau Luen Hung Charitable Trust
Asia Pacific Center for Leadership and
Change

The Hong Kong Institute of Education
Hong Kong SAR

The Hong Kong Institute of Education
10 Lo Ping Road, Tai Po, Hong Kong, China
Tel: (852) 2948 8783
URL: <http://www.ied.edu.hk/apclc/>
Email: APCLC@ied.edu.hk

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Introduction

This report was prepared using data of an online survey conducted between November, 2011 and January, 2012. We received a total of 970 questionnaires from 411 key staff and 559 general teachers of 32 schools with an average return rate of 78%.

This report covers twelve parts. Part I to Part 3 examine organizational capacities of schools and related them with principal leadership, student Math test results, and collaborative culture of key staff. Part 4 to Part 7 discuss collaborative culture among key staff and similarly related it with principal leadership and student Math test results. Organizational capacities and collaborative culture are considered as key factors characterizing the nature of distributed leadership in schools and thus are the focus of this project.

Parts 7 and 8 analyze various types of school improvement in school in detail. Part 10 examines the significances of organizational capacities and collaborative culture by linking them with principal leadership, student Math test results, and perceptions of school improvement.

Part 11 shows the relationships between students' self-concepts and different school factors, while Part 12 examines the social network in schools.

If you have any questions please feel free to contact the project team apclc@ied.edu.hk or Dr James Ko directly (jamesko@ied.edu.hk).

Thank you again for your participation in the study.



Prof. Dr. Philip Hallinger

As promised your school identification number has been and will continue to be kept completely confidential. It is released online for access by teachers of participating schools. However, should you find it constructive to share this report to anyone, please feel free to so.

How to Use This Report

We encourage teachers to read the results constructively for reflective purposes. The reliability of our results is generally higher at collective level. At the individual school level, the results may not necessarily reflect what the majority of the teachers in your school think about the organizational capacities of your school.

Firstly, teachers are working in different working contexts, such as geographical locations or local communities, historical developments of the schools, school sizes, and school sponsoring bodies, variety of funding sources, compositions of teachers, teacher characteristics, teacher quality and experience, and socio-economic backgrounds of students. All these factors affect the perceived effectiveness of the school's organizational capacities.

Secondly, we advise teachers to interpret the results with caution as they may not show an accurate representation of your leadership school if the total sample sizes of the received questionnaires were small.

Thirdly, as we did not present our results with respect to teachers' years of service in the schools, the opinions of the newly appointed teachers may bias the overall perceptions.

Please note that the questionnaire items comprising the dimensions used in the following sections are listed in the Appendix.

Executive Summary

On the nature of different organizational capacities of schools, we found that:

- 1) Teachers were generally positive about organizational capacities of their schools as the related composite mean rarely scored below 2.
- 2) The composite mean scores of organizational capacities vary across schools, but the range is generally narrower than that for the student Math test scores and that for the composite mean scores on principal leadership practices. Thus, teachers seemed to have some consensus about the organizational capacities that their school has for organizational learning and change.
- 3) Teachers in all schools found heavy workload negative, but all valued most the trust among colleagues. While poor resources capacity was regarded the next common concern, poor communication was noted in some schools.
- 4) Schools of high and low leadership strengths differed in all organizational capacities, but most notably in *Communication, Professional Learning Community, Alignment, Coherence and Structure, and Workload*.
- 5) Between the Top 5 schools and the Bottom 5 schools ranked by leadership strengths, smaller variations were found in organizational capacities such as *Trust, Resources Capacity and Support for students*. In contrast, large variations can be found in *Communication, Alignment, Coherence and Structure, and Support for Students*.
- 6) The Top 5 and Bottom 5 schools ranked by the student Math test results differed little in their organizational capacities.

On the relationships of students' self-concepts and math test results, we found that:

- 1) Student math test results for this year may not be able to show any meaningful relationships with students' general self-concept, math specific self-concept and various organizational capacities factors.

On the significances of organizational capacities and collaborative culture, we found that:

- 1) Strongly correlated organizational capacities and collaborative culture among key staff may be factors that lead to successful distributed leadership in schools.
- 2) Among the organizational capacities and collaborative culture factors, there may be precedence of professionalism over collegiality.
- 3) Strong leadership of the principal is strongly correlated with teachers' commitment and cooperation.
- 4) The commitment of teachers to school is most strongly correlated with both supports for students and internal alignment of work in schools.
- 5) Factors affecting student outcomes in schools are more likely to rely on knowledge-based, student-oriented, highly-coordinated manpower.

On the nature of collaborative culture of key staff, we found that:

- 1) Despite the overall more than satisfactory collaborative culture school-wide, key staff generally thought that more coordination among teachers is required.
- 2) Interestingly, most key staff acknowledges the importance of their colleagues' specialization, shared visions, and constructive criticisms.
- 3) Schools weakest in collaborative culture may be among those with lightly weaker rather than weakest principal leadership.
- 4) Organizational capacities are more likely to be correlated with collaborative culture among key staff than with the principal's leadership strength.
- 5) Schools generally did not differ much in different aspects of collaborative culture when the grouping was based on student math test results, suggesting schools with high and low student math test scores did not differ in all aspects related to the collaboration among key staff.

On the teachers' perceptions of school improvement and, we found that:

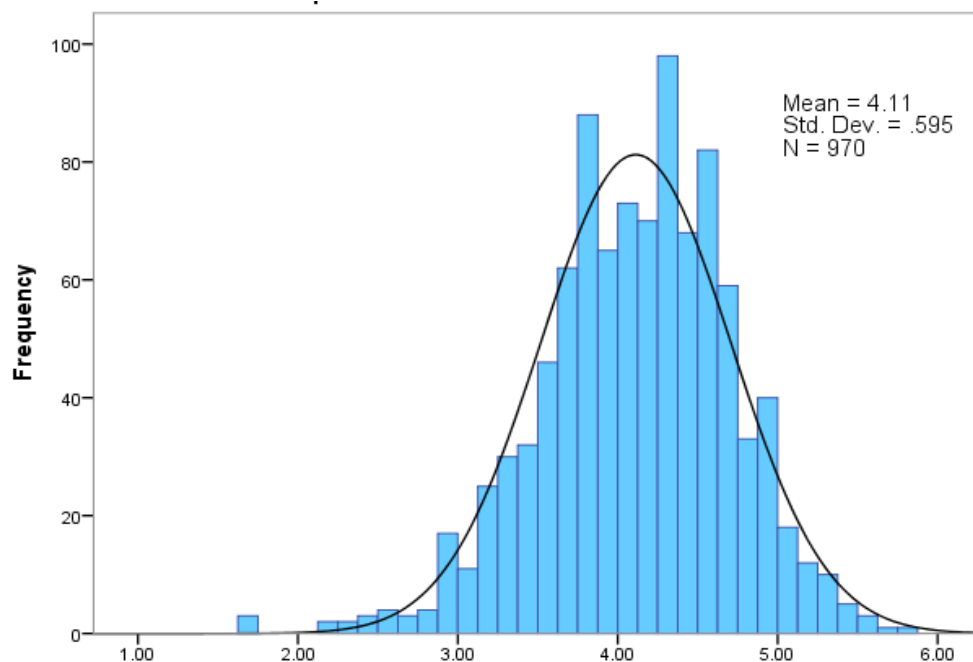
- 1) Teachers tended to be least positive about the schools' effectiveness in tackling homework problems and in gaining parental satisfaction with their schools.
- 2) Teachers generally agreed that all the seven types of school improvements had positive impact on student outcomes.
- 3) Teachers thought that school culture and curriculum contributed most to better student outcomes. In contrast, teachers found that external school reviews are least useful for enhancing student outcomes.

On the social networks among teachers in schools, we found that:

- 1) The complexity of the social network among teachers in schools varied with the density of the information exchanges and social ties among teachers, the sizes of the sub-networks, and the number of sub-networks. Together these factors indicate a general frequency of exchange of advice and support among teachers, which may be crucial for the lowest ratings in both organizational capacities and collaborative culture.
- 2) Schools with fewer teachers and thus, less dense networks, did not necessarily weak in organizational capacities, nor weak in collaborative culture.
- 3) The patterns of social networks are likely to reflect the collaborative culture among key staff in the schools as well as the organizational capacities of schools. However, these relationships are not always clear in the schools studied.
- 4) Generally, similar networks tended to have similar composite mean scores of organizational capacities and sometimes similar composite mean scores of collaborative culture.

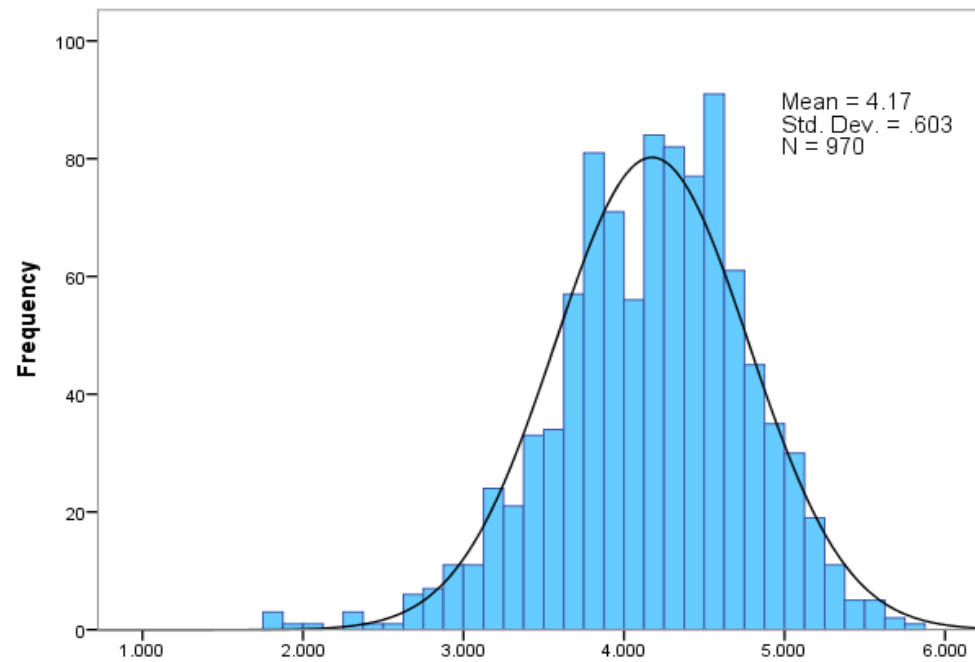
Part 1: General Perceptions of Organizational Capacities (7 or 9 Dimensions)

Figure 1a: Frequency Distribution of Composite Mean Scores of the Organizational Capacities (7 Dimensions)



- Figure 1a shows a roughly bell shaped distribution of the teachers' composite ratings on the organizational capacities of their schools in *seven* dimensions.
- The overall mean, 4.11, is above the midpoint, 3.5, of a 6-point Likert scale (1 for the lowest and 6 the highest), suggesting an average positive feedback from a majority of the teachers in the sample.
- The largest group accounting for about one-tenth of the whole sample had composite ratings at the 4.375-4.5 range.
- Teachers generally tended to be more positive about organizational capacities of their schools as mean scores below 2 were extremely rare.

Figure 1b: Frequency Distribution of Composite Mean Scores of the Organizational Capacities (9 Dimensions)



- Figure 1b shows an overall bell-shaped but bimodal distribution of the teachers' composite ratings on the organizational capacities of their schools in *nine* dimensions.
- The overall mean, 4.17, is above the midpoint, 3.5, of a 6-point Likert scale (1 for the lowest and 6 the highest), suggesting an average positive feedback higher than that of 7 dimensions.
- The largest group accounting for about one-eleventh of the whole sample had composite ratings at the 4.375-4.5 range. However, a bimodal distribution may suggest there was a large group of teachers whose ratings were less positive.

Table 1: Means and Standard Deviations (SD) of Composite Mean Scores of Organizational Capacities by School (7 Dimensions)

School No.	1	2	4	5	6	7	8	9	10	11
Mean	3.89	4.02	4.56	3.87	4.06	4.38	4.34	4.03	4.01	3.88
SD	0.55	0.57	0.38	0.49	0.53	0.62	0.43	0.57	0.42	0.46
Sample Size	(15, 17)	(13, 20)	(19, 24)	(7, 2)	(14, 33)	(16, 10)	(20, 30)	(22, 21)	(14, 4)	(15, 23)
School No.	12	13	14	16	17	18	19	20	21	22
Mean	4.13	4.14	4.41	3.84	4.16	3.94	4.00	4.15	4.25	4.36
SD	0.55	0.58	0.58	0.64	0.55	0.54	0.90	0.47	0.53	0.52
Sample Size	(6, 12)	(16, 21)	(20, 43)	(12, 38)	(13, 29)	(5, 5)	(15, 18)	(22, 29)	(16, 17)	(13, 27)
School No.	23	24	25	26	27	28	29	30	31	32
Mean	4.02	4.29	4.87	3.72	4.48	3.46	3.69	4.10	4.31	3.96
SD	0.45	0.73	0.73	0.61	0.41	0.65	0.60	0.54	0.04	0.54
Sample Size	(13, 12)	(9, 7)	(4, 1)	(16, 33)	(5, 10)	(6, 6)	(11, 12)	(21, 31)	(2, 0)	(16, 18)
School No.	3(P3)	15(P5)	32 Schools (All)							
Mean	4.24	4.45	Overall Mean							
SD	0.43	0.31	Overall SD							
Sample Size	(9, 2)	(6, 4)	Overall Sample Size							

* The 1st number in the bracket represents the number of key staff; the 2nd number is the number of general teachers sampled.

