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Building capacity of Vietnam schools to implement fundamental and comprehensive reforms: Designing and piloting interventions through professional development

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This report has three main sections. Section 1 provides an overview of three-stage process of conducting this research and research methods adopted. Section 2 presents a summary of findings (mainly) from Stage 1. Section 3 highlights key findings of summative evaluation data from all pilot/sample schools and challenges and suggestions for future research.

Section 1: Overview of Research Process

The project has three stages, implemented from May 2017 to October 2018. The activities of each stage are summarized as follows.

Stage 1 – Understanding perspectives

The main purpose of this stage was to understand school perspectives of their capacities to undertake implementation of the government’s renovations. The team surveyed teachers and school leaders of 12 schools in the Central and Southern regions of Vietnam, and conducted interviews with representatives of these schools. Table 1 shows the demographics of these 12 pilot schools in each stage of research.

Table 1. Demographics of Pilot Schools

No	School	School Level	Province/City	Urban/Rural	Region	Participation
1	HVH	Primary	HCM	Urban	South	Stage 1, 2, & 3
2	YT	Primary	HCM	Urban	South	Stage 1
3	NTT	Secondary	HCM	Urban	South	Stage 1
4	VVT	Secondary	HCM	Urban	South	Stage 1, 2, & 3
5	TBL	Primary	HCM	Rural	South	Stage 1, 2, & 3
6	PCH	Secondary	HCM	Rural	South	Stage 1, 2, & 3
7	NT	Secondary	Quang Tri	Urban	Centre	Stage 1, 2, & 3
8	DL	Primary	Quang Tri	Urban	Centre	Stage 1, 2, & 3

9	LTK	Primary	Hue	Urban	Centre	Stage 1
10	PM- pri	Primary	Hue	Rural	Centre	Stage 1, 2, & 3
11	NCD	Secondary	Hue	Urban	Centre	Stage 1
12	PM- sec	Secondary	Hue	Urban	Centre	Stage 1, 2, & 3

Interview

Typically in each of 12 schools, the research team conducted three interviews comprising:

- An individual interview with one senior school leader (either principal or vice-principal); each interview lasted approximately 60 minutes;
- One group interview with subject/level heads; each interview lasted between 60 minutes and 90 minutes, with participation of averagely 4-5 teachers (with exception of one school);
- One group interview with classroom/subject teachers; each interview lasted between 60 minutes and 90 minutes, with the participation of averagely 4-5 teachers.

In total, 36 interviews were recorded and then transcribed verbatim into texts.

Survey Questionnaire

The sample comprised 504 respondents from 12 schools in South and Central Vietnam. The profile of the respondents and their schools is summarized as follows:

- Position: 107 generalist teachers (21.2%), 320 specialist teachers (63.5%), 53 department/subject/level heads (10.5%), 10 vice-principals (2%), 5 principals (1%), 9 missing (1.8%)
- Experience in position: 52 ‘0-2 years’ (10.3%), 75 ‘3-5 years’ (14.9%), 90 ‘6-9 years’ (17.95), 279 ‘>10 years’ (55.4%), 8 missing (1.6%)

- School level: 173 primary (34.3%), 326 lower secondary (64.7%), 5 missing (1%)
- School location: 309 urban (61.3%), 188 rural (37.3%)
- Respondent gender: 108 male (21.4%), 389 female (77.2%), 7 missing (1.4%)
- Respondent age: 149 '34 years or less' (29.6%), 249 '35-49 years' (49.4%), 98 '50 years and above' (19.4%), 8 missing (1.6%)
- Respondents' years of teaching: 94 '0-5 years' (18.7%), 89 '6-10 years' (17.7%), 169 '11-20 years' (33.5%), 142 '21 years or more' (28.2%), 10 missing (2%)
- Respondents' qualifications: 33 certificate or diploma (6.5%), 439 Bachelor's degree (87.1%), 5 postgraduate diploma (1%), 16 Master's degree (3.2%), 1 Doctoral degree (0.2%) 10 missing (2%)
- Degree of parental academic expectations of schools: 5 'none or very few parents' (1%), 206 'some parents' (40.9%), 250 'most or all parents' (49.6%), 43 missing (8.5%)

Stage 2 – Knowledge Exchange and Skills Training

This stage had three main aims. Firstly, the research team shared the summary of preliminary findings drawn from the first stage with the representatives of piloted schools. This was useful in eliciting further information from the participants. Secondly, the research team delivered training to school teachers, leaders, and administrators (and VN university partners) on the key issues in relation to implementation of educational reforms. Thirdly, the research team facilitated the representatives of pilot schools to develop their own plans for interventions in alignment with renovations.

For this stage, the research team organized a five-day workshop. Each day comprised two sessions; each session lasted approximately 3 hours. Approximately 30 teachers, school leaders, district officers, and Vietnamese research partners participated in each workshop. Four pilot

schools (two primary schools and two secondary schools) in each region plus two Vietnam HE institutions participated in this stage. Below is a brief description of each session.

- **Session 1:** The research team explained the project and its 3 phases to all participants. The research team presented the preliminary findings drawn from qualitative data, collected in Stage 1. All Vietnamese participants reflected on the qualitative findings and shared ideas.
- **Session 2:** The research team presented the preliminary findings drawn from qualitative data, collected in Stage 1. All Vietnamese participants reflected on the quantitative findings and shared ideas.
- **Session 3:** The research team designed activities to encourage discussion and sharing of experiences and perspectives of the renovations and implementation in Vietnamese schools. All participants joined discussion on the purpose, benefits and challenges of implementing the renovations to date, and in future. The key objective was to discuss how these challenges could best be overcome to implement the renovations effectively.
- **Session 4:** The research team made an interactive presentation on pedagogical skills for successful implementation of the renovations. This activity aimed to influence educators' beliefs and practices regarding teachers' pedagogical skills (especially need to adopt more student-centered methods for a more applied curriculum and skills, in conjunction with teacher-centered methods, and deciding when to use different pedagogic methods). In this section, the representatives of four schools, with the facilitation of research partners, started planning their interventions in Stage 3.
- **Session 5:** The research team made an interactive presentation on methods of assessment and teacher professional development in line with the renovations. This activity aimed to influence educators' beliefs and practices about the skills needed for assessment of students (especially more formative methods alongside summative, and assessment of soft skills and non-academic learning); also exchange of views on the need for new ideas for teacher

continuous, school-based, professional development. Also in this session, the representatives of four schools, with the support of the research team, continued planning their interventions for Stage 3.

- **Session 6:** The research team made an interactive presentation on the role and enactment of teacher leaders in the renovations to improve the quality of teaching and learning. This activity aimed to raise teachers and leaders' awareness of the need to increase the standard and quality of teaching across the school, based on teacher collaboration, mutual support and sharing of informed practice. Also in this session, the representatives of four schools, with the support of the research team, continued planning their interventions for Stage 3.
- **Session 7:** The research team made an interactive presentation on ideas and practices of the renovations for school leaders. This laid emphasis on instructional leadership, change leadership, student learning outcomes, the idea of the schools as professional learning communities, parent involvement, and support from district leaders. Additionally, the representatives of four schools, with the support of the research team, continued planning their interventions for Stage 3.
- **Session 8:** The research team had further discussion with the participants on the respective roles of principals and teachers in the pilot schools and roles and responsibilities of all participants. In addition, the representatives of four schools, with the support of the research team, refined their intervention plans for Stage 3.
- **Session 9:** Schools started presenting their respective intervention plans for Stage 3 to the whole group. The research team provided formative feedback to enhance the quality and feasibility of interventions.
- **Session 10:** The remaining schools presented their respective intervention plans. This session gave all participants a chance to clarify through question and answer, any issues arising from the program. It clarified the aims of the project and how stages 2 and 3

interrelate; it showed how all the topics covered in the program interrelate, and what the benefits would be to all participants at the end of the intervention stage, and the future prospects beyond.

Stage 3 – Implementation of Interventions

Stage 3 was the Intervention Stage. The underlying methodological approach adopted for the stage 3 interventions is known as Research-Design-Development (RDD). It is espoused and supported by among others, the Carnegie Foundation in the USA. It brings researchers and school practitioners together to jointly work on all stages of the research-into-practice process. In this project school principals and teachers worked together with researchers to agree the main problem areas of practice that each school needed to improve (based on Stage 1 data collection), and which are relevant to the Vietnam government's renovation agenda. Each school was encouraged to choose areas of renovation they felt was a priority for their school, thereby gaining more school ownership. All participants – school staff and researchers – then jointly agreed a method of training and capacity building that lead to trialling new practices which, through an action learning cycle, were evaluated. New practices that were shown to be successful according to agreed evaluation criteria are then scaled up across the school. The short time period afforded for the stage 3 interventions prohibited any more than seeding of innovations. The evaluation process involves the setting of clear measurable criteria of success and use of quantitative and qualitative data in measuring criteria. These criteria may include teacher satisfaction, levels of staff motivation, and quality of continuous professional growth, as well as staff and student enjoyment of lessons/learning and skill acquisition.