- In Table 1, the means and standard deviations regarding teachers' perceptions of seven organizational capacities of their schools: i.e., *Trust, Communication, Professional Learning Community, Alignment, Coherence and Structure, Resources Capacity, Workload, and Support for Students*. These capacities were previously studied in secondary schools in our *Missing Link I* project.
- The composite mean scores vary across schools, but in a range narrower than that for the student Math test scores and that for the composite mean scores on principal leadership practices.
- The means and standard deviations did not differ much with or without the two P3 and P5 schools. Accordingly, we will report all the survey findings of the 32 schools, rather than 30 schools.
- The reliability of the ratings for individual schools varied with the actual number of returned questionnaires obtained from each school. This means the results of School 25 and 31 would be hardly reliable.
- A standard deviation for a school greater than the overall one (0.60) generally (e.g., Schools 19, 24, and 25) suggested that there was a greater than normal disagreement among teachers of a school in their perceptions of their school's organizational capacities, and vice versa.

Table 2: Means and Standard Deviations (SD) of Composite Mean Scores of Organizational Capacities by School (9 Dimensions)

School No.	1	2	4	5	6	7	8	9	10	11
Mean	4.01	4.10	4.61	3.91	4.12	4.41	4.40	4.12	4.12	3.94
SD	0.51	0.57	0.39	0.52	0.53	0.65	0.44	0.60	0.40	0.48
Sample Size	(15, 17)	(13, 20)	(19, 24)	(7, 2)	(14, 33)	(16, 10)	(20, 30)	(22, 21)	(14, 4)	(15, 23)
School No.	12	13	14	16	17	18	19	20	21	22
Mean	4.17	4.20	4.45	3.86	4.22	3.98	4.06	4.24	4.34	4.37
SD	0.55	0.61	0.61	0.63	0.55	0.56	0.88	0.48	0.52	0.56
Sample Size	(6, 12)	(16, 21)	(20, 43)	(12, 38)	(13, 29)	(5, 5)	(15, 18)	(22, 29)	(16, 17)	(13, 27)
School No.	23	24	25	26	27	28	29	30	31	32
Mean	4.09	4.32	5.02	3.75	4.52	3.53	3.78	4.20	4.38	4.03
SD	0.45	0.79	0.68	0.62	0.38	0.69	0.62	0.55	0.09	0.54
Sample Size	(13, 12)	(9, 7)	(4, 1)	(16, 33)	(5, 10)	(6, 6)	(11, 12)	(21, 31)	(2, 0)	(16, 18)
School No.	3(P3)	15(P5)	32 Schools (All)							
Mean	4.22	4.52	Overall Mean						4.17	
SD	0.48	0.29	Overall SD						0.60	
Sample Size	(9, 2)	(6, 4)	Overall Sample Size						(411, 559)	

* The 1st number in the bracket represents the number of key staff; the 2nd number is the number of general teachers sampled.

- Like Table 1, Table 2 also shows the means and standard deviations regarding teachers' perceptions of the organizational capacities of their schools, but two organizational capacities, *Organizational Commitment* and *Cooperation* of teachers, were also added for study in this project.
- Similar to those in Table 1, the composite mean scores also vary across schools and its range is also narrower than that for the student Math test scores and that for the composite mean scores on principal leadership practices.
- The composite mean scores for nine organizational capacities are higher than those for seven ones because the ratings for the two additional organizational capacities were generally more positive. While the mean of all schools (4.17) is slightly higher than that for seven organizational capacities.
- A standard deviation for a school greater than the overall one (0.60) generally (e.g., Schools 19, 24, and 25) suggests that there was a greater than normal disagreement among teachers of a school in their perceptions of their school's organizational capacities, and vice versa.

Figure 2: Composite Mean Scores of the Organizational Capacities by School (9 Dimensions)

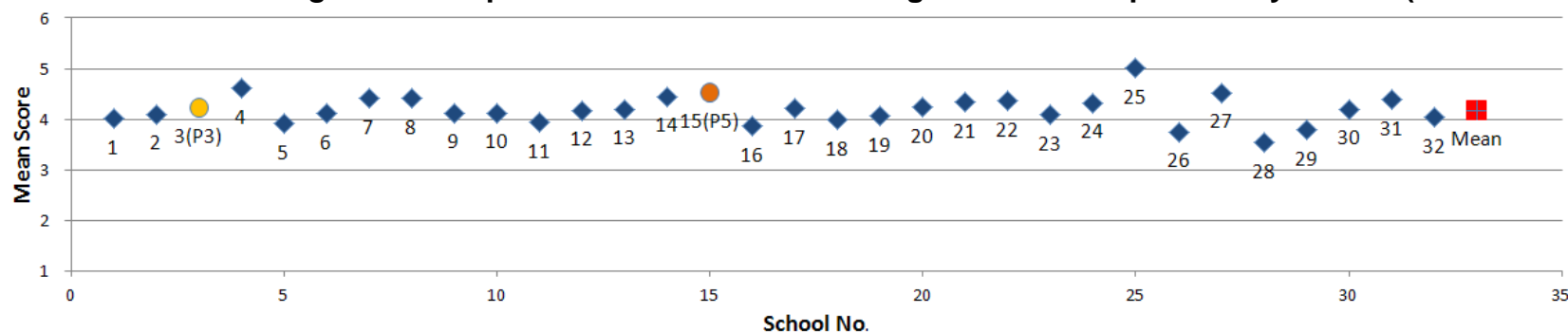
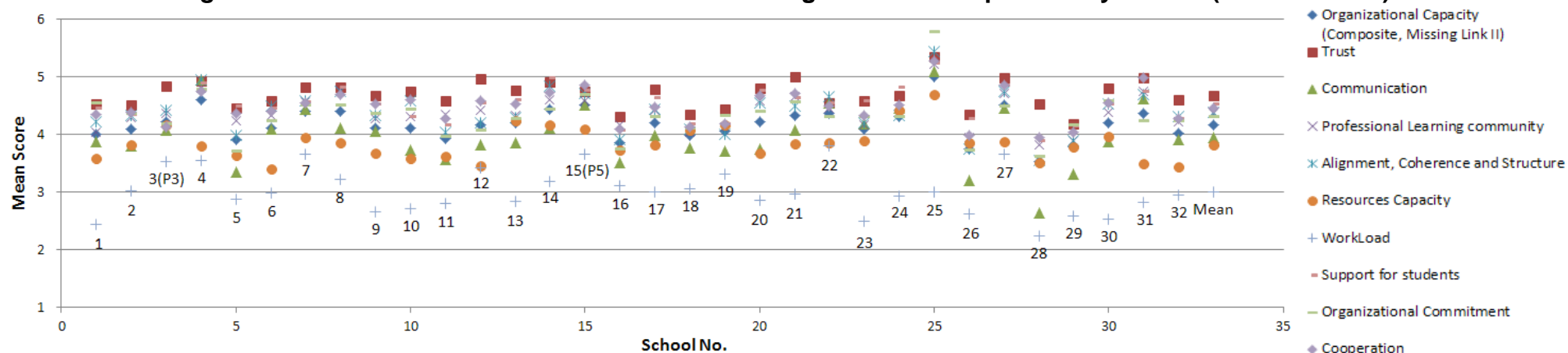


Figure 3: Mean Scores of Different Dimensions of Organizational Capacities by School (9 Dimensions)



- Figure 2 shows the composite mean scores of organizational capacities by school, while Figure 3 also shows the relative strengths of the nine different organizational capacities in the schools.
- With a mean at 4.17, most teachers rated their schools' organizational capacities more positive than their principals' leadership practices as shown in our earlier report.
- The individual variations across schools were also much smaller with a standard deviation of 0.60, suggesting that teachers tended to have consensus on the organizational capacities that enable them for organizational learning and change.
- As shown in Figure 2, most schools like No.1, 5, 9, 10, 11, 20, 21, 25, 28 and 30 show large variations in ratings across different dimensions of organization capacities, while School 22 is a rare exception.
- Teachers in all schools found workload negatively heavy, but all valued trust among colleagues most. While poor resources capacity was the next common concern, poor communication is also noted in some schools.

Part 2: Relationships between Organizational Capacities and Strengths of Principal Leadership

Figure 4a: Mean Scores of 7 organizational capacities of Top 5 and Bottom 5 schools ranked by strengths of principal leadership (All staff of Top & Bottom 5 schools)

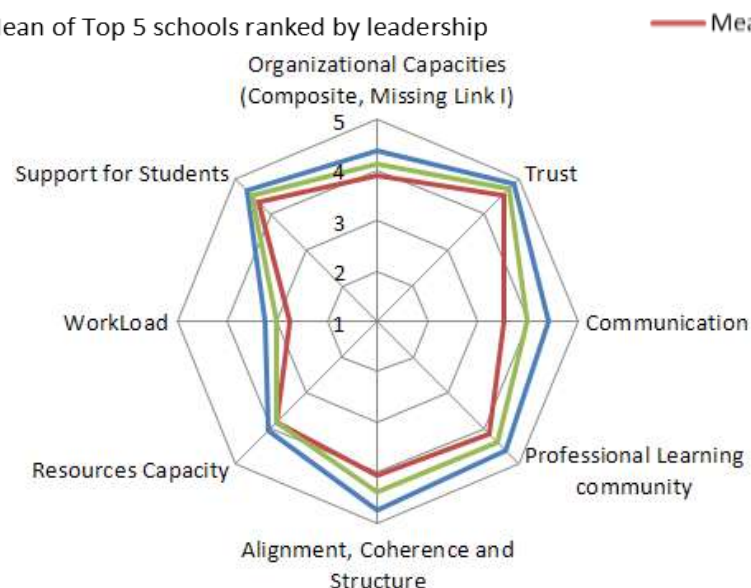
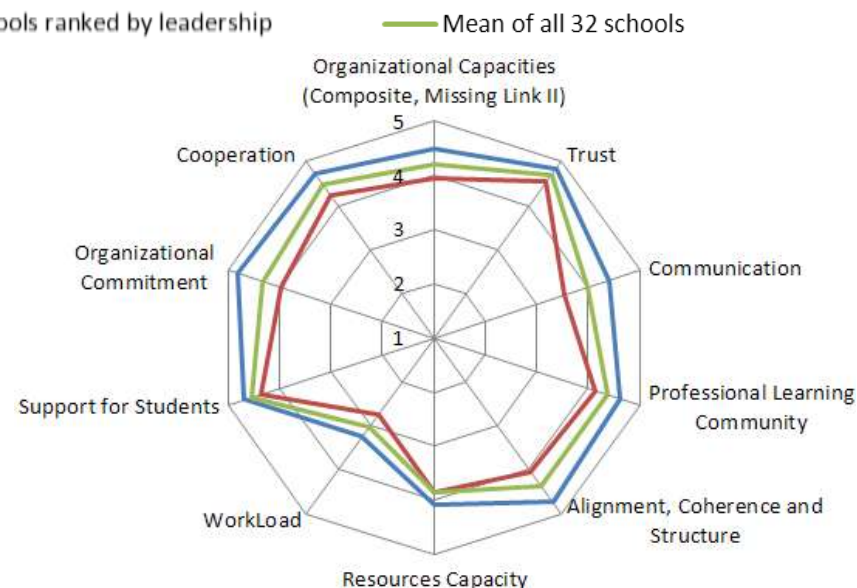


Figure 4b: Mean Scores of 9 organizational capacities of Top 5 and Bottom 5 schools ranked by strengths of principal leadership (All staff of Top & Bottom 5 schools)



- Figures 4a and 4b show the comparisons of schools when we grouped schools by their ranks of mean composite scores of the strengths of leadership as indicated by the composite mean scores of leadership practices reported earlier in a separate report.
- The seven different organizational capacities indicated in Figure 4b were also studied in the secondary schools in the **Missing Link I** Project. Figure 6 shows the results of two more organizational capacities studied only in this project.
- In general, schools with high and low leadership composite mean scores differed in all organizational capacities, but notably *Communication*, *Professional Learning Community*, *Alignment, Coherence and Structure*, and *Workload*.
- The above differences were also found in secondary schools in our previous project, but in weaker magnitude and that resource capacity was not higher in secondary schools with stronger leadership, but in those with weaker leadership.
- Again, the results for the two additional organizational capacities, *Cooperation* and *Organizational Commitment*, show similar patterns as in *Communication*, *Professional Learning Community*, and *Alignment, Coherence and Structure*, and *Workload*.
- Workload* and *Resource Capacities* were also perceived less favorably than other aspects of schools in all schools.