All 8 schools - four in each region that attended the workshop in Stage 2 - participated in this intervention stage. The representatives of each school shared the intervention plans with colleagues in their respective schools and they together refined and implemented the intervention plans. The research team from University of Glasgow provided instructions and suggestions to Vietnamese research partners. The key roles of Vietnamese research partners in this stage were to

support the implementation of interventions of pilot schools and to collect data (e.g., evidence of intervention implementation of schools) during this intervention period. One or two Vietnamese research colleagues from each HE partner facilitated one pilot school. Research partners paid averagely 4 – 5 visits to their respective schools from the end of February 2018 to May 2018. The research team in the University of Glasgow maintained communications and discussions with Vietnamese research partners before and after each of their visits to pilot schools, to offer guidance where applicable.

The project leader paid one visit to each school at the end of March and early April 2018. He, with the assistance of Vietnamese partners, conducted observations and eight interviews (one in each school) with teachers and school leaders regarding the implementation of interventions. During the intervention stage, the research team distributed two sets of evaluation forms to schools at two separate times. The purpose of this practice was to record the changes and issues (if any) of implementing interventions overtime in each school.

Section 2: Summary of Findings

Section 2 provides a summary of findings drawn from data mostly gathered in Stage 1. Section 2.1 presents the findings of the statistical analyses of 504 respondent questionnaires in Stage 1. Section 2.2 summarizes the findings drawn from 36 interviews in Stage 1 and eight interviews in Stage 3.

At the onset of the study, the research team were interested in investigating if there were significant regional differences in the perceptions of educators on renovation implementation. However, no significant differences were found in either the quantitative or qualitative data. The key findings are thus presented below as one data set, without geographical distinction.

2.1. Summary of findings from quantitative data

2.1.1. Perceived changes implemented in the piloted school

Changes in teaching and learning

The results indicated that respondents perceived that among the different aspects, changes to teaching and learning and methods of student assessment were implemented the most, while changes to textbooks used were implemented the least. The details on statistical analyses are presented in Appendix 1.

Changes in school structure

The results indicated that respondents perceived that among the different aspects, changes to teacher supervision by school leaders were implemented the most, while changes to the organization of subject departments were implemented the least. The details on statistical analyses are presented in Appendix 2.

Changes in school autonomy

The results indicated that respondents perceived that among the different aspects, devolution of decision-making to school managers was implemented the most, while changes to empower teachers were implemented the least. The details on statistical analyses are presented in Appendix 3.

2.1.2. Factors influencing implementation of educational renovations

Policy guidance

The results indicated that respondents perceived that among the different renovation aspects, there had been clear guidance on how teachers needed to change their teaching and learning, while teachers were less certain as to whether and how they could seek advice on the renovations when they needed it. This suggests that communication is heavily top-down and that guidance from the top is not always clear and detailed. The details on statistical analyses are presented in Appendix 4.

Resources

The results indicated that most respondents perceived that there were sufficient teachers to implement the renovations, but they thought financial contributions from parents were less than

adequate. This suggests that schools feel they are short of money for infrastructure and instructional equipment. The details of statistical analyses are presented in Appendix 5.

Teacher professional development

The results indicated that most respondents perceived that they had been able to learn from experienced colleagues on how to implement the renovations, but they felt they had learned less from attending courses provided by universities, colleges, or the government. This suggests that principals and teachers are largely relying on their own resources to learn new skills to help implement the renovations, and of course, schools' abilities to undertake professional development are hugely variable; more learning resources from outside schools are needed. The details of statistical analyses are presented in Appendix 6.

Leadership

The results indicated that most respondents perceived that their school leaders were trained to manage the renovations, but they had difficulty agreeing that their school leaders had committed resources to support teaching and learning in line with the renovations. The details on statistical analyses are presented in Appendix 7.

School culture

The results indicated that most respondents perceived that teachers were collaborating more following the implementation of the renovations. However, they had great difficulty agreeing that they were empowered to make decisions since the renovations began. There was a sense that while principals were more empowered by the renovations, the principals had not in turn transferred some of this sense of empowerment to teachers. The details on statistical analyses are presented in Appendix 8.

2.1.3. Student learning outcomes

The results indicated that most respondents perceived that their schools had been emphasizing the development of self-confidence in students more since the renovations began, but less so in terms of preparing students for future citizenship. This suggests that within the context of the renovations, teachers are developing students' self-confidence, but more needs to be done to develop the whole student for future citizenship. There are also equity implications in that teachers need to show further support low-ability students. The details on statistical analyses are presented in Appendix 9.

2.1.4. Future implementation of educational renovations

Perceived importance of school leadership

The results indicated that respondents perceived that it was very important for school leaders to motivate their teachers for future implementation of the renovations. However, respondents did not feel that creating opportunities for bottom-up communication between schools and the government was as essential as being motivated, for successful implementation – indicating that the system was not used to bottom-up communication, and it was unlikely to happen anyway. The details of the statistical analyses are presented in Appendix 10.

Perceived importance of teacher resources

The results indicated that respondents perceived that it was very important for teachers to be responsible for varying their teaching methods to cater to student learning needs and to be given preparation time and greater variety of learning materials. However respondents felt it less important to have teaching assistants to help implement student-centered methods in large classes. The details of statistical analyses are presented in Appendix 11.

Perceived importance of school evaluation

The results indicated that respondents perceived that it was very important for school evaluation criteria to be aligned with the key goals of the renovations, but less important for these criteria to be made more demanding. The details of the statistical analyses are presented in Appendix 12.

Perceived importance of parental involvement

The results indicated that respondents perceived that it was very important for schools to give parents more opportunities to discuss their child's progress with the teachers. In contrast, there was strong opposition to advocacy of parents' 'interference' in their classroom teaching. The details of the statistical analyses are presented in Appendix 13.

2.2. Summary of findings from qualitative data

This summary of findings is presented in six broad categories highlighting implementation of educational renovations in Vietnam.

2.2.1. Educators' perceptions of the need for renovations

For the past decade, the Vietnamese government has launched a number of renovations that include changes to assessment (mostly national examinations) and curriculum (mostly textbooks). Participants in this study were all very aware of the importance of comprehensive educational reforms, and believed that they could improve the educational system of the country if implemented effectively. Nonetheless, they also perceived that the results of previous renovations had been rather limited and they felt flooded with numerous changes without sufficient time and resources for familiarity and mastery.

Three emergent concepts from the data: Receptivity – Uncertainty – Skepticism

Receptivity

In general, participants agreed on the need for comprehensive renovations in the current context of Vietnamese education. They did not question the urgency of renovations. Indeed, they emphatically stated the urgency of renovations in all the areas covered by the Government reforms: curriculum, pedagogy, assessment, professional development, and leadership and management.

One subject head said: *It is necessary to reduce the volume of theoretical knowledge and to focus on the development of applied skills for students, especially IT [information technology] skills. It is important to use IT to support teaching, so as to increase students' engagement in lessons. Teachers should use the learner-centered approach. For professional development, teachers should be trained and supported to improve teachers' teaching competences.* (PMsec, SH, p. 1)

Furthermore, a teacher stated: *Educational renovations must be comprehensive and efficient in all areas such as curriculum, pedagogy, etc. Renovation must be stable and sustainable. It should not happen too suddenly and should allow time for familiarity so that teachers can catch up with all the changes.* (PCH, T, p. 2)

A school leader argued: *We need to comprehensively renovate the educational system. The renovations in the past years have not been successful because they have been piecemeal and fragmented. For success, we need comprehensive renovations in policy and leadership. Specifically, the educational system must renovate objectives, methods, teacher-student relationship, curriculum content, infrastructure and teaching facilities.* (LTK, P, p. 2)

The most frequently cited reason for renovations is the need to improve students' applied skills and qualities. Participants strongly stated that the skills most in need of being taught and learnt are those closely associated with occupational skills, such as communication and IT skills. The most mentioned qualities included 'confidence', independent and critical thinking, and innovative thinking. Participants also highlighted a need for renovations to shift from heavy substantive knowledge to more applied education, to develop graduates who can meet the needs of the job market.

One teacher said: *I think perhaps the desire for improving students' applied skills is the most important factor to motivate me to implement renovations/changes. Grade 9 students may have knowledge but they are weak/limited at soft skills such as presentation skills. As teachers, we*

hope to help students improve soft skills before graduation of secondary school. These skills will be useful for their life. (PMSec, T, S3, p. 3)

Another teacher said: Participating in this project [implementing interventions], we hope to enhance students' confidence because the students in many areas of the country are generally lacking in confidence. We also hope that we will be able to garner more support and collaboration from our students' parents in educating their children to be more confident, active, engaged and independent with their studies as well as knowing what to do and what not to do. (DL, T, S3, p12)

Uncertainty & Skepticism

Despite being receptive to change, participants showed their uncertainty about the nature, vision, and direction of renovations. Importantly, their attitudes towards the present wave of renovations are shaped by previous experience of reforms. They felt that the previous renovations have been piecemeal and fragmented. For example, one school leader said: *“For the past years, we have frequently heard of “renovations” [...]. We have implemented small and piecemeal renovations: adjustments of the curriculum and changes in pedagogy, and some changes in student assessment. However these are not sufficient”* (LTK, P, p. 4).