Part 3: Relationships between Organizational Capacities and Student Math Test Results

Figure 5a: Mean Scores of 7 organizational capacities of Top 5 and Bottom 5 schools ranked by student Math test results (All staff of Top & Bottom 5 schools)

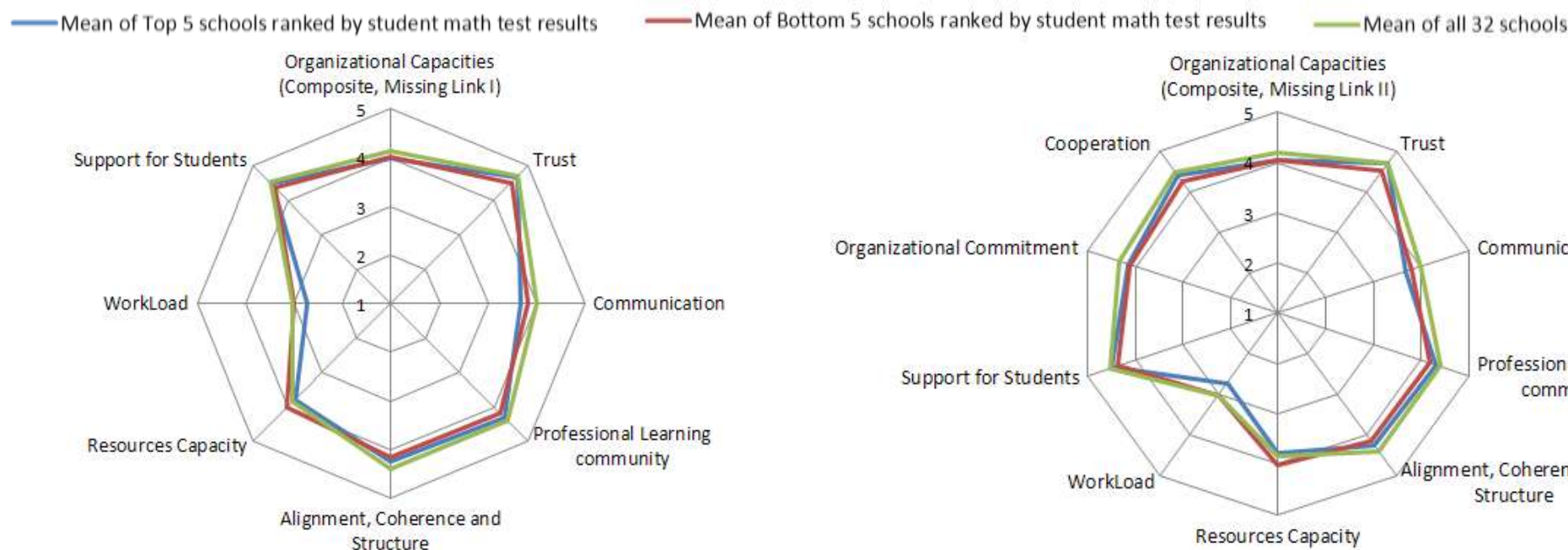
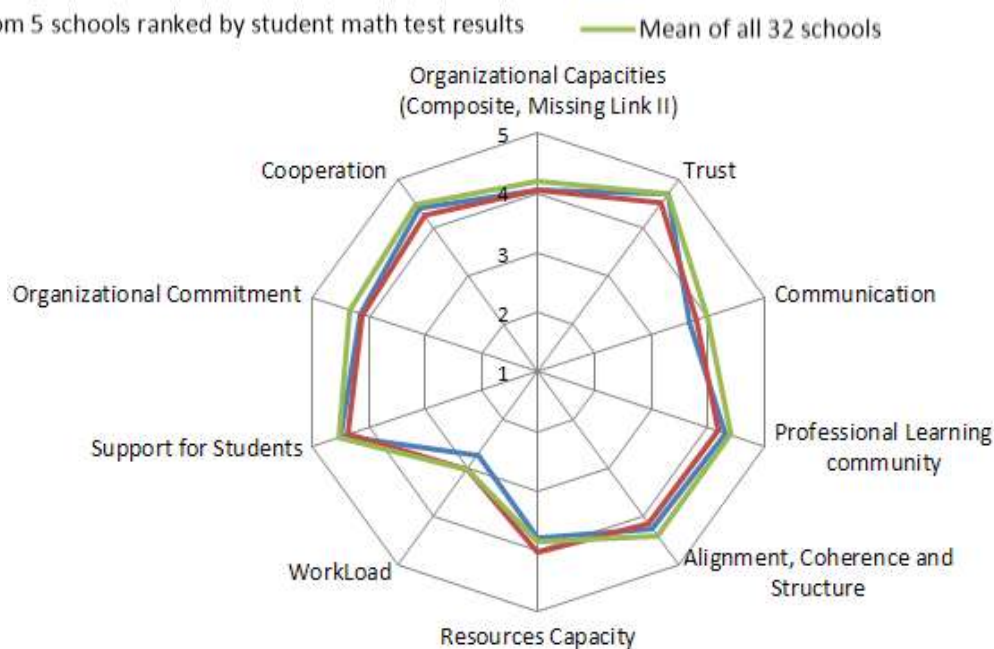


Figure 5b: Mean Scores of 9 organizational capacities of Top 5 and Bottom 5 schools ranked by student Math test results (All staff of Top & Bottom 5 schools)



- Figure 5a and 5b show the ratings of seven or nine organizational capacities when schools are ranked and grouped by the student Math test results.
- In general, schools with high and low student math test scores did not differ much in most organizational capacities except that the workload in schools with high test scores seemed slightly heavier.
- Interestingly, the mean scores of all schools were slightly higher than those of both Top 5 and Bottom 5 school groups ranked by student Math test results in *Communication*, *Professional Learning Community*, and *Alignment, Coherence and Structure*.
- As in secondary schools, relatively lower resources capacity was not likely to be the cause of lower student test scores because schools with top test scores were perceived with low rankings in resources capacity.
- The two additional organizational capacities, *Cooperation* and *Organizational Commitment*, measured in this project showed similar patterns as in *Communication*, *Professional Learning Community*, and *Alignment, Coherence and Structure*, suggesting their strong relationships.
- The composite means were lower than those of most organizational capacities because heavy workload was generally found in all schools.

Part 4: General Perceptions of Collaborative Culture among Key Staff

Table 3: Mean Scores and Standard Deviations (SD) of Composite Mean Scores of Collaborative Culture by School

School No.	1	2	4	5	6	7	8	9	10	11
Mean	3.96	4.25	4.42	4.10	4.31	4.39	4.35	4.29	4.35	4.37
SD	0.43	0.48	0.49	0.37	0.55	0.46	0.38	0.55	0.48	0.49
Sample Size	(15)	(13)	(19)	(7)	(14)	(16)	(20)	(22)	(14)	(15)
School No.	12	13	14	16	17	18	19	20	21	22
Mean	4.62	3.95	4.64	4.24	4.37	4.06	3.97	4.36	4.52	4.31
SD	0.11	0.78	0.58	0.53	0.64	0.46	0.78	0.49	0.47	0.59
Sample Size	(6)	(16)	(20)	(12)	(13)	(5)	(15)	(22)	(16)	(13)
School No.	23	24	25	26	27	28	29	30	31	32
Mean	4.04	4.03	5.02	4.00	4.30	4.00	4.04	4.27	4.30	4.09
SD	0.48	1.27	0.74	0.48	0.51	0.57	0.78	0.62	0.08	0.59
Sample Size	(13)	(9)	(4)	(16)	(5)	(6)	(11)	(21)	(2)	(16)
School No.	3(P3)	15(P5)	32 Schools (All)							
Mean	4.16	4.64	Overall Mean						4.27	
SD	0.57	0.32	Overall SD						0.59	
Sample Size	(9)	(6)	Overall Sample Size						(411)	

* The number in the bracket represents the number of key staff who responded in the questionnaire survey.

- Table 3 shows the means and standard deviations regarding key staffs' perceptions of their collaborative culture. Collaboration among key staff is considered important because it will affect the implementation of the school policies as they tend to hold significant positions and duties in the schools.
- The composite mean scores show mild variations across schools, in a range narrower than that for the student Math test scores and that for the composite mean scores in principals' leadership practices.
- Schools 13, 19, 24, 25, and 29 have a standard deviation greater than the overall one (0.59), which suggests that there is a greater than normal disagreement among the key staff in these schools in their perceptions of their collaborative culture, and vice versa.

Figure 6: Mean Scores and Standard Deviations (SD) of Composite Mean Scores of Collaborative Culture by School

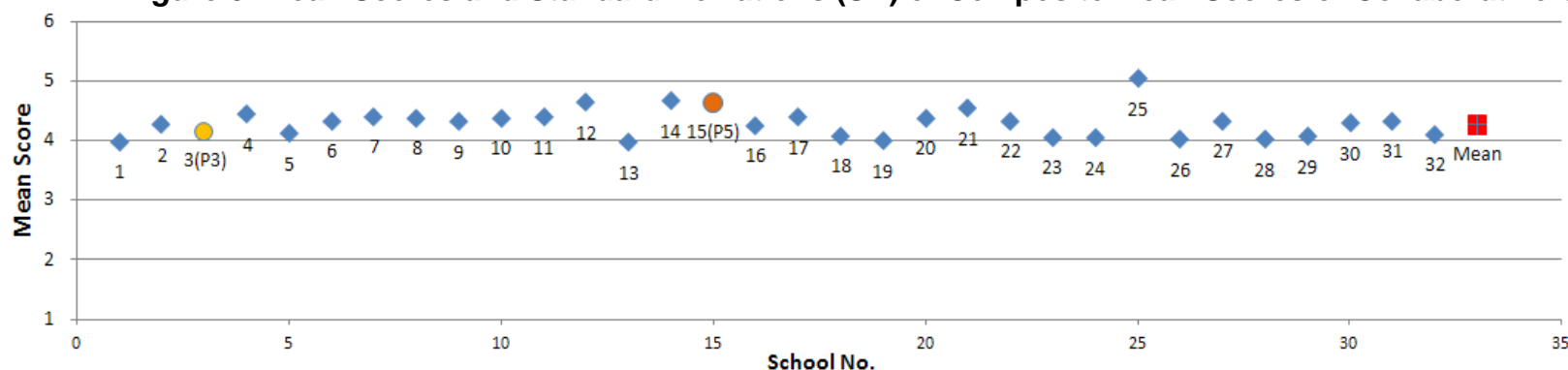
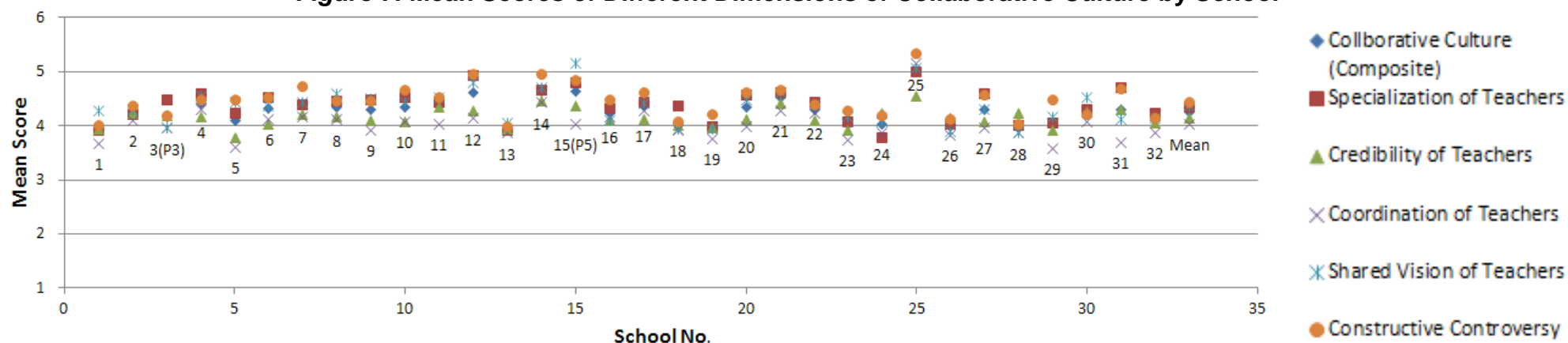


Figure 7: Mean Scores of Different Dimensions of Collaborative Culture by School



- As shown in Figure 6, the composite score of teacher collaborative culture in each school is either very close to or clearly above 4.0, a level indicating positive ratings on most dimensions studied.
- Likewise, in Figure 7 the gaps between individual dimensions of collaborative culture in these schools varied very little. Where the mean scores overlapped, key staff tended to perceive the interactions and collaborations among the colleagues positively.
- Despite the overall more than satisfactory collaborative culture school-wide, key staff generally thought that more coordination among teachers was required.
- Interestingly, most key staff acknowledges the importance of their colleagues' specialization, shared visions, and constructive criticisms.

Part 5: Perceptions of Collaborative Culture in Schools Ranked by Collaboration Strengths

Figure 8a: Mean Scores of collaborative culture in school ranked by the composite score of collaborative culture (Key staff of Top & Bottom 5 schools)

- Mean of Top 5 schools ranked by the composite score of collaborative culture
- Mean of Bottom 5 schools ranked by the composite score of collaborative culture
- Mean of all 32 schools

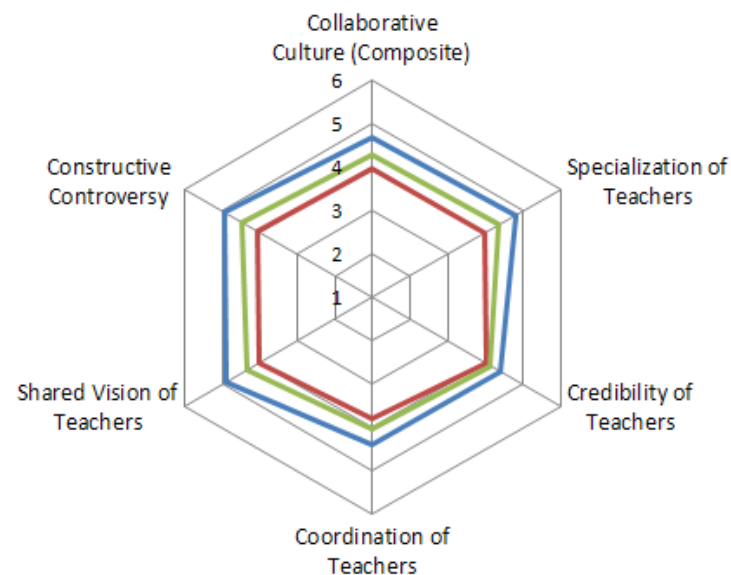
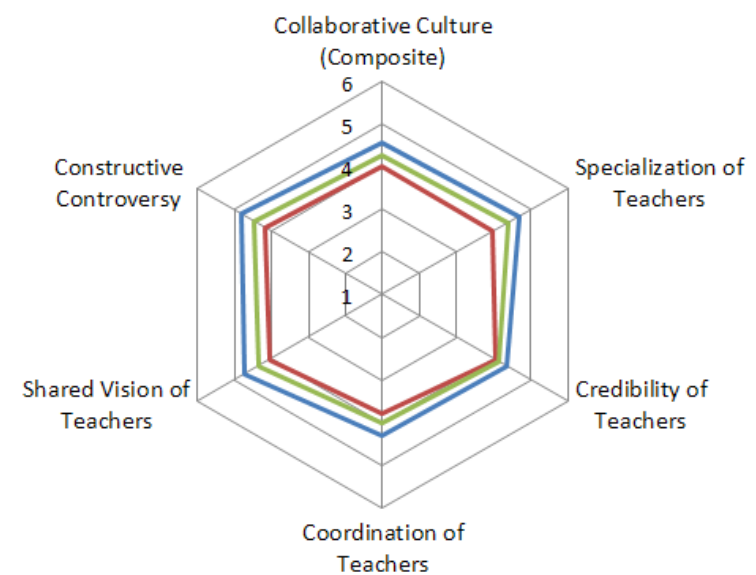


Figure 8b: Mean Scores of collaborative culture in school ranked by the composite score of collaborative culture (Key staff of Top & Bottom 8 schools)

- Mean of Top 8 schools ranked by the composite score of collaborative culture
- Mean of Bottom 8 schools ranked by the composite score of collaborative culture
- Mean of all 32 schools



- Figures 8a and 8b show the results of collaborative culture and distributed leadership as perceived by key staff; schools were selected according to the rankings of the composite scores of the 5 collaborative culture factors.
- As expected, the Top 5 school group scored statistically higher than the Bottom 5 school group in all aspects but least in *Credibility of Teachers*, suggesting that organizational capacities are more likely to be correlated with collaborative culture among key staff than with the principal's leadership strength.
- The average scores for all schools are found slightly closer to the scores of the Bottom 5 schools than those for the Top 5 schools, suggesting that these Top 5 schools, featuring strong collaborative culture and distributed leadership, stood out high above all other schools.
- Although the gaps between the Top and Bottom 8 groups in Figure 9b become noticeably narrower when comparing those found in Figure 9a, all these gaps are still significantly large.

Part 6: Relationships between Collaborative Culture and Strengths of Principal Leadership

Figure 9a: Means of collaborative culture of schools ranked by key staff perceived strengths of principal leadership (Key staff of Top & Bottom 5 schools)

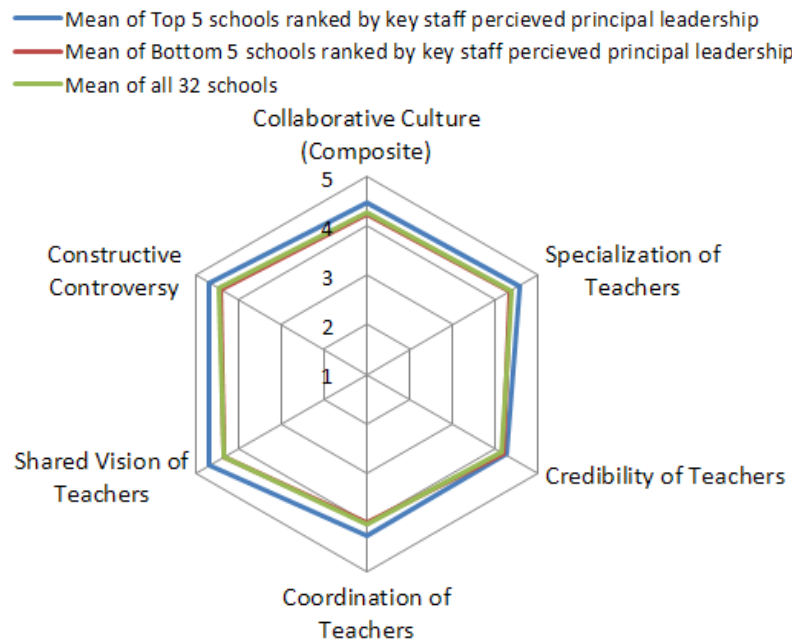
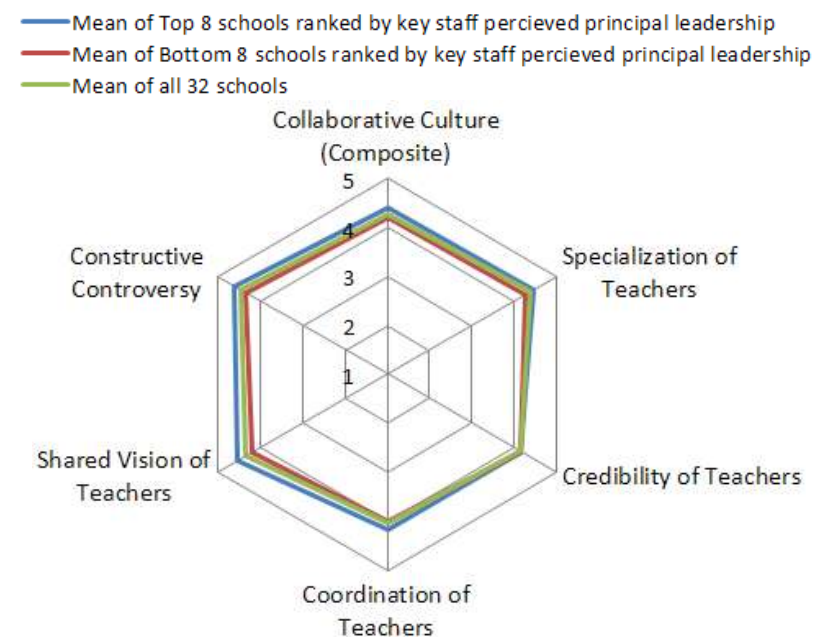


Figure 9b: Means of collaborative culture of school ranked by key staff perceived strengths of principal leadership (Key staff of Top & Bottom 8 schools)



- Figures 9a and 9b show the results of collaborative culture among key staff, but schools were selected according to schools' ranks of mean composite score in leadership practices.
- There was a small but noticeable difference between schools topped and those bottomed in almost all aspects except *Credibility of Teachers*. The difference between the bottom group and the mean is hardly present.
- However, such a difference was not found between the average score and the mean score of the Bottom 5 school group of weak leadership, suggesting that only in schools with very strong leadership we can find noticeable collaborative culture and distributed leadership.
- Interestingly, there was a slight difference in collaborative culture when schools with bottom 8, rather than bottom 5, leadership composite means were chosen for comparison, suggesting that schools weakest in collaborative culture may be among those with lightly weaker rather than weakest principal leadership.

Part 7: Relationships between Collaboration Culture and Student Test Results

Figure 10a: Mean Scores of collaborative culture in school ranked by student Math test results (Key staff of Top & Bottom 5 schools)

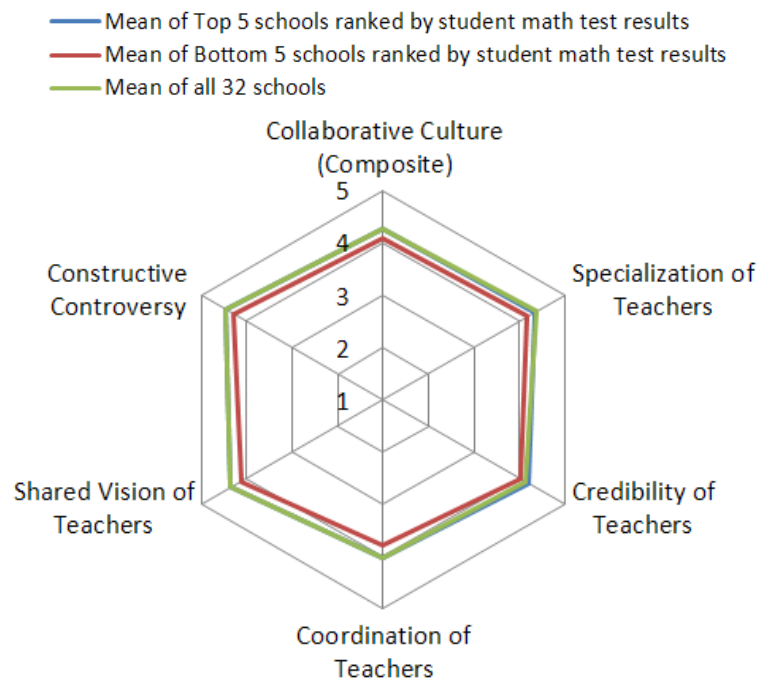
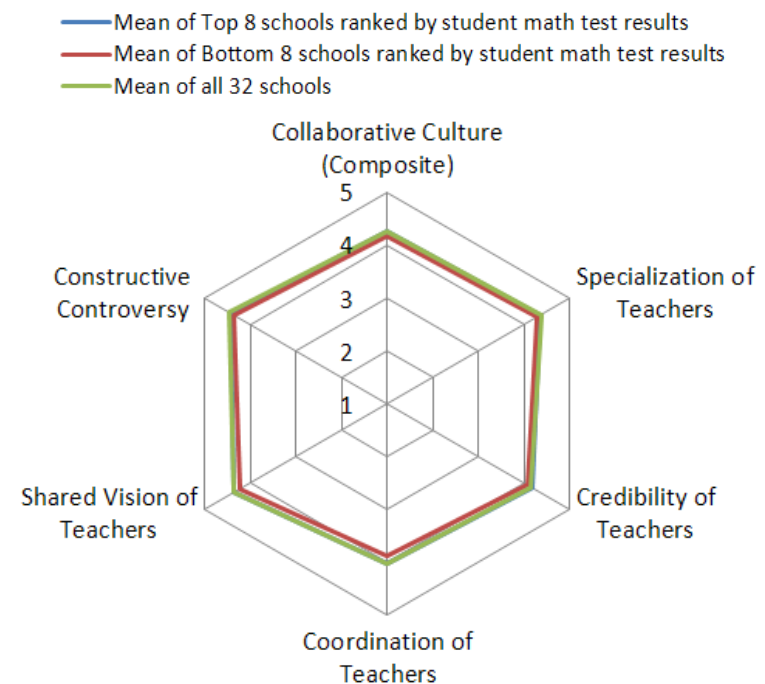


Figure 10b: Mean Scores of collaborative culture in school ranked by student Math test results (Key staff of Top & Bottom 8 schools)



- Figures 10a and 10b show the five aspects of collaborative culture among key staff such as panel heads and those holding senior functional or administrative posts.
- In general, schools did not differ much in these aspects when the grouping was based on student math test results, suggesting schools with high and low student math test scores did not differ in all aspects related to collaboration.
- Figure 6 shows that the difference between schools was almost hardly

noticeable, if the number of schools for comparisons increased from 5 to 8 in each group.