Teachers also felt that they have been at a loss as to how to implement those previous renovations, as exemplified in the following instance: *Indeed we are attitudinally prepared for renovations; however, we are occasionally not clear about the details on what and how to implement renovations. We also feel confused about some issues and details regarding renovations.* (PCH, T, S3, p. 26)

Due to the limited outcomes of past renovations and lack of clarity of renovation vision and guidelines, participants held a skeptical attitude towards the success of the present renovations. The following vignette shows the skepticism of one principal about the renovations.

Vignette 1: Skepticism of success of renovations

Interviewer (p. 31): *Is there any pressure on your schools from the authorities concerning the demands for educational renovations, for example, implementation of student-centered pedagogy and formative assessment?*

Principal (HVH, S3, p. 31): *We have not been under much pressure on the need for renovations. I however feel that there are a lot of policies, documents, and guidance of renovation implementation, but the effectiveness is not high and these are not radical and are of weak synchronization. The conditions for renovation implementation are limited. Indeed, we always have pressure in different periods, not just because of renovations. These are what we have to do.*

Interviewer (p. 32): *Could you please share with us why you think there is not much pressure on your school?*

Principal (HVH, S3, p. 32): *We don't feel (particularly) pressed (at present) because we always want to enhance the quality of teaching and learning in the school and the progress of students.*

2.2.2. Educators' perceptions of the needs of students

When asked about what students need for their futures, participants in most interviews mentioned, either directly or proximally, the following categories: (a) *knowledge*, (b) *applied skills*, (c) *qualities*, and (d) *development of aptitude*. Table 1 summarizes the responses of groups of interviewees about their perceptions of student needs. As shown in Table 2, most participants referred to these categories of needs, for example, they mentioned about importance of enhancing applied/life skills for students, but hardly specified those skills, while several of them specified properties of these categories. There are no substantive differences found amongst groups of participants concerning their perceptions of student needs.

Table 2. Perceptions of Student Needs for Future

		Knowledge	Applied skills	Qualities	Development of Aptitude

Primary School	School leaders (Principal)	<i>Mentioned but no specification</i>	Problem solving; communication; English language; social integration; collaboration	Virtue; patriotic, compassionate, diligent, honest, responsible, independent, creative	<i>Mentioned but no specification</i>
	Subject/Level Head	Culture; society; nature	Collaboration; English language; communication; information access; adaptation; self-study	Creative; critical; independent; collaborative	<i>Mentioned but no specification (1 school)</i>
	Teachers	Fundamental	English language; IT; adaptation	Virtue; confident;	<i>Not explicitly mentioned</i>
Secondary School	School leaders (Principal/Vice-Principal)	<i>Mentioned but no specification</i>	<i>Mentioned but no specification</i>	Virtue; active; industrious	<i>Mentioned but no specification</i>
	Subject/Level Head	Fundamental; integrated;	Collaboration; independent study; social; occupation-oriented; communication;	Virtue; patriotic, compassionate; diligent; independent; creative; critical;	<i>Mentioned but no specification</i>
	Teachers	<i>Mentioned but no specification</i>	Problem-solving; communication; independent study; IT; English language; collaboration	Compassionate; patriotic; sharing; tolerant	<i>Not explicitly mentioned</i>

(a) Knowledge

A few participants referred to ‘knowledge’ as that related to specific subjects (e.g., Mathematics; Literature), and broader knowledge of culture and society. These participants also emphasized the important integrated knowledge for well-rounded students. Students should have knowledge of all subjects as well as social issues, rather than just focus on certain subjects.

(b) Applied skills

Most participants highlighted the need to develop students’ applied skills in a more efficient way. These participants frequently mentioned skills such as: communication, problem solving,

adaptation, and collaboration. They also thought that Vietnamese students are generally weak at these skills.

(c) Qualities

As shown in Table 1, all groups of participants referred to an array of qualities that were essential for students going forward, such as ‘*virtue*’, ‘*patriotic*’, ‘*creative*’, ‘*critical*’, ‘*compassionate*’, and ‘*confident*’. The most frequently mentioned qualities were: ‘*virtue*’ and ‘*patriotic*’.

(d) Development of aptitude

Several participants were of the opinion that renovations must be oriented to fully develop the aptitude of students. They argued that the current educational system has heavily focused on teaching students subject-specific knowledge, but has paid insufficient attention to supporting students’ development of aptitude in the areas such as music, art, and sports.

Below are three interview extracts that exemplify participants’ viewpoints.

- *Firstly, students must have knowledge of sciences, subjects and their ability to apply such knowledge in their daily life. Secondly, they need to have communication and interpersonal skills. Proficiency in English language is important as well. (NT, SH, p. 4)*
- *First of all, students need basic knowledge. The second is to have a certain moral foundation to help them fight against the negativity in life. Third, they are prepared to work well in the future when they reach the working age. (VVT, P, p. 3)*
- *Students need many things, but the most important thing is basic knowledge of sciences to meet the social life. Next, students need to possess social skills such as communication and interpersonal skills...to become independent and creative citizens. (NT, T, p. 4)*

In the final analysis, participants perceived that educational renovations in Vietnam must aim to prepare students for occupational purposes (instrumentality) and social integration. Students need both knowledge and applied skills. In terms of qualities, participants emphatically stated the importance of virtue.

2.2.3. Perceived changes (to date) in the pilot schools

a) Change in curriculum

Five (out of eight) schools reported some renovations already made pertaining to curriculum. These schools chose to incorporate further activities into the core, current curriculum. The main motivation of promoting extra-curricular activities is to enhance students' applied skills. The schools reported that textbooks are the compulsory documents that guide teaching and learning. Teachers have to comply with the compulsory contents of textbooks. Teachers felt compelled to cover the core contents of textbooks because the exams are directed at their content.

One teacher of a primary school in the central region said: *I basically followed the syllabus/content of textbooks, but designed more activities or tasks in support of students' application of knowledge and problem solving (p.7).* (PM-pri, T, S3, p. 7)

Another teacher noted some pedagogical changes while complying with the prescribed curriculum: *I think the content must still be mainly based on the textbook, but there is a change in teaching methods. In the past, teachers spoke and students listened. Now students take a more active role in understanding knowledge and applying knowledge in doing assignments.* (PM-pri, T, S3, p. 7)

b) Change in pedagogy

According to our data (elicited from the interviews and observations of lessons in the piloted schools), there have been three major pedagogical changes. These changes are: ***ICT-supported teaching, group-based teaching, and topic-based teaching*** approaches.

ICT-supported teaching approach

Interviewed teachers across the eight schools tended to associate the incorporation of information communications technology (ICT) in lessons with pedagogical renovations/change. Teachers frequently referenced their application of ICT tools in delivering lessons – although from our observations, we only saw basic ICT being employed. There remains great scope for digital technology and mobile learning devices to be employed. They also reported challenges of

preparing and implementing ICT-supported lessons such as their lack of ICT competences (especially amongst old generation teachers), and limited ICT equipment in schools.

Group-based teaching approach

Interviewed participants saw the benefits of the group-based teaching approach in promoting student peer learning and developing collaborative skills. These teachers usually divided their class into study groups of four or six, and designed activities to promote group discussion. However, there was still a tendency for teachers to overly guide group discussions and tell them the ‘right’ answers – thus failing to realize the benefits of allowing students to make their own mistakes and struggle to find the solutions themselves.

Topic-based teaching approach

As noted earlier, teachers must comply with the core national curriculum. They are supposed to cover the contents of the textbook in their lessons. Therefore, one ‘innovative’ approach which teachers tended to adopt was the *topic-based teaching approach*, as explained by one teacher: *Instead of following the sequence of the units in the textbook, we adopt a topic-based approach for a few lessons.* (VVT, T, S3, p. 10)

Another school leader offered further elaboration: *Teachers must comply with the content of the current national curriculum. We are not allowed to cut down the core content. However, teachers can re-organize the order of lessons in a more appropriate way, for example, in a topic-based way. Alternatively, some teachers may change their methods to teach the compulsory content of the national curriculum towards a more student-centered approach. In summary, there are two main changes: re-organize the lessons according to topics and apply more student-centered learning methods.* (VVT, VP, S3, p. 17)

Interestingly, while teachers frequently mentioned the student-centered approach, several of them referred to the expected outcomes as ‘*students understanding knowledge*’ and ‘*students applying knowledge in doing assignments*’, rather than about developing student competences and skills beyond the formal academic curriculum. For instance, one teacher said: *I think the content*

must still be mainly based on the textbook, but there is a change in teaching methods. In the past, teachers spoke and students listened. Now students take a more active role in understanding knowledge and applying knowledge in doing assignments (VVT, T, S3, p.7).

c) Change in assessment

Primary schools have already systematically implemented changes in assessment as part of a national initiative specified in Circular 30 (in 2014), and later revised in Circular 22 (in 2016). Accordingly, teachers do not grade students, but give them formative feedback instead.