- These results suggest that it is unlikely that the perceptions of key staff on their collaborative culture are varied with student Math test results.
- Like organizational capacities, no aspect of collaborative culture is more likely to be correlated with students' academic performances.

Part 8: Types of Experienced School Improvement

Figure 11: Types of Experienced School Improvement

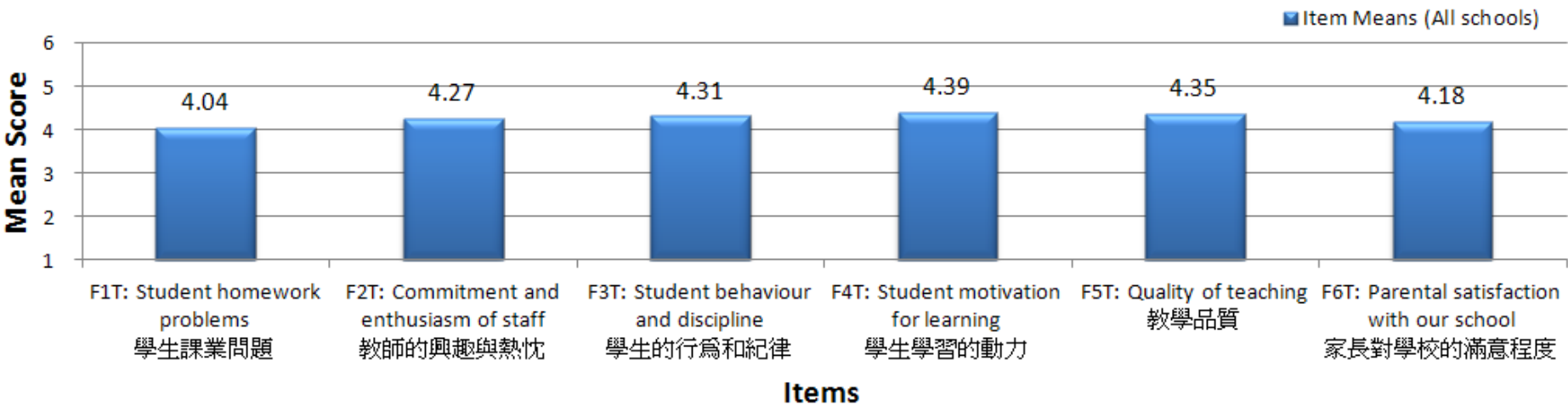


Figure 12: Mean Scores of Aggregated Experienced School Improvement by School

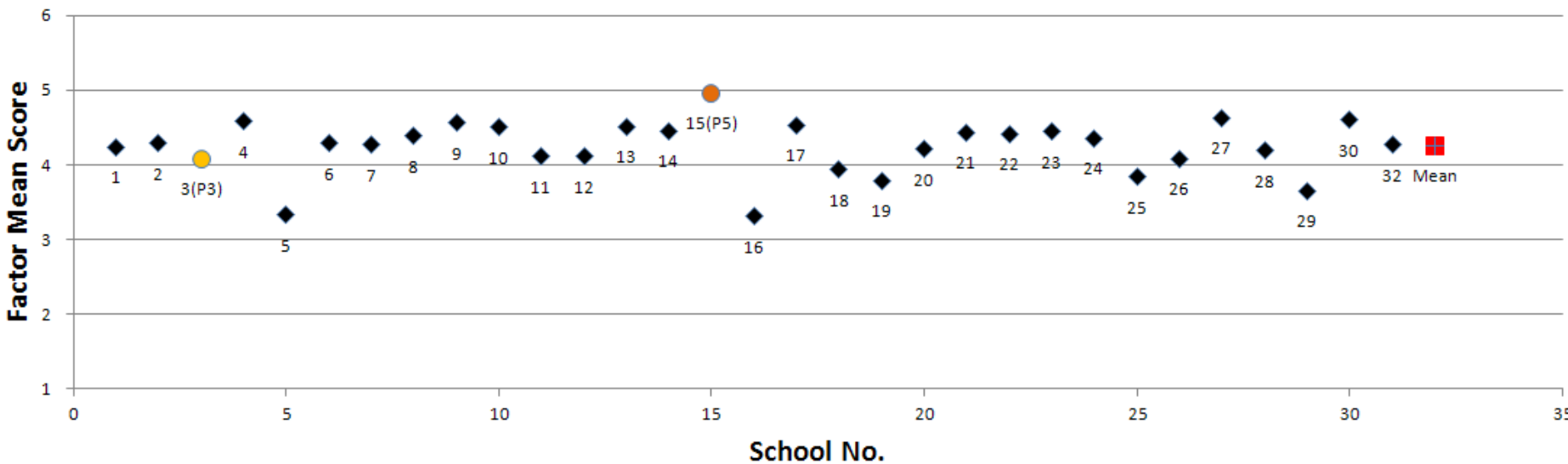
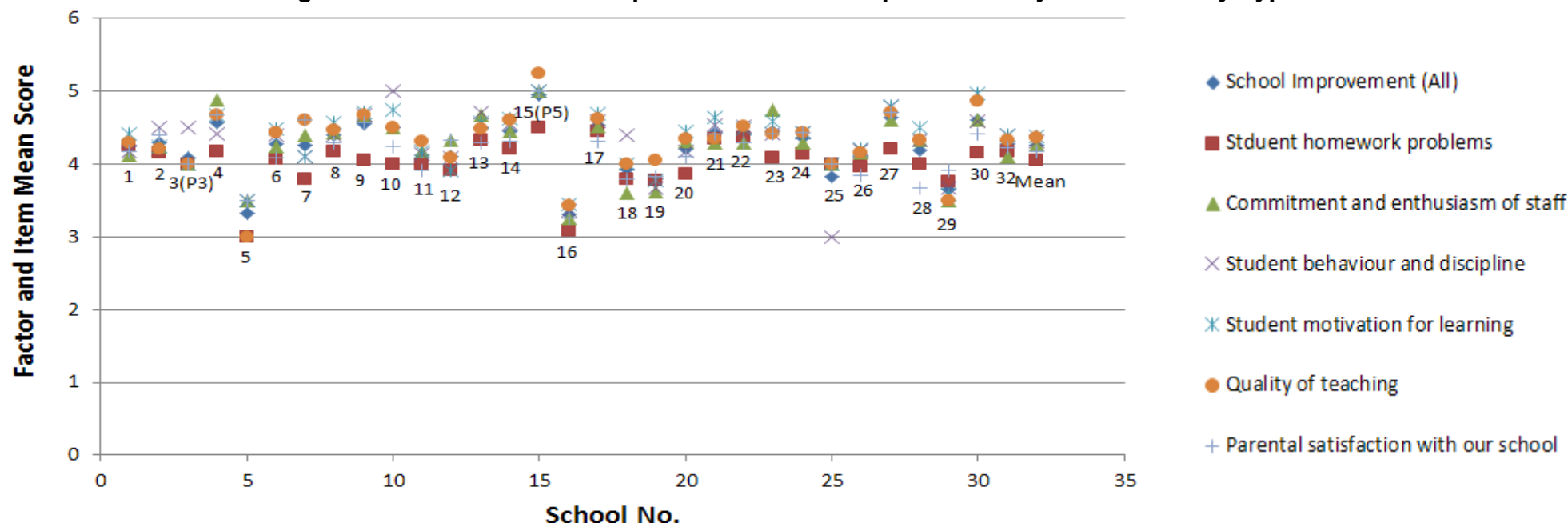


Figure 13: Mean Scores of Experienced School Improvement by School and by Type



- The mean scores for the six types of experienced school improvement found by teachers in Figure 11 convey some positive information. Teachers generally agreed that there were improvements in *Student Motivation for Learning* and *Quality of Teaching* in their schools.
- However, teachers tended to be least positive about the schools' effectiveness in tackling homework problems and in gaining parental satisfaction with their schools.
- The composite means of various types of school improvements in Figure 12 show that teachers witnessed overall favorable school improvements.
- Figure 13 shows the relative strengths of the six types of improvement in each school. The dispersion of the types of improvement generally reflects how successful schools are in these areas.
- When the means of the types of school improvement were close or even overlapped, teachers tended to believe the school improvement in the aspects concerned is similar, and vice versa.
- School improvements tended to be consistently evident across different areas in Schools 1, 2, 11, 12, 13, 16, 17, 25 and 26, but unbalanced across different areas in Schools 4, 10, 18, 27 and 30.
- However, the correlation between teachers' perceptions of experienced overall school improvement and the student Math results is very low (0.08), suggesting that global perceptions may be weak in predicting specific academic results.

Part 9: Types of School Improvement Affecting Student Outcome

Figure 14: Types of School Improvements Affecting Student Outcome

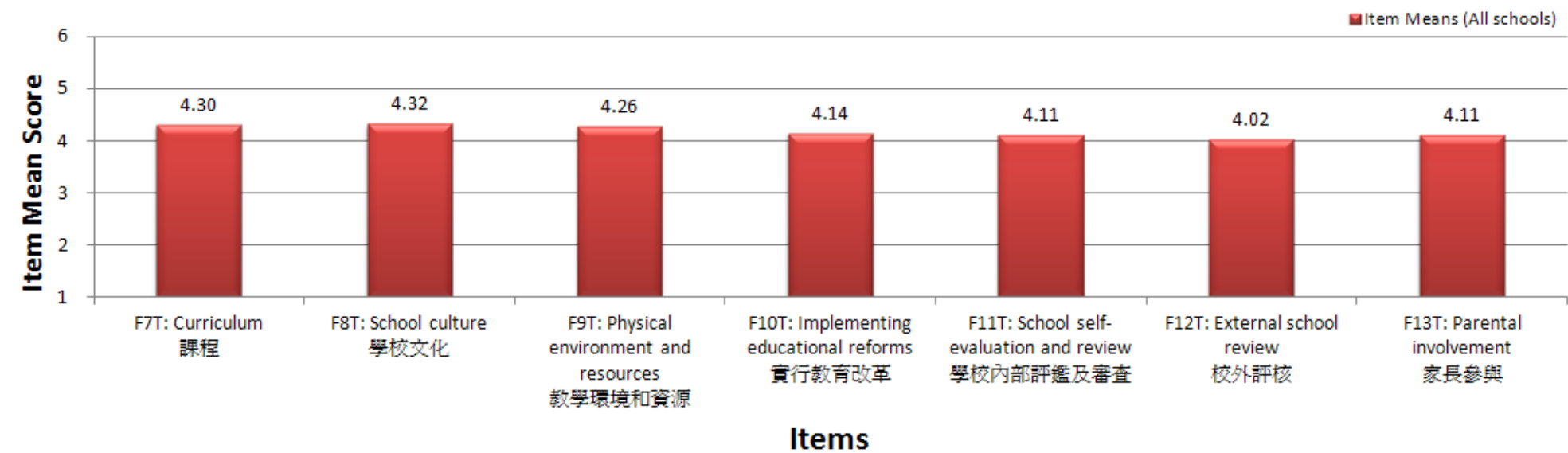


Figure 15: Mean Scores of Aggregate of School Improvements Affecting Student Outcome by School

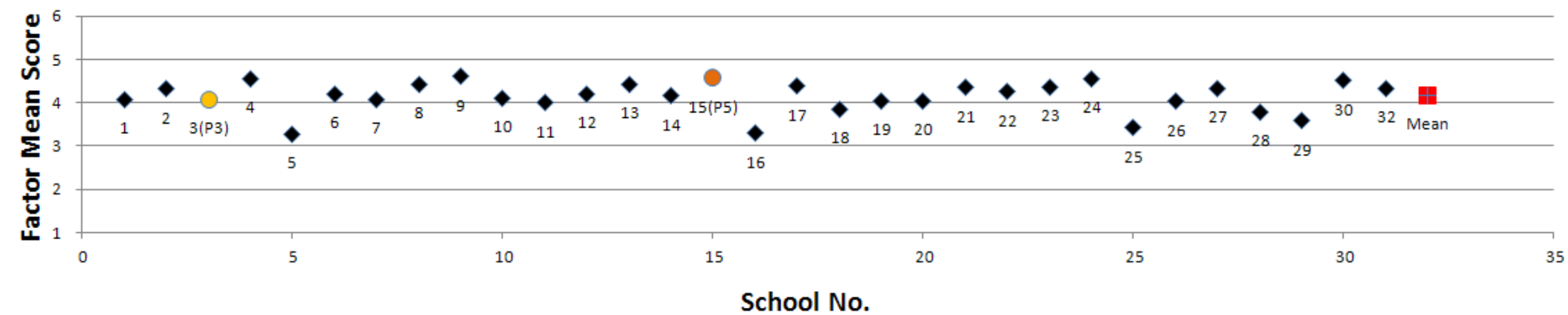
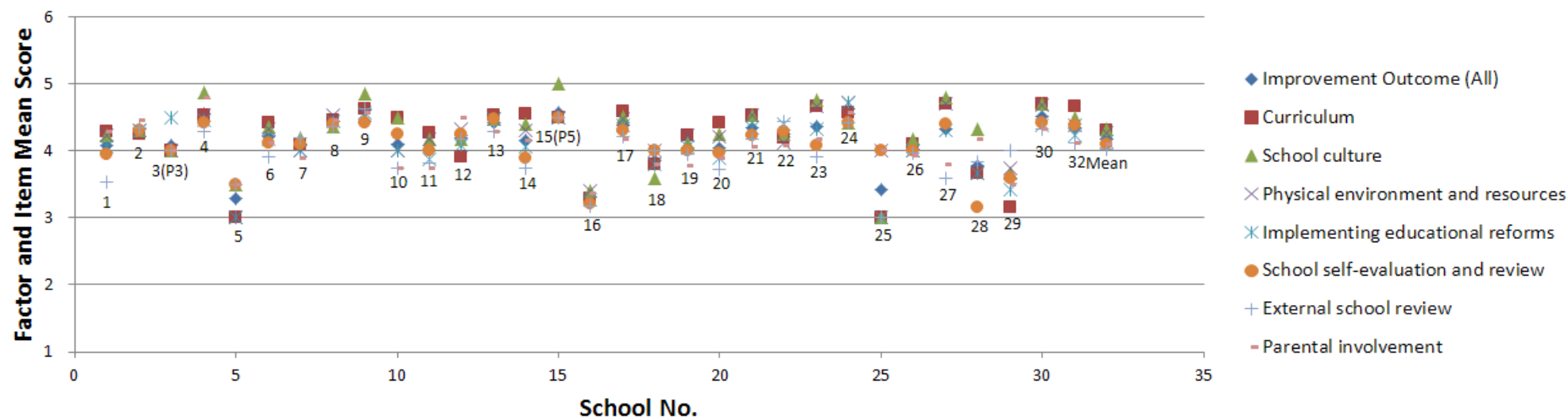


Figure 16: Mean Scores of Aggregate of School Improvements Affecting Student Outcome by School and by Type



- Figure 14 shows the mean scores for the seven items measuring the types of school improvements that were perceived by teachers affecting student outcome.
- The mean scores here are more modest in contrast with those measuring *Experienced School Improvement* in the last part.
- Teachers generally agreed that all the seven types of school improvements had positive impact on student outcomes.
- However, teachers thought that school culture and curriculum contributed most to better student outcomes.
- In contrast, teachers found that external school reviews were least useful for enhancing student outcomes. Similar results were found in Missing Link I as well as in other local research in the literature.
- The effectiveness of implementing educational reforms, school self-evaluation and review and parental involvement were also often in doubt among teachers sampled.
- Figure 15 shows that variations across schools are noticeable, but generally small. Moreover, most schools were rated positively above 3.5, the mid-point.
- Figure 16 shows the intra-school differences across the seven types of school improvements, Except for Schools 4, 6, 10, 14, 20, 23, 25, 27, 28, and 2, intra-school differences that affect student outcome are small. The intra-school differences are minimal in Schools 2, 7, 8, 16, and 26, for which almost all aspects overlap.
- Interestingly, most teachers attributed the most important factor affecting student outcomes to strong school culture, particularly in Schools 4, 9, 15 and 28. Schools 18 and 25 may also have to consider why school culture was rated negatively in their schools.
- It is also not clear why curriculum in Schools 5, 12, 25 and 29 was found failing to enhance student outcomes, while it was often contrary in other schools.

Part 10: Significances of Organizational Capacities and Collaborative Culture

How are the organizational capacities and collaborative culture of a school correlated?

Organizational capacities, *Organizational Commitment*, *Cooperation* are moderately to strongly correlated with *all* collaborative culture factors (see Part 4). These two organizational capacities are also strongly correlated with other organizational capacities like *Trust*, *Communication*, *Professional Learning Community*, *Alignment*, *Coherence*, and *Structure*, and *Support for Students*.

These factors characterizing strong organizational capacities and collaborative culture among key staff may lead to successful distributed leadership in schools.

How are organizational capacities and collaborative culture related to the trust, communication, and professional learning in teachers?

The relationships between organizational capacities and collaborative culture factors tended to be positive and moderate to strong in strength (.36 to .77 -.68). In particular, the organizational capacity *Professional learning community* is most closely related to the collaborative culture factors, followed by *Trust* and then *Communication*. This highlights the precedence of professionalism over collegiality.

How is the principal's leadership related to organizational capacities and collaborative culture?

Principal leadership on the whole is weakly, but positively related (.23) to the previously studied organizational capacities (i.e., the 7 dimensions). The correlations between the principal leadership and the recently studied organizational capacities (i.e., *Organizational Commitment* and *Cooperation*) and collaborative culture factors are low but statistically significant (.12 to .27). These results suggest that strong leadership of the principal may boost teachers' commitment and cooperation.

How may organizational capacities and collaborative culture contribute to support for students and aligned operation of schools?

Organizational capacities and factors on collaborative culture are positively correlated with the school's support for students, ranging from moderate to strong in strength (.49 - .76).

Among all organizational capacities, the correlation between *Cooperation* and *Support for Students* is the strongest, while that between *Organizational Commitment* and *Support for Students* is the weakest.

Regarding the aligned operation of schools as indicated by ratings for *Alignment*, *Coherence and Structure*, three factors showed considerably stronger correlations (*Organizational Commitment*, .55; *Specialization of Teachers*, .63; and *Coordination of Teachers*, .62).

These results indicate that commitment of teachers to school is most crucial for support for students and internal alignment of work in schools.

How organizational capacities are related to student academic outcomes?

The correlations between organizational capacities and collaborative culture and student academic outcomes are low but generally significant, ranging from .02 to .13.

Coordination of Teachers is the organizational capacity most highly correlated with student outcomes, followed by *Support for Students* (.12), and *Trust* (.10).

Among the collaborative culture factors, low but statistically significant correlations are found between student academic outcomes with *Constructive Controversy* (.11) and *Specialization of Teachers* of the key staff of schools (.12) only.

These results suggest that factors affecting student outcomes in schools are more likely to rely on knowledge-based, student-oriented, highly-coordinated manpower.

Part 11: Students' Self-Concepts and Their Relationships with Different School Factors

Figure 17a: Means of student self-concept measures and organizational capacities factors ranked by student math test results (Top & Bottom 8 schools)

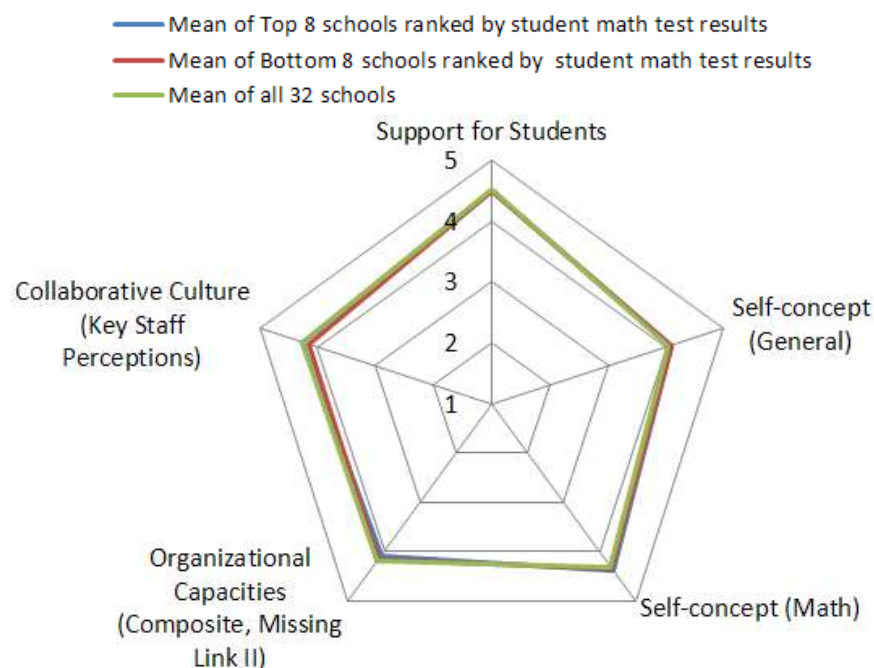
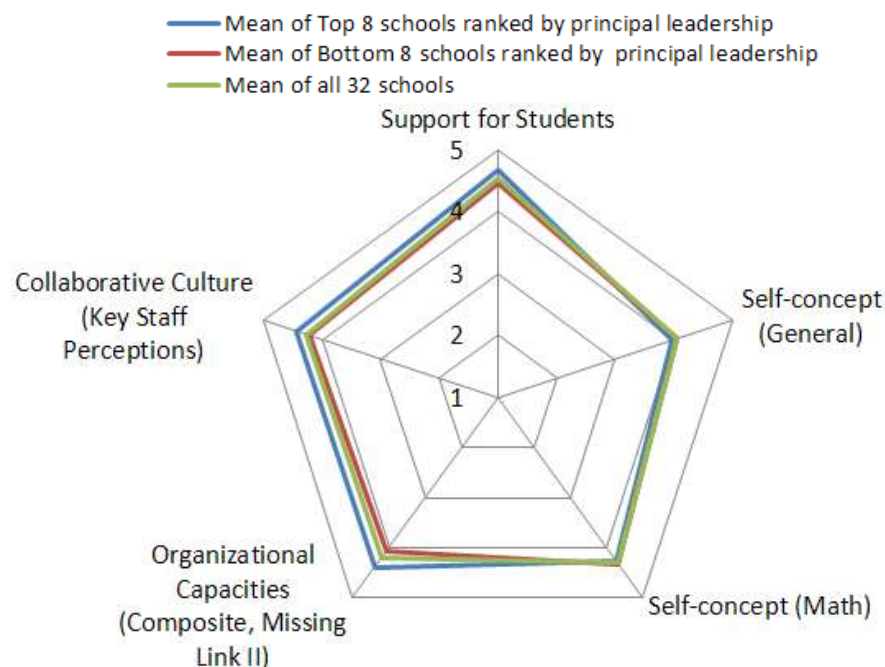


Figure 17b: Means of student self-concept measures and organizational capacities factors ranked by strength of principal leadership (Top & Bottom 8 schools)

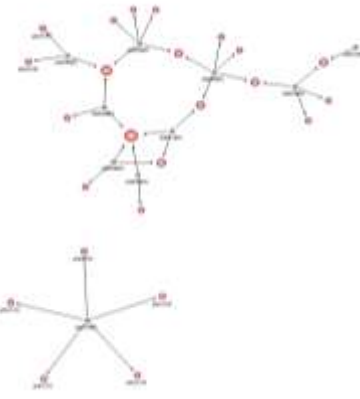
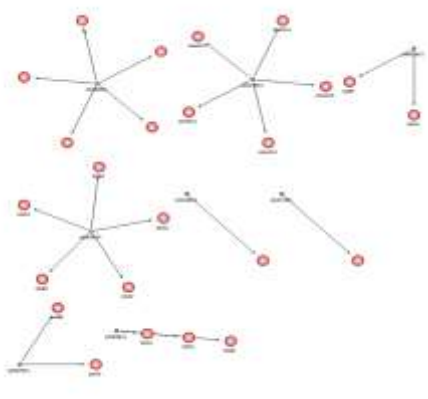
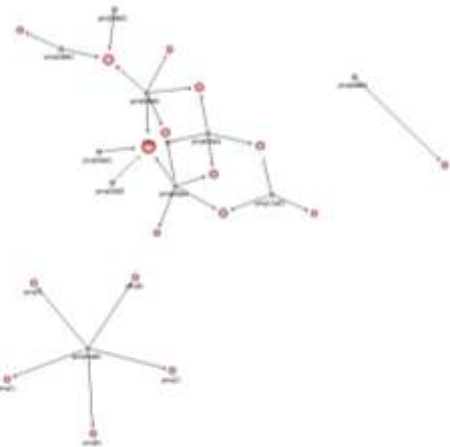
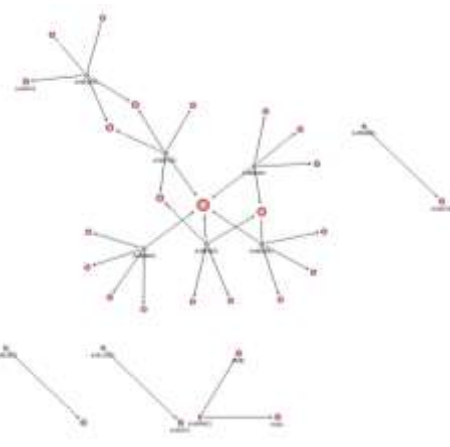


- Figure 17a shows that the differences between the mean ratings for the Top 8 and Bottom 8 school groups when schools are selected on the basis of student Math test results.
- Interestingly, the mean ratings of all groups almost overlap, suggesting that student math test results for this year may not be able to show any meaningful relationships with students' general self-concept, math specific self-concept, various organizational capacities and collaborative culture factors.
- It is also interesting that students' self-concepts, both general and

Maths-specific, are not lower in the Bottom 8 school group.