Teachers in piloted secondary schools reported a heavy use of formative, with some incorporation of summative, assessment. They tried to insert some formative feedback in the assignments of students, but said they mostly exercised summative assessment (i.e., grading students' tests). Few details on teachers' methods of assessment could be found in the interviews.

d) Change in teacher professional development

Participants highlighted peer lesson observation as one popular form of teacher professional development. Lesson observation arose from two sources: (a) *planned for, and compulsory lesson observation*; and (b) *informal and spontaneous lesson observation*.

In most of the schools, teachers participated in the lesson observation activities as a compulsory practice, specified in the school policies and MOET requirements. Occasionally, a few groups of teachers conducted informal lesson observations, arising from the need to support one another.

As one teacher explained: *According to school policies, each teacher must annually perform at least two sampling/modeling lessons/periods for observation in the same level/group/team. Some teachers who attend teaching competitions [e.g., in the district] may perform 7 to 8 additional lessons for observation. Some teachers may observe their colleagues' lessons to support each other. These lesson observation activities usually happen seasonally or periodically. After a time period of lesson observations, we sum up and appraise performance.*

Every year, our school organizes a yearly teaching competition, from which the school selects representative teachers to participate in the teaching competitions in the district and beyond. (PM-pri, T, S3, p. 11)

A few participants mentioned some post-observation activities took place, such as discussions between teachers on the lessons observed, but mostly associated these with summative evaluation of teacher performance and awards, with little attention to developmental purposes of teachers.

Noticeably, there is little evidence of collaborative action learning (CAL) where groups of teachers together prepare for and deliver innovative lessons. For example, a group of teachers of Literature collaborated with one another to plan a lesson in alignment with the renovations. The teachers in this group also shared that they felt confident when working together with colleagues to implement pedagogical changes.

Teachers in the Literature subject group have been working together to prepare for lesson plans in alignment with the changes/renovations. It helps to save teachers' time and labor. We realized that we are able to do things better when we work together. One individual might not be able to see issues, but colleagues can contribute ideas and solve issues together. (PMsec, T, S3, p. 17)

When we work together, if colleagues support, I feel more confident. When challenged, I make reflections and find alternatives, or find solutions, together with colleagues. For example, if I still feel uncertain about a certain issue, my colleagues and I think together to solve it. (PMsec, T, S3, p. 17)

e) Changes in school leadership and management

Two of the main roles of senior school leaders reflected in the interviews are: (1) *creating infrastructural conditions* and (2) *timetabling*. There is some evidence on the roles of senior school

leaders acting as in-school inspectors, but little evidence on the instructional leadership roles of school leaders – as conceptualised and advocated in Anglo-American systems - being adopted.

Creating infrastructural conditions

Interviewed teachers frequently referred to the roles of principals in seeking for financial resources to improve infrastructure and instructional equipment in order to support implementation of renovation activities. These roles involved: seeking for funding from district levels and beyond; seeking for financial support from parents (called ‘educational socialization’); and allocating available resources for renovation activities. This seemed to be one of the principal’s most important function, and depended heavily on their political connections and prowess in winning resources. Some principals seemed a lot more successful than others in this regard.

Timetabling

Most teachers reported that the current curriculum is still heavily biased towards substantive knowledge and requirements to comply with the core curriculum. Consequently, they felt that time in lessons was not sufficient to apply student-centered learning methods. This is an important insight as to how teachers perceive student-centred learning – namely, slows down progress in covering the curriculum content. Therefore they felt they needed senior school leaders’ support in flexible timetabling for renovation activities and the introduction and application of student centered methods, which they see as unable to cover the curriculum in the same time as teacher-centered methods.

Acting as school inspectors of renovation implementation

There is some evidence on the roles of senior school leaders as in-school inspectors, but as stated earlier, little evidence on the instructional leadership roles of school leaders, especially in the areas of: *visioning change/renovation implementation, managing instructional program, promoting teacher professional development, and developing conducive environment for renovation implementation.*

2.2.4. Perceived impacts of renovations on the piloted schools

Interviewed teachers highlighted some positive impacts of the previous national renovations (despite modest success in the past decade) and school-level changes. These changes have had impacts at student level, teacher level, and organizational level. It should be noted that these perceived impacts have been drawn from teachers' observations of their own students and colleagues' lessons.

a) Impact at student level

Teachers observed that their students have become more active and engaged in learning through the introduction of student-centered lessons. They believed that these renovations in future would help to enhance students' confidence in communication and presentation and critical thinking. However, crucially, very few teachers showed their confidence in the effects of student-centered methods to enhance student academic achievements.

One teacher observed: *In the lesson of Literature this morning, I observed that students got very engaged and interested in preparing and making presentations for the lesson. This presentation method helps students to be more confident in presentations. Students in such 'student-centered' lessons also understand the content better than those in heavily teacher-presented/centered lessons.* (PMsec, T, S3, p. 3-4)

Another teacher said: *I felt that implementation of these interventions have had some effects on students. Firstly concerning attitudes, the students have got more active and engaged in the lessons. For the understanding of lessons, the students have caught up with the lesson faster and seem to have applied the knowledge into life in a better way.* (DL, T, S3, p. 16)

Similarly, one teacher said: *In lessons adopting student-centered methods, students were more enjoyable and engaged. Students had more opportunities to express themselves.* (PM-pri, T, S3, p. 4)

b) Impact at teacher level

Motivation and pressure to develop competences

Many interviewed teachers regarded renovations as both motivation and pressure to continue developing their teaching competences. These teachers felt that the renovations offered them opportunities to improve their teaching. For instance, one teacher said that she had to spend substantial time preparing for lessons employing student-centered methods, but felt a sense of improvement for both teachers and students:

Teachers must spend a lot of time preparing for student-centered lessons. However, students are more independent in their learning. Sometimes many students are very quick at proposing ideas and solutions to problems. Teachers also learn from students. (PM-pri, T, p. 8)

Teachers were delighted to see their students' increased engagement, as expressed by one teacher: *"In student-centered lessons, the teachers felt more inspired because we saw that students were learning actively"* (DL, T, S3, p. 18).

Another teacher said: *Participating in implementing renovations/changes, we feel we need to continue improving our teaching. We have to learn from colleagues and search for instructional resources.* (TBL, T, S3, p. 26)

Confidence and openness to share

Teachers interviewed generally thought that participation in the implementation process of renovations, gave them a sense of confidence and openness to share with colleagues about professional strategies. As one teacher articulated: *"In the past, teachers tended to be shy and afraid that their comments [on teaching practices] would make their colleagues feel uncomfortable. Now, teachers feel more comfortable in peer sharing. Peer sharing helps teachers, especially novice teachers, to develop their professional capacities"* (TBL, T, S3, p. 8).

c) Impact at organizational level

During the process of implementing renovations, teachers must rely on one another to overcome challenges, which in turn helped to promote a collegial and collaborative culture in schools. Indeed, there was evidence of informal teacher leadership emerging from the process of

implementing changes/renovations in schools. This is exemplified in the interview extract where one teacher articulated: *Teachers with more teaching years share experience with the less experienced teachers. Young teachers who tend to be more IT competent support the old-generation teachers with the use of IT in teaching. This mutual support has worked quite well.* (TBL, T, S3, p. 12)

In this instance, teachers felt more open in sharing professional practices and strategies with their peers – older and younger teachers supported each other with their relative strengths. Teachers also reported that they were more likely to share their instructional resources with one another.

2.2.5. Perceived challenges to implementation of renovations

Participants listed a number of challenges to their implementation of renovations that can be categorized in five broad headings as follows.

a) Limited infrastructure and basic needs

According to participants, poor infrastructure is one of the challenges to the implementation of renovations in many schools. These include the physical structure of school buildings and classrooms, and equipment for teaching and learning. The poor conditions of physical infrastructure and instructional equipment curtail and restrict teachers in setting up classrooms for student-centred methods. For example, lack of space and old-fashioned classroom desks and chairs make for inflexible classroom configurations.

A further challenge to renovation implementation is educators' income. Participants perceived that their real income is low in comparison with living costs. In addition to teaching work, teachers therefore tend to engage in other businesses for better income. This often means that they have limited commitment to implementing school renovations that require substantial time investment, for example, in lesson plans, formative feedback, and professional development activities.

As can be seen in the selected quotes below, schools expected to receive greater investment in infrastructure and instructional equipment, and teachers an increase in their salaries.