- The pattern of Figure 17b displays more differences in the mean ratings between the Top 8 and Bottom 8 school groups when they are ranked by the the overall strength of the principal's leadership. These differences tended to be more noticeable in organizational capacities, collaborative culture, and the schools' support for students, but unnoticeable in their relationships with students' general and Math-specific self-concepts.

Part 12: Social Networks among Teachers in Schools

School 3		School 5		School 15		School 28	
$N^1=10$ (11)	$MT^2 = 52.75$	$N=9$ (9)	$MT = 50.09$	$N=10$ (10)	$MT = 55.43$	$N=10$ (12)	$MT = 63.51$
$OC^3 = 4.22$	$CC^4 = 4.16$	$OC = 3.91$	$CC = 4.10$	$OC = 4.52$	$CC = 4.64$	$OC = 3.53$	$CC = 4.00$
							

General Notes:

¹ N = sample size; the 1st number outside the bracket represents the number of teachers answered the section concerning the social network. The bracketed 2nd number is the total number of teachers sampled.

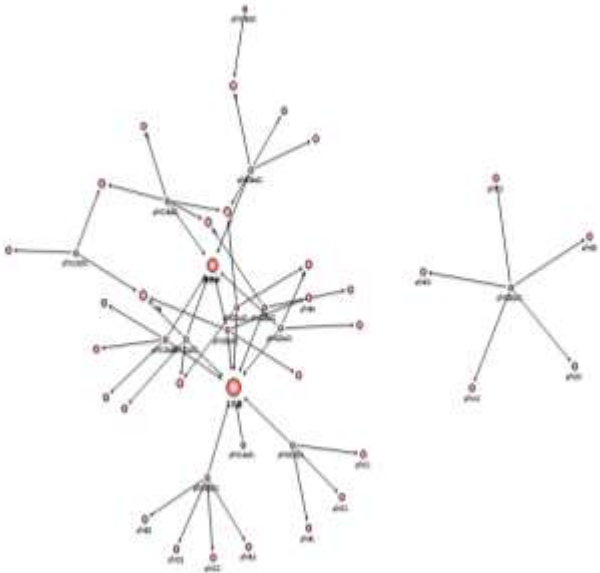
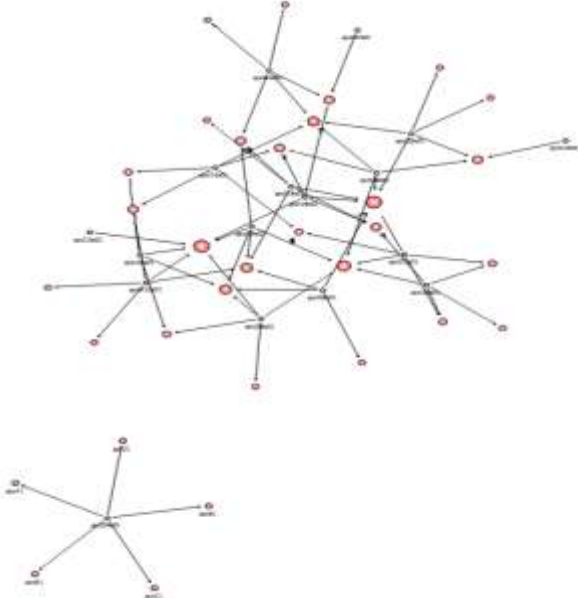
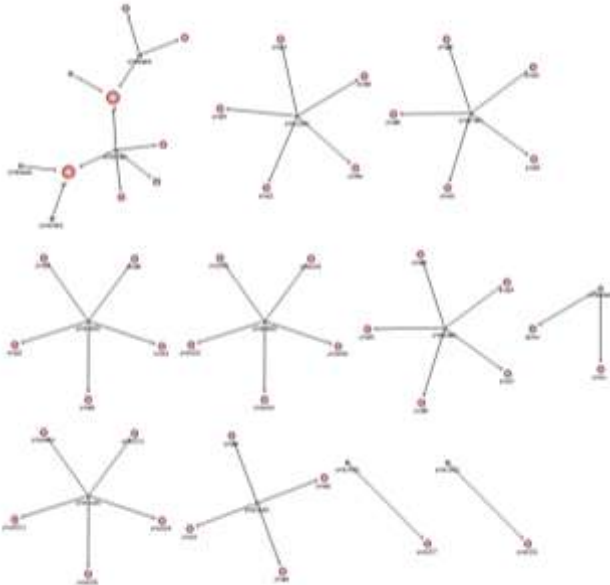
² MT = Student Math Test; see Table 1 of School Report – Missing Link II.

³ OC = Organizational Capacities; see Table 2 (pp. 3) for details.

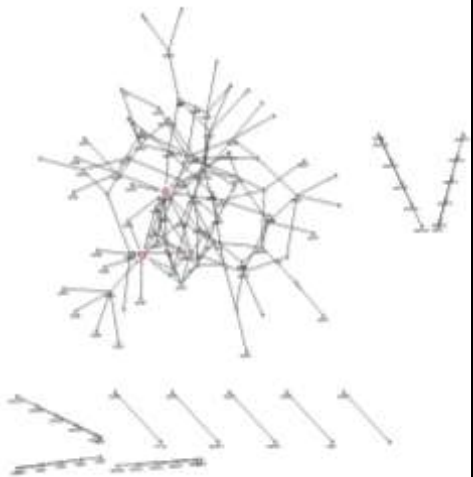
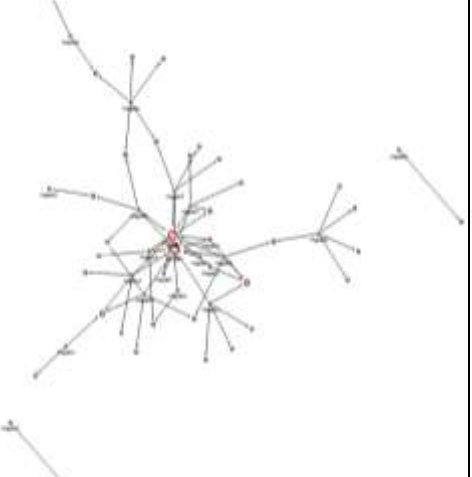

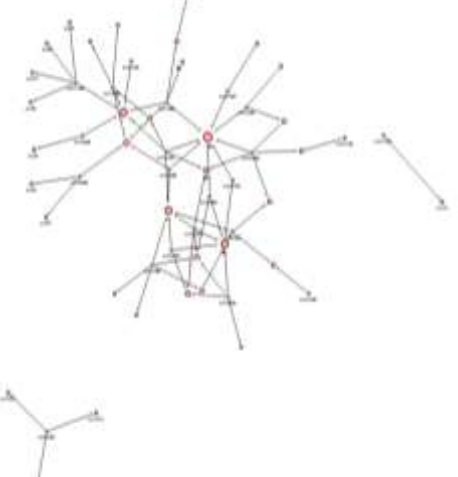
⁴ CC = Collaborative Culture; see Table 3 (pp. 7) for details.

- In the network maps, circles indicate teachers or key staff members (called nodes or actors). Arrows indicate their social relationships (called social ties).
- The content conveyed by arrows refers to advice and information. That is, if there is an arrow from Node A to Node B, it means that Person A seeks advice or information about his/her teaching and instruction from Person B.
- Finally, the circle size of nodes is proportionate to each teacher's (or staff's) network size—i.e., the larger the circle, the larger his/her network size.
- It is meaningful to read these maps alongside with the results of previous tables indicating the organizational capacities and collaborative culture in the individual schools.

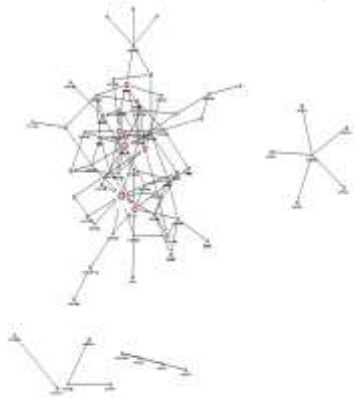
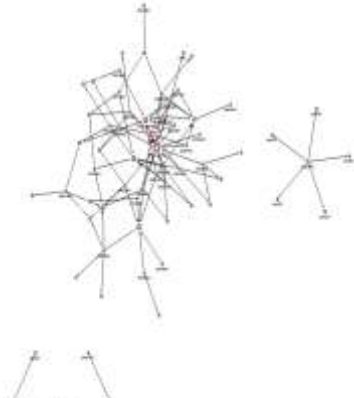
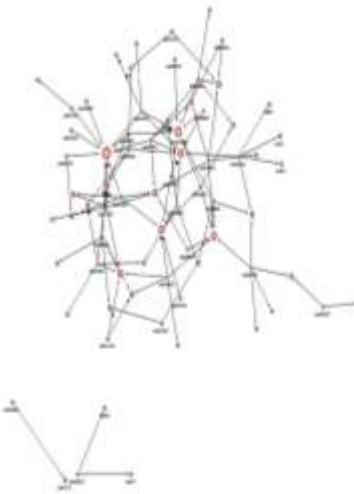
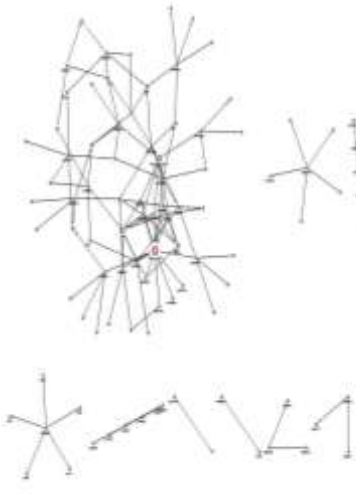
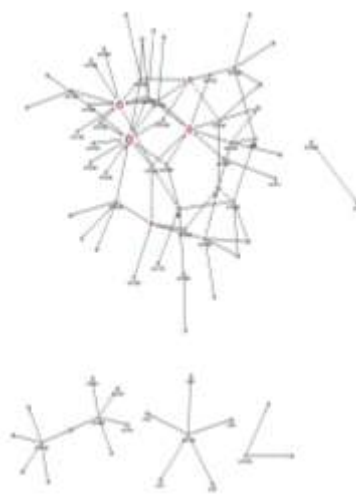
- Though the number of teachers answered the section of the questionnaire concerning the social network is about 10 in the above schools, their networks are quite different.
- The networks between School 3 and School 15 are most similar and the organizational capacities and collaborative culture of these schools are both above the means and 4.0, suggesting higher interconnectiveness among the teachers may have contributed to these higher favourable ratings.
- Interestingly, although the interconnectiveness of the network of School 28 is not less dense than those of School 3 and School 15, the sizes of the circles of this school are generally smaller and the number of larger circles are also fewer than other schools. This indicates a general lower frequency of exchange of advice and support among teachers, which may be crucial for the lowest ratings in both organizational capacities and collaborative culture. Despite these, it scored high in student Math test.