Teachers' income must be improved; school infrastructure must be improved; there must be changes in management and leadership. These are the factors that will motivate teachers to implement renovations. (NT, SH, p. 19)

I think teachers must be provided with appropriate instructional equipment and materials. We received some training about changes in the teaching process. Nonetheless, we are lack in teaching instruments; we do not have enough appropriate materials and equipment compatible with requirements of renovations. Mostly, teachers must make their own materials. Therefore, teachers' implementation of renovations remains limited. (DL, T, p. 14-15)

b) Lack of synchronization, alignment, consistency, and clarity

Lack of synchronization, alignment, and consistency

As noted earlier, participants attributed the limited success of renovation implementation to lack of comprehensiveness (multiple integrated changes), synchronization, and consistency. They perceived that these renovations – like others before, tended to be piecemeal and fragmented, even though the government renovation policy platform was for comprehensive and fundamental renovation covering all aspects. Teachers were expected to change teaching methods towards more student-centered approaches and to efficiently develop students' applied skills; however, national exams are still heavily theoretically knowledge-based and memorization-oriented. Several teachers claimed that the consistency of the curriculum across school levels and grades was weak.

For example, one subject head said: *“Currently the renovations are not synchronized and consistent. For example, there is a requirement of some experiential lessons to expose students to the real world, but teachers still have to comply with the old/outdated textbooks and the old curriculum allocation. Tests still emphasize academic knowledge.” (NTT, SH, p. 9)*

One teacher criticized the current system of student assessment: *Assessment is also very important. When we change textbook and teaching methods, methods of assessment must be changed as well. Currently the assessment methods are still outdated.* (LTK, T, p. 17)

A few teachers explicitly called for a change in teacher evaluation in alignment with the renovations. These teachers criticized that evaluation of teaching has focused too much on ranking teachers, especially in teaching competitions at school and district levels. These teachers argued that evaluation practices should be formative and instrumental in helping teachers to develop teaching competences for the sake of renovation implementation, rather than for competition purposes.

Another teacher articulated: *Evaluation of teaching processes must not exert pressure on teachers. Lessons should be naturally conducted. These are the conditions to stimulate teachers to act as catalysts in change and development of teaching and assessment methods. Doing so, teachers will conduct student-centered lessons, for the purpose of improved student learning, rather than because pressure is applied on teachers.* (DL, T, p. 15)

A further teacher stated: *To persuade teachers to broaden their teaching methods and assessment in alignment with student-centered approaches, senior school leaders must change their perceptions and methods of teacher evaluation. Senior school leaders must trust teachers, encourage teachers, and create conditions for teachers to renovate their teaching methods. Evaluation of teaching should focus on mutual sharing and support, through lesson observation, and should not heavily rank teachers like before. It does not mean that senior school leaders are not supervising teachers any more, but they do it in a more appropriate way.* (DL, T, p. 11)

Lack of clarity of vision

AS reported earlier, many teachers felt that there was lack of clarity of vision and directions of renovations. They also claimed that they were uncertain of the practices being espoused by recent renovations, though there were some general guidelines communicated with them through administrative documents.

One subject head stated: *To get fully committed, teachers must clearly understand the aims and directions of educational renovations. When the aims are clearly understood, it is necessary to have action plans. We need a system, from senior leaders to teachers to agree on actions, which will bring greater efficiency.* (PCH, SH, p. 8)

c) “Achievement Disease” phenomenon

“**Achievement disease**” refers to the phenomenon of heavily achievement/grade/examination results-driven teaching and learning. Teachers and school leaders are under pressure from parents and schools to train students to get high scores in (national) examinations. This is also associated with the practice of teachers giving students better grades than their actual performance. Teachers regarded this phenomenon as a social “disease” and as a major obstacle to implementation of renovations that aim for student holistic development.

Many parents are still excessively interested in their children’s test scores. They pressure their children to over-study for high scores, which aims to get high scores in examinations, rather than to develop competences. (YT, P, p. 5)

The issues related to assessment of student performance need to be addressed. I realized that educational achievements in many schools are not real. Many other teachers have the same opinion as me, but sometimes they do not want to speak out. Academic achievement is still considered as an important factor in our education. We have not assessed the true nature of student achievement. For example, some students have weak academic performance, but teachers feel obliged to allow them to be promoted to the next class/grade. Teachers are under pressure from different parties. (NT, T, p. 5)

d) Big class sizes and gaps in student capabilities

In most schools, each class typically has 40 students or more. Participants claimed that large class sizes made their efforts to employ student-centered methods a daunting task. For example, it was difficult to divide such a class into study groups; teachers found it difficult to control activities in

the class. This is even more challenging in the classes that have a mixture of high-performing and low-performing students. Participants argued that Vietnamese students are used to traditional methods (i.e., teacher-centered methods) and low-achieving students run the risk of lagging behind in renovations, as implied in the two following interview extracts:

The teacher-student ratio is more convenient in organizing activities, for example a game [...]. In a big size class, skilled students perform quickly and well while the others will lag behind. The gap between high-achieving students and low-achieving students will get bigger. (PM-pri, T, p. 15)

That the capabilities of students in one class greatly vary is a challenge. Some students receive their families' attention and support, including financial support, for their study, while others have little or no family support. Some teachers perform very well while the others do not. (VVT, SH, p. 18)

e) Teacher and leader competences

As reported earlier, generally speaking, participants showed their willingness and readiness to implement comprehensive educational reforms. However, they felt that they needed time and more resources to familiarize themselves with changes in pedagogy, assessment, and leadership and expect to receive quality training to further improve their professional competences in alignment with renovations. Many participants, especially older generation teachers, stated that their ICT competences are insufficiently strong to meet the requirements of renovations. As one teacher said: *“our IT skills are not as strong as young teachers and this is one of the challenges”* (LTK, SH, p. 14).

One subject head said: *Training must be of good quality. Many training workshops offered a lot of content but we did not have enough time to study and access this content.* (NT, SH, S3, p. 12)

Another teacher stated: *Teachers need time to buy in and get committed to renovations. Teachers need time to experience/try these renovations and see how their students' learning has improved and how successful these renovations are. During the trial period, teachers will reflect on the challenges and how they handled these challenges.* (TBL, T, p. 12)

2.2.6. Perceived equity issues and strategies

In theory, the recent educational renovations aim for improvements in both excellence and equity. However, the de facto implementation of these renovations has revealed the issues of equity are complex.

a) Equity issues in relation to renovations

Geographical gaps as obstacles to equity

Participants perceived that there is substantial disparity in economic conditions between the urban and rural areas. The infrastructure and instructional equipment in urban schools tends to be better than those in the rural areas.

One subject head was concerned: *“In these renovations/changes, students in the suburban, rural, and mountainous areas and islands face many challenges. These renovations need good infrastructure and equipment, but these are often lacking in those areas [...].”* (NCD, SH, p. 19)

Economic gaps as obstacles to equity

The wealth gap between families even in the same region is another barrier to equity, as one teacher argued: *“The increasingly popular application of information technology increases the gap between the rich and poor. Students from wealthy families have easier access to different [online] sources of information than those from poor families.”* (NTT, T, p. 14)

Student capability gaps as obstacles to equity

Many educators perceived that high-achieving students get familiar with the changes in study methods more easily than low-achieving students and thus benefit more from renovations. This

may create even bigger gaps between high-achieving students and low-achieving students, which might well be a paradoxical, counter-productive effect of renovations.

One subject head said: *“Active and creative students benefit more from renovations. Many passionate students are active in raising questions, without teachers’ initiation. Those students who are ‘lazy’ and inactive or lack parents’ attention are at a disadvantage. The disabled students also have disadvantages in familiarizing themselves with new methods.”*
(NTT, SH, p. 11)

Another subject head explained: *“If student-centered methods are widely implemented, low-achieving students will have a lot of disadvantages. In such lessons, high-achieving students are usually dominant and low-achieving students are less active. Teachers also have enough time, in a lesson, to stimulate low-achieving students to present their ideas, while high-achieving students get better and better.”* (VVT, SH, p. 23)

b) Strategies to promote equity

Participants suggested three main strategies to address the issues of equity:

- ✓ *Teachers’ strategies to promote equity*
- ✓ *School policies to support disadvantaged students*
- ✓ *National policies to support disadvantaged students*

Teachers’ strategies to promote equity

Teachers’ strategies, elicited from interviews, included: personalized support to disadvantaged students; promoting an inclusive classroom environment where all students support one another; and tailoring tasks and activities to both high-achieving and low-achieving students. These strategies are reflected in the following selected instances:

“When a teacher raises an issue, active students always give answers first. Therefore, the teacher should approach each group to see which individual students need more support. The teacher should give those students verbal encouragement. The teacher can help those students to answer some questions. The teacher should timely commend those students like - “Today you have become more confident. Keep up!” This kind of support will help low-achieving students improve.” (TBL, T, p. 17-18)

“Students who have better conditions [from wealthier families] will gather together, they don’t play with poor kids. Teachers need to bring them together, encourage them to share things, and to show the harmony among students. We put rich and poor students in the same groups, learn and play together, and teach them that they should play and share things together. Similarly, students who perform well in class should sit with those who don’t do that well. If we just place high-achieving students in one group and low-achieving students in another group, it will create the embarrassment and sub-confidence among low-achieving students.” (TBL, SH, p. 14)

“A teacher must prepare for activities and tasks before class. I design tasks especially for low-achieving students to ensure they can catch up with the fundamental knowledge. For high-achieving students, I have to design tasks that aim to promote their potential. In teacher group meetings, we share these tasks with one another.” (T, p. 22)