School 10		School 12		School 27	
N=15 (18)	MT = 58.82	N=17 (18)	MT = 57.40	N=15 (15)	MT = 54.70
OC = 4.12	CC = 4.35	OC = 4.17	CC = 4.62	OC = 4.52	CC = 4.30
					


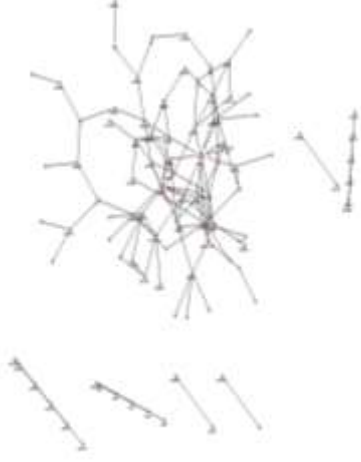
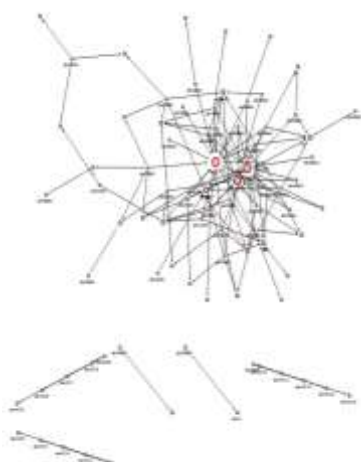
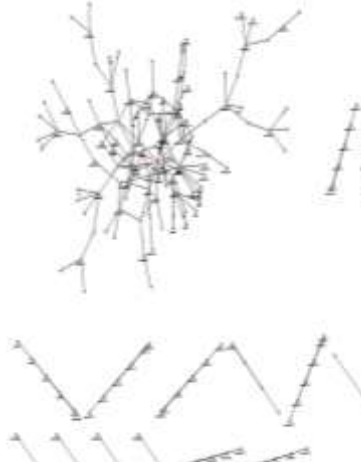

- The above figures show the networks of schools with 15-17 teachers replied. Considering the number of respondents to the survey, the response rate for this part of the questionnaire was high for these schools.
- The networks of School 10 and School 12 are similar, so are their composite mean scores of organizational capacities.
- However, School 12 has a higher composite mean rating for collaborative culture than School 10.
- Such a difference seems to be related more with the larger sizes of the nodes of School 12 and more larger nodes. Both indicate a general higher frequency of exchange of advice and support among teachers.
- Interestingly, the map of School 27 with many starred like mini-networks is very much similar to that of School 5 shown earlier, but the ratings on organizational capacities and collaborative culture of School 27 are much higher than those of School 5.
- In fact, School 27's composite mean score of organizational capacities is even more favorable than those of Schools 10 and 12.

School 8		School 16		School 23		School 29	
N=19 (50)	MT = 54.59	N=20 (50)	MT = 58.94	N=19 (25)	MT = 66.32	N=23 (23)	MT = 48.22
OC = 4.40	CC = 4.35	OC = 3.86	CC = 4.24	OC = 4.09	CC = 4.04	OC = 3.78	CC = 4.04
							

- The figures above show the networks of schools with 19-23 teachers replied. However, the response rates of this section in Schools 8 and 16 were about 40%, comparing to 76-100% in the other two schools.
- Although advice or information was provided by two 2 or 3 resource people (represented by the larger nodes) directly or indirectly in all these schools, a few teachers were isolated in their small circles. The observed patterns echo with their low to medium composite mean scores for organizational capacities and collaborative culture.
- Among the four schools, School 8 has the densest network, which may contribute to a relatively higher rating regarding their organizational capacities and collaborative culture.
- The patterns of the social networks of School 16 and School 29 are most similar, so are their composite mean scores for organizational capacities and collaborative culture.
- In School 8 and School 23, teachers cut off from the mainstream social groups multiplied. There seemed to be multiple channels of social interaction.
- However, the pattern of information exchanges in School 23 appear in linearly with some expansion around the largest circle, while the pattern of School 8 shows more crossly and densely connected information exchanges.
- The composite mean score of collaborative culture for School 8 (4.31) is much higher than that for School 23 (4.04).
- Likewise the composite mean scores for organizational capacities of these schools also differ considerably. School 8 reached as high as 4.40, while School 23 rated 4.02.
- The network pattern of School 29 shares the patterns of School 16 and School 23 in similar branches and few key circles, but lack the complexity of cross-exchanges found in the network of School 8.

School 1		School 2		School 13		School 19		School 32	
N=31 (32)	MT = 58.01	N=31 (33)	MT = 52.89	N=32 (37)	MT = 55.93	N=32 (33)	MT = 58.13	N=32 (34)	MT = 60.74
OC = 4.01	CC = 3.96	OC = 4.10	CC = 4.25	OC = 4.20	CC = 3.95	OC = 4.06	CC = 3.97	OC = 4.03	CC = 4.09
									

- The figures above show the networks of schools with 31-32 teachers replied. Response rates of this section in all these schools were high and varied from 86.5% to 97%.
- The patterns of social networks are likely to be related to the collaborative culture among key staff in the schools as well as the organizational capacities of schools. However, these relationships are not always clear in these schools, for example.
- Schools 1 and 2 have relatively centered social networks, with a few people in small groups. These patterns did not prevent them from receiving similar ratings in organizational capacities and collaborative culture as other schools.
- The interaction and information exchanges in Schools 13, 19 and 20 are more scattered and broader in range, but there are fewer teachers communicating in small groups. These results seem consistent with higher ratings of School 13 on organizational capacities, despite its moderate collaborative culture among key staff of this school.
- School 19 and School 32 featured more small groups of teachers isolated from the mainstream of social networks. Although there were generally more exchanges among teachers (as demonstrated by the larger sizes of the nodes and the larger number of big nodes) in School 32, it did not differ much from School 19 in composite mean ratings on organizational capacities and collaborative culture.

School 4		School 6		School 9		School 14		School 20	
N=42 (43)	MT = 58.69	N=39 (47)	MT = 57.70	N=42 (43)	MT = 59.88	N=57 (63)	MT = 75.94	N=45 (51)	MT = 61.72
OC = 4.61	CC = 4.42	OC = 4.12	CC = 4.42	OC = 4.12	CC = 4.29	OC = 4.45	CC = 4.64	OC = 4.24	CC = 4.36
									

- The figures above show the networks of schools with most respondents, the number of whom ranged from 39 to 57. The response rates of the teachers on this section and other sections of the questionnaire were both high in these schools.
- The social networks for School 4 and School 6 are relatively loosely-structured. The few resource people did not provide as much information or support as those in School 9 did.
- Nevertheless, School 4 rated much higher than School 6 in the composite mean scores of organizational capacities, suggesting a strong faith of teachers in their school's overall capacities.
- Also having quite a few isolated small groups, School 9 featured densely centered networks. Meanwhile there were a couple of influential people who provided abundant information and support to a large number of teachers directly or indirectly.
- With as many as 57 respondents, School 14 also boasted a larger number of "outlier" groups. Meanwhile, the burden to provide advice or information to teachers about their teaching and instruction seemed to fall on one major resource person.
- With a large number of respondents in School 20, there were quite some influential resource people apart from a major one. It is worth noting that, the major information and support providers, as marked by the large-sized nodes, are not necessarily leaders holding former positions.
- Among the three schools with denser networks, School 14 outperformed School 9 and School 20 on organization capacities and collaborative culture. As these schools also had better student Math test results, it is likely that the stronger networks in these schools may contribute to better student academic outcomes.

Appendix

Key Staff Questionnaire Items and Their Corresponding Dimensions

Dimensions	Items
Strategic Direction and Policy Environment	Help clarify the reasons for our school's improvement initiatives
	Give staff a sense of the overall purpose of the school
	Provide assistance to staff in setting goals for teaching and learning
	Integrate school priorities with the government policy agenda
Leader and Teacher Growth and Development	Help train the school management team
	Develop leaders amongst the teachers
	Promote a range of continuous professional development experiences for all staff
	Use coaching and mentoring to improve quality of teaching
	Encourage staff to think of learning beyond the academic curriculum
Staff Management	Align staff professional development activities with school development needs
	Assign work to staff in accordance with their capabilities
	Show appreciation for teachers' outstanding performance
	Provide timely performance feedback to teachers
	Handle grievances amongst teachers
External Communication and Connection	Improve the performance appraisal system
	Maintain cooperative relationship with parents
	Engage parents in the school's improvement effort
	Develop strategies to promote the school to the community
	Establish a professional network with educational communities

Dimensions	Items
Resource Management	Allocate resources strategically based on student needs
	Demonstrate an ability to secure additional resources for the school
	Utilize support (auxiliary) staff for the benefit of student learning
	Provide or locate resources to help staff improve their teaching
Quality Assurance and Accountability	Establish a structured quality assurance mechanism in school
	Create a culture of accountability among teachers
	After observing classroom activities, work with teachers to improve their teaching
	Use student assessment data to inform school strategic planning
	Regularly observe classroom activities
Teaching, Learning and Curriculum	Regularly inspect student homework
	Initiate school-based instructional projects
	Encourage staff to consider new ideas for their teaching
	Design measures to improve student learning
	Articulate high expectations for student academic achievement
Values and Qualities of Principals	Persistently working for high academic achievement
	Passionate about the wellbeing and achievement of all staff and students
	Being always hopeful about improvement
	Being self-reflective
	Courageous in all circumstances
	Encourage staff to evaluate, refining and improving their practice as needed

Dimensions	Items
Principal's Efficacy	Motivate teachers
	Generate enthusiasm for a shared vision of the school
	Managing change in your school
	Create a positive learning environment in your school
	Raise student achievement in public examinations
	Manage multiple accountabilities from diverse stakeholders e.g. SSB, EDB, and parents etc
Organizational Commitment	I would be very happy to spend the rest of my career with this organization
	I really feel as if this organization's problems are my own
	I do not feel like 'part of the family' at my organization
	I do not feel 'emotionally attached' to this organization
	This organization has a great deal of personal meaning for me
	I do not feel a strong sense of belonging to my organization
Trust	We handle our work with competence and confidence
	We approach our work professionally
	We do not try to gain an advantage by deceiving others
	We can freely discuss our feelings, worries, and frustrations
Communication	Meetings in our school are effective and efficient
	There is a reasonable number of meetings in our school
	We have timely information to complete our jobs
Professional Learning community	The principal always keeps colleagues informed about new school developments
	We provide and receive support from our colleagues to accomplish tasks
	Teachers in our school regularly discuss about possible ways to improve student performance
	Teachers are encouraged to develop and implement new practices

Dimensions	Items
Professional Learning community	We share our best practices with other colleagues
	There is ongoing collaboration among teachers in the same subject panel
	We can accomplish more through working in small teams
	There is ongoing collaboration among teachers in different subject panels
	The school timetable provides adequate time for collaborative teacher planning
Alignment, Coherence and Structure	Our strategies are formulated around our school purpose
	Our annual school plan aligns with our school vision
	Our school protects teachers from external disturbances to their teaching
	We know the priorities that our school wants to achieve
	Our school tries to nurture a positive learning environment
Resources Capacity	Different subject teams compete with one another for resources
	Different subject teams compete with one another on performance
	Our school's structure is more complicated than other schools
	Our school structure constrains effective implementation of new initiatives
Work Load	Teachers' workload in this school is quite fair compared with teachers in other schools
	The amount of administrative work required of teachers in this school is not excessive
	We have clear division of labor in our school
Support to Students	The atmosphere throughout our school encourages students to learn
	Our school provides after school academic support activities for students
	Teachers have access to the teaching resources that they need to do a good job
	Our school provides a broad range of extracurricular activities for students

Dimensions	Items
Cooperation	Our team members 'swim or sink' together
	Our team members want each other to succeed
	Our team members seek compatible goals
	The goals of team members go together
	When our team members work together, we usually have common goals
Constructive Controversy	Team members express their own views directly to each other
	We listen carefully to each other's opinions
	Team members try to understand each other's concerns
	We try to use each other's ideas
	Even when we disagree, we communicate respect for each other
	We work for decisions we both accept
	All views are listened to, even if they are in the minority
Specialization	We use our opposing views to understand the problem
	Each team member has specialized knowledge of some aspect of our schoolwork
	I have knowledge about an aspect of our schoolwork that no other team member has
	Different team members are responsible for expertise in different areas of school work
	The specialized knowledge of several different team members was needed to complete our schoolwork deliverables
Credibility	I know which team members have expertise in specific areas of our schoolwork
	I was comfortable accepting procedural suggestions from other team members
	I trusted that other members' knowledge about our schoolwork was credible
	I was confident relying on the information that other team members brought to the discussion
	When other members gave information, I wanted to double-check it for myself
	I did not have much faith in other members' "expertise."

Dimensions	Items
Coordination	Our team worked together in a well-coordinated fashion
	Our team had very few misunderstandings about what to do
	Our team needed to backtrack and start over a lot
	We accomplished the task smoothly and efficiently
	There was much confusion about how we would accomplish the task
Shared Vision	Our team members tries to keep us informed about the overall school
	Our team members encourages staff to feel we are one unit dedicated to a common purpose
	Our team members encourages informal communication among us
	Our team members makes us feel responsible for its goals
Experienced School Improvement	Student homework problems
	Commitment and enthusiasm of staff
	Student behavior and discipline
	Student motivation for learning
	Quality of teaching
	Parental satisfaction with our school
Improvement shown impact on student outcomes	Curriculum
	School culture
	Physical environment and resources
	Implementing educational reforms
	School self-evaluation and review
	External school review
	Parental involvement