School policies to support disadvantaged students

At the school level, school leaders and teachers highlighted a few strategies to promote equity, which included: *encouraging students to wear the school uniform; identifying and giving extra and free tuition to low-achieving students; and offering financial support to students from low-income families.*

One principal shared her school's strategies to enhance equity: *"Our school had strategies to reduce the gap between the rich and the poor, the high-achieving and low-achieving, and between the advantaged and disadvantaged. Firstly, we reviewed the list of students from poor families and requested for the support from the senior level as the current policies of the Government and Party. Secondly, we called for the financial support of possible individuals, within and outside the school, and organizations, in the form of scholarships or study tools."* (DL, P, p. 15)

One teacher explained how his school supported low-achieving students: *"There are three groups of students in the school: high achieving students, average students, and low achieving students. Teachers in the school pay more attention to supporting low achieving students. For example, there are two sessions – morning and afternoon per day in the school. Teachers spend the afternoon session giving further support to low achieving students."* (PM-pri, T, S3, p.15-16)

Another principal articulated her school's strategies to support disadvantaged students: *"The school has employed a number of ways to promote equity. Firstly, the school has given financial support to students from poor families, including lowering tuition fees. Secondly, the school requests students to wear uniforms to reflect the equality in education. Thirdly, the school has always encouraged teachers to provide [free] additional classes/lessons to low-achieving students in all grades/levels 6 - 9."* (NT, P, S3, p. 19-20)

National policies to support disadvantaged students

Some participants articulated their broader views to enhance equity in the process of implementing educational renovations. Equity in the school is vulnerable to the broader socio-economic factors. These participants argued, in the long term, that the government should have strong policies to support disadvantaged students. For example, one teacher suggested: *"It takes ages to address the poor-rich gap, especially in the remote, border, and island areas. It is necessary to have policies to support the education and social welfare in those areas. When we ensure the social welfare for*

all, both the rich and the poor have equal benefits. The renovation process will be a success.”

(PM-pri, T, p. 8)

Section 3: Impacts of Interventions, Challenges and Suggestions for Future

Research

3.1. Overview of evaluation process and data

This sub-section gives an overview of evaluation data collected in Stage 3. The project leader, with the assistance of the Research Associate, designed an evaluation form as a key instrument to gather data in Stage 3. This evaluation form was translated into the Vietnamese language and distributed to eight pilot schools twice: the first time in March 2018 (coded Time 1) and the other in May 2018 (coded Time 2). In each school, those teachers and leaders who were involved in implementing interventions were invited to respond to this evaluation form. Table 3 presents the number of respondents each time of data collection in each school. In total, there were 79 respondents in the first time of evaluation data collection (**Time 1**) and 117 respondents in the second time (**Time 2**).

Table 3. Number (No) of Respondents to Evaluation Forms

No	School	School Level	Region	No of Respondents Time 1	No of Respondents Time 2	Total No of Respondents
1	TBL	Primary	South/Rural	7	9	16
2	HVH	Primary	South/Urban	27	30	57
3	PMpri	Primary	Central/Rural	4	10	14
4	DL	Primary	Central/Urban	6	10	16
5	PCH	Secondary	South/Rural	5	9	14
6	VVT	Secondary	South/Urban	12	28	40
7	PMsec	Secondary	Central/Rural	9	10	19

8	NT	Secondary	Central/Urban	9	11	20
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The evaluation form aimed to record the implementation of interventions in the eight pilot schools. More specifically, it sought to: understand which interventions were being implemented in each school; track the progress (if any) of each intervention over time; and understand the possible impacts of these intervention on the school.

The evaluation form has three main parts. The first part comprises questions about the profile of intervention teams. The second part focuses on understanding the progress (if any) of each intervention, supporting factors, and challenges in implementing these interventions. The third part investigates the possible impacts of interventions on eleven aspects. These aspects were coded into five broad categories for analysis, as shown below. The evaluation form has both Likert scale and open-ended questions.

Category 1: Decision making process

- ✓ *Participative decision-making (Aspect 1)*

Category 2: Leadership

- ✓ *Support of senior leaders (Aspect 2)*
- ✓ *Instructional leadership (Aspect 7)*
- ✓ *Teacher leadership (Aspect 8)*

Category 3: Collaboration

- ✓ *(General) teacher collaboration (Aspect 3)*
- ✓ *Collaborative action learning (Aspect 4)*
- ✓ *Team confidence (Aspect 5)*
- ✓ *Team engagement (Aspect 6)*

Category 4: Parental involvement

✓ *Parental involvement (Aspect 9)*

Category 5: Student learning

✓ *Student enjoyment of learning (Aspect 10)*

✓ *21st century competences (Aspect 11)*

In general, schools chose to implement three of the following interventions. In these interventions, schools reported that mostly, only teachers and school leaders participated in the implementation and parents were hardly involved.

- **Intervention 1: Applied, holistic, competency-based curriculum**
- **Intervention 2: Student-centered pedagogy**
- **Intervention 3: Formative assessment**
- **Intervention 4: Collaborative action learning model**
- **Intervention 5: Leadership**

3.2. Summary of impact

This sub-section presents five key findings drawn from the responses to Likert scale questions on the perceived impacts of each intervention, followed by participants' answers to the respective open-ended questions. These five key findings provide an overview of the respondents' perceptions of the impacts of interventions. Appendices 14-18 present coded responses to the perceived impacts of each intervention. Sub-Section 3.3 offers an example of analyzing perceived impacts of Intervention 1.

Key finding 1

The interventions had greatest impact on students' enjoyment of learning. Teachers and students recorded their general experience that teaching and learning were more enjoyable, and teachers' overall reactions were that the intervention lessons brought more student engagement. Interventions were aimed at introducing more student-centred methods aimed at 21st century

competences, such as problem solving, creative thinking and collaboration skills. A majority of respondents rated “significant influence” for student engagement/enjoyment of learning (Aspect 10) and “moderate-to-significant influence” for students’ learning of 21st century competencies (Aspect 11).

One teacher observed: *My students had actively been participating in the interventions: they were more active in learning activities, with the teacher’s facilitation.* (DL, T)

One head of physics subject group said: *My students were very interested and engaged in the experiments in generating electricity from a lemon, a potato, or river water.* This subject head further elaborated on how his interventions influenced students’ learning 21st century competencies: *These experiential activities were helpful in promoting - students’ independent study, applying knowledge into life, personal extra-curricular activities, teamwork, and public speaking skills.* (NT, SH)

Key finding 2

The interventions had the effect of stimulating collaboration between and among teachers and middle level leaders in their schoolwork (Aspect 3). They felt the level of support for one another in implementing the chosen interventions in their schools had risen appreciably. The data also suggested that these interventions had promoted the use of collaborative action learning (CAL) (Aspect 4) in the schools; however, the influence of interventions on Aspect 4 was not as strong as that on Aspect 3.

Alongside increased collaboration, the interventions had some positive influences on teachers’ collective efficacy and engagement. Middle level managers felt more confident of their team’s capabilities to enact change after engaging in renovation activities.

One teacher said: *We [teachers] together made lesson plans and shared about communications skills.* (PM, D5-T1)

One level head shared: *Teachers had meetings and discussion to share professional experience and build mutual trust. We together discussed and constructed plans in groups and across the school.* (HVHC2-T1)

Key finding 3

Despite the shortened and relatively brief intervention period, there were some indications that leadership at both teacher and senior school leader levels, was being influenced. Respondents perceived that they had received more support from their senior school leaders to implement changes. Senior school leaders were perceived to have enacted moderately more instructional leadership. Respondents also reported that teachers had had more opportunities to exercise their leadership roles and to lead changes through implementing interventions.

One senior school leader said: *The board of senior leaders encouraged teachers to change their traditional practices to employ more student-centered methods and organize experiential activities for students.* (NTB1-T1)

One subject head said: *Teachers identified needs, for example, equipment or change in student assessment and proposed ideas to the board of senior leaders.* (VVTD11)

One teacher said: *Teachers in our schools shared new practices with one another to implement renovations.* (TBLC2-T1)

Key finding 4

Generally, respondents perceived the impact of interventions on parental involvement to be very low, and less than on other aspects. Respondents reported that most schools had hardly involved parents in the implementation of these interventions (except one school which had embarked on an intervention to involve parents much more in their children's reading scheme, hence furthering a closer partnership between teachers and parents). Apart from this, other teacher respondents provided a few examples of parental involvement:

One teacher said: *Some parents (if conditions allow) guided their children to do the online search for assignments.* (VVTB1)

One level head said: *Some parents are frequently in touch with teachers to update their children's learning.* (PM1C1-T1)

Key finding 5

The period between the start and finish of the interventions from the project viewpoint (clearly the interventions are not meant to finish with the end of the project, but one hopes for sustainability and institutionalizing of practices in the schools) was short (just under 4 months). It is to an extent impressive that the changes in practices noted above were evidenced. But it also raises issues about the minimum length of interventions needed to have impact (it would seem to vary between schools, depending on their receptivity and readiness) and other factors, not least, the quality of school leadership and management.

3.3. Analysis of impact

Intervention 1: Applied, Holistic, Competency-Based Curriculum

Number of schools

Six of eight schools (3 primary schools and 3 secondary schools) implemented Intervention 1. In total, there were 113 respondents, across these six schools, to the evaluation forms (*Time 1: 51 respondents; Time 2: 62 respondents*). Appendix 14 shows the responses to the perceived impact of Intervention 1 on eleven aspects.

Impact on participative decision-making (*Aspect 1*)

In general, respondents perceived that decision-making processes in their schools had become more participative, if only to a small extent. For example, between Time 1 and Time 2, approximately 71% of respondents rated “slightly more” in Time 1 and this decreased to 55% in

Time 2, whereas 27% of respondents rated “moderately more” in Time 1, and this increased to 55% in Time 2.

Impact on leadership (*Aspect 2, Aspect 7, & Aspect 8*)

Overall, respondents perceived that senior school leaders had exercised more proactive support (Aspect 2) and moderately more instructional leadership practices (Aspect 7) for implementing changes in alignment to renovations. In Time 1, roughly 67% of respondents rated “much more” to Aspect 2 and 82% of respondents rated “moderate influence” to Aspect 7. In Time 2, approximately 76% of respondents rated “much more” to Aspect 2 and 73% of respondents rated “moderate influence” to Aspect 7.

In terms of leadership at teacher level (Aspect 8), approximately 67% of respondents perceived that Intervention 1 had made moderate influence on teacher leadership in their schools in Time 1 of data collection. In Time 2, 79% of respondents perceived that Intervention 1 had made moderate influence on teacher leadership in their schools.

Impact on teacher collaboration (*Aspect 3, Aspect 4, Aspect 5, Aspect 6*)

In general, respondents perceived there was substantially more collaboration amongst teachers either moderately or substantially. In Time 1, approximately 59% of respondents rated “much more” to collaboration between and among middle level teachers and teachers (Aspect 3); 52% of respondents rated “moderately more” to teachers’ collaborative action learning (Aspect 4). In Time 2, 67% of respondents rated “much more” to Aspect 3; 68% of respondents rated “moderately more” to Aspect 4. In addition, teachers had become moderately more confident in their team (Aspect 5) and more engaged in team activities (Aspect 6).

Impact on parental involvement (*Aspect 9*)

As seen in Appendix 14, respondents’ perceptions of the impact of Intervention 1 on parental involvement (Aspect 9) varied greatly, in comparison with the other aspects, though some though limited impact was reported.

Impact on student learning (*Aspect 10, Aspect 11*)

Respondents perceived that students were becoming much more engaged in their learning (Aspect 10) and that Intervention 1 had moderate, positive influence on students' learning of 21st century competencies (e.g., problem solving, creative thinking, and teamwork). In Time 1, approximately 61% of respondents rated "significant influence" on student enjoy/engagement of learning (Aspect 10); around 59% of respondents rated "moderate influence" on students' learning of 21st century competencies (Aspect 11). In Time 2, approximately 71% of respondents rated "significant influence" to Aspect 10; the same percentage rated "moderate influence" to Aspect 11.

3.4. Lessons learnt and suggestions for future research

Reflecting on lessons learnt from the current research project, we wish to highlight some of the challenges we have to date encountered, and accordingly, offer some suggestions for our future research in Vietnam.

Identification

Firstly, intervention studies are typically challenging and require substantial commitment and devotion of the research team and local research partners. Such studies also require productive communication and collaboration of all members in the research team and partners over variable, but often, long periods of time. Consequently, it is important to identify and develop partnerships with local HE partners who have the capabilities and motivation to devote high commitment to execute the research programme. We feel we have acquired useful experience of what is required to work collaboratively and effectively with local partners, and we are in a good position to distinguish what each of them can bring to intervention projects.

Secondly, it is vital that selected pilot or case schools remain committed to participating in the intervention for the whole period. We experienced some variability in the motivation of the schools, one or two of which gave the impression of 'cruising', thinking they were doing a good job, when a more critical self-evaluative stance on their part would have been shown there was considerable scope to improve the adoption of new practices in line with government renovations.

Equally, it is important for intervention pilot schools to demonstrate strong willingness to collaborate with the research team in enacting changes in alignment with the needs of renovations in Vietnam. Surprisingly, although only in one or two schools, we found a complacency that expressed itself by not seeming to take the renovations seriously, on the grounds that they thought they were doing a good job already (keeping to traditional school practices), and the parent body was endorsing this by expressing its satisfaction with the *status quo*.

Training

The current research organized two training workshops (stage 2 of the project) in the South (HCMC) and Centre of Vietnam (Hue). The representatives of 8 pilot schools and research partners provided positive feedback on the training workshop in Stage 2. General feeling was that the workshops gave them a good understanding of the process of change implementation as well as relevant aspects, for example, formative assessment, student-centered teaching methods, instructional leadership, and teacher leadership. They also found very informative the international research and evidence on school reforms/renovations, especially the experiences of Singapore, to which they pay great heed, being a ‘local’ neighbor with highly acknowledged acclaim. It was particularly helpful that the PI and associate both had close knowledge of Singapore reforms. Each workshop was spread over 5 days and ambitiously tried to cover all aspects of the renovation. Sessions included short presentations, followed by discussions and practical activities. Within a short time frame, the research team found it difficult to provide the time to do justice in a detailed training way, to all of those critical issues. At the same time, there were many different stakeholders present (each workshop was attended by 30 people) academics (local research partners) and practitioners (teachers & school leaders) and DOETs – the local district inspectors and advisors, each of whom had their own interests. In retrospect, we would have liked more time to commit to participant engagement in the practical activities.

Thirdly, it is recommended that future research conduct two types of workshops be tailored to the specific needs of both academics and practitioners. The first type of workshop should focus on developing the capacities of pilot schools and providing hands-on training on pedagogy, assessment, and leading and implementing change. The second type of workshop should prioritize building capacities for local researchers, for example, training and sharing research skills (e.g., observation, interviewing, & data analysis).

Intervention

The intervention stage of the current project lasted 15 weeks. During this stage, pilot schools received the support of the research team and Vietnamese research partners. It was a challenge to track the progress and impacts of interventions in the schools over such short period of a few months. The research team made it clear to local partners and pilot schools that change/renovation is a process that takes time (often years) to incorporate into daily practices and the success depends on the efforts of school leaders, teachers and relevant stakeholders.

Therefore, the fourth suggestion is that future research should extend the intervention period to a period of at least one year to measure the impacts of interventions. This prolonged intervention period clearly requires commitments of time, capabilities, efforts, and finance from all relevant parties. To this end, we feel it is vital that, where possible, the research team builds its intellectual, social and cultural capital in a sustained way by working together over time. We feel we have been able to identify good partners, and identified the conditions under which interventions are most likely to succeed, in Vietnam. We look forward to building this capital further in developing future research opportunities.

Appendices

Appendix 1: Changes in teaching & learning

The extent to which policy renovations in teaching and learning had been implemented was measured using teacher responses to eight items using a four-point scale (1 = No changes to 4 = Many major changes). Results of Rasch residual-based PCA (Table 1) showed that the eight items loaded onto one latent factor, Changes in teaching-learning, explaining 52.3% of the total variance. The magnitude of the first contrast was 1.88.

Table 1. Measures and PCA for Changes in teaching-learning.

Items	Measures (logits)
Q2. Changes to textbooks	1.17
Q3. Changes to teaching materials	0.50
Q5. Changes to teacher professional development	0.32
Q6. Changes to teaching and learning – curriculum content	-0.03
Q9. Changes to teaching and learning - teacher expectations of students as learners	-0.20
Q7. Changes to teaching and learning - ways students learn	-0.35
Q1. Changes to teaching and learning - teaching methods/practices	-0.61
Q8. Changes to teaching and learning - methods of student assessment	-0.80

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 16.77 100%	100%
Variance explained by measures	= 8.77 52.3%	52.1%
Unexplained variance (total)	= 8.00 47.7%	47.9%

Unexplained variance explained by first contrast = 1.88 11.2%

The person and item separation reliabilities were 0.83 and 0.98 respectively. The Cronbach alpha for this scale was 0.87. The results indicated that respondents perceived that among the different aspects, changes to teaching and learning (Q1) and methods of student assessment (Q8) were implemented the most while changes to textbooks used were implemented the least (Q2).

Appendix 2: Changes in school structure

The extent to which policy renovations in school structure had been implemented was measured using teacher responses to five items using a four-point scale (1 = No changes to 4 = Many major changes). Results of Rasch residual-based PCA (Table 2) showed that the five items loaded onto one latent factor, Changes in school structure, explaining 56.6% of the total variance. The magnitude of the first contrast was 1.52.

Table 2. Measures and PCA for Changes in school structure.

Items	Measures (logits)
Q10. Changes to school structures – organization of subject departments	0.66
Q11. Changes to school structures - timetable	0.29
Q13. Changes to school structures – opportunities for teacher collaboration in teaching	-0.09
Q12. Changes to school structures – student grouping within the class and between classes	-0.21
Q4. Changes to teacher supervision by school leaders	-0.64

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 11.52 100%	100%
Variance explained by measures	= 6.52 56.6%	56.3%
Unexplained variance (total)	= 5.00 43.4%	43.7%
Unexplained variance explained by first contrast	= 1.52 13.2%	

The person and item separation reliabilities were 0.77 and 0.96 respectively. The Cronbach alpha for this scale was 0.83. The results indicated that respondents perceived that among the different aspects, changes to teacher supervision by school leaders (Q4) were implemented the most while changes to the organization of subject departments were implemented the least (Q10).

Appendix 3: Changes in school autonomy

The extent to which policy renovations in school autonomy had been implemented was measured using teacher responses to four items using a four-point scale (1 = No changes to 4 = Many major changes). Results of Rasch residual-based PCA (Table 3) showed that the four items loaded onto one latent factor, Changes in school autonomy, explaining 57.7% of the total variance. The magnitude of the first contrast was 2.04.

Table 3. Measures and PCA for Changes in school autonomy.

Items	Measures (logits)
Q15. Changes to school autonomy – more decision making to teachers	0.64
Q16. Changes to school autonomy – more decision making to parents	0.27
Q17. Changes to school autonomy – more decision making to students	-0.05
Q14. Changes to school autonomy – more decision making to school managers	-0.87

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 9.47	100%
Variance explained by measures	= 5.47	57.7%
Unexplained variance (total)	= 4.00	42.3%
Unexplained variance explained by first contrast	= 2.04	21.5%

The person and item separation reliabilities were 0.77 and 0.97 respectively. The Cronbach alpha for this scale was 0.82. The results indicated that respondents perceived that among the different aspects, devolvement of decision-making to school managers (Q14) were implemented the most while changes to empower teachers (Q15) were implemented the least.

Appendix 4: Enabler - *Policy guidance*

The extent to which policy guidance has been provided was measured using teacher responses to seven items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree). Results of Rasch residual-based PCA (Table 4) showed that the seven items loaded onto one latent factor, Policy guidance, explaining 69.20% of the total variance. The magnitude of the first contrast was 1.96.

Table 4. Measures and PCA for Policy guidance.

Items	Measures (logits)
Q24. Teachers in this school feel they can seek advice on the renovations if they need it	0.71
Q23. The Ministry of Education has given clear guidance on what schools should do in the renovations	0.14
Q18. The aims and goals of the renovation have been clearly explained	0.08
Q20. There has been clear guidance to me on what I am expected to do in order to implement the renovations	-0.06
Q19. There has been clear guidance on what the school is expected to do in order to implement the renovations	-0.22
Q21. School leaders adequately address teachers' concerns on policy renovations	-0.23
Q22. School leaders clearly explain how teachers can improve teaching and learning through the renovations	-0.42

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 22.73 100.00%	100.00%
Variance explained by measures	= 15.73 69.20%	69.00%
Unexplained variance (total)	= 7.00 30.80%	31.00%
Unexplained variance explained by first contrast	= 1.96 8.60%	

The person and item separation reliabilities were 0.91 and 0.93 respectively. The Cronbach alpha for this scale was 0.95. The results indicated that respondents perceived that among the different aspects, there had been clearer guidance on how teachers could improve their teaching and learning (Q22) while teachers were less certain they could seek advice on the renovations when they needed it (Q24).

Appendix 5: Enabler - Resources

The extent to which there were sufficient resources to implement the reforms was measured using teacher responses to seven items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree). Results of Rasch residual-based PCA (Table 5) showed that the seven items loaded onto one latent factor, Resources, explaining 55.20% of the total variance. The magnitude of the first contrast was 1.62.

Table 5. Measures and PCA for Policy guidance.

Items	Measures (logits)
Q30. This school has benefitted from parents making increased financial contributions to fund the renovations	0.94
Q25. This school has sufficient funds to implement the renovations	0.37
Q27. This school has sufficient computer equipment to implement the renovations	0.23
Q31. This school has sufficient instructional space (eg classrooms) to implement the renovations	0.18
Q28. This school has sufficient curriculum materials to implement the renovations	-0.32
Q29. This school has sufficient connectivity to the Internet to implement the renovations	-0.66
Q26. This school has sufficient teachers to implement the renovations	-0.74

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected	
Total variance in observations	= 15.62	100.00%	100.00%
Variance explained by measures	= 8.62	55.20%	55.20%
Unexplained variance (total)	= 7.00	44.80%	44.80%
Unexplained variance explained by first contrast	= 1.62	10.40%	

The person and item separation reliabilities were 0.81 and 0.99 respectively. The Cronbach alpha for this scale was 0.85. The results indicated that most respondents perceived that there were sufficient teachers to implement the renovations (Q26) but less so for financial contributions from parents (Q30).

Appendix 6: Enabler - *Teacher professional development*

The extent to which teachers were professionally developed to implement the renovations was measured using teacher responses to five items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree).¹ Results of Rasch residual-based PCA (Table 6) showed that the five items loaded onto one latent factor, PD, explaining 59.50% of the total variance. The magnitude of the first contrast was 1.74.

Table 6. Measures and PCA for Policy guidance.

Items	Measures (logits)
Q35. Teachers in this school have been able to learn new skills and knowledge needed for the renovation by attending courses provided by university, college or government	0.55
Q32. New teachers coming to this school are supported with induction training for the renovations	0.28
Q37. Teachers in this school have been able to look for resources (e.g., online or from books) on how teachers from other countries implement educational renovations effectively	0.02
Q34. Teachers in this school have been given professional development and training in new knowledge and skills for the renovation by attending training sessions inside the school	-0.41
Q36. Teachers in this school have been able to learn from more experienced colleagues from other schools on how to implement the renovations	-0.44

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 12.33 100.00%	100.00%
Variance explained by measures	= 7.33 59.50%	59.20%
Unexplained variance (total)	= 5.00 40.50%	40.80%
Unexplained variance explained by first contrast	= 1.74 14.1%	

The person and item separation reliabilities were 0.81 and 0.96 respectively. The Cronbach alpha for this scale was 0.86. The results indicated that most respondents perceived that they had been able to learn from experienced colleagues on how to implement the renovations (Q36) but less so from attending courses provided by universities, colleges, or the government (Q35).

¹ Q33 designed to measure this variable was excluded to conform to the criterion of unidimensionality for the scale.

Appendix 7: Enabler - Leadership

The extent to which school leaders were perceived to have facilitated implementation of the renovations was measured using teacher responses to eight items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree). Results of Rasch residual-based PCA (Table 7) showed that the eight items loaded onto one latent factor, Leadership, explaining 68.10% of the total variance. The magnitude of the first contrast was 2.08.

Table 7. Measures and PCA for Leadership.

Items	Measures (logits)
Q41. School managers in this school have already committed resources to improve the quality of teaching and learning in the school in line with the renovations	1.39
Q38. School managers have aligned the school vision to support implementation of the renovations	0.21
Q42. School managers in this school already have the knowledge and skills to take important decisions that were once taken centrally	0.09
Q45. School managers have already changed school structures – such as the timetable and department/subject committees – in order to implement the renovations	-0.03
Q39. School managers have explained the importance of the renovations to the school community (i.e. to teachers, students and parents)	-0.13
Q40. School managers in this school already have sufficient knowledge and skills to improve the quality of teaching and learning in the school	-0.21
Q44. School managers in this school have been given training on how to implement the renovations	-0.53
Q43. School managers in this school have been given training to manage the renovations	-0.79

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 25.10 100.00%	100.00%
Variance explained by measures	= 17.10 68.10%	68.00%
Unexplained variance (total)	= 8.00 31.90%	32.00%
Unexplained variance explained by first contrast	= 2.08 8.30%	

The person and item separation reliabilities were 0.91 and 0.98 respectively. The Cronbach alpha for this scale was 0.95. The results indicated that most respondents perceived that their school leaders were trained to manage the renovations (Q43) but they had difficulty agreeing that their

school leaders had committed resources to support teaching and learning in line with the renovations (Q41).

Appendix 8: Enabler - School culture

The extent to which teachers perceived the school culture to be facilitative of the renovations was measured using teacher responses to eight items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree). Results of Rasch residual-based PCA (Table 8) showed that the eight items loaded onto one latent factor, Culture, explaining 61.60% of the total variance. The magnitude of the first contrast was 1.84.

Table 8. Measures and PCA for Culture.

Items	Measures (logits)
Q53. Staff feel more empowered to make decisions since the renovations began	1.16
Q50. There are widespread changes in teachers' work that reflect the implementation of the renovations	0.62
Q51. Meetings in the school often include discussions of the renovations	0.27
Q46. New workplace values and norms have been established in the day-to-day activities of the school	-0.21
Q52. Relationships between managers and teachers have become more supportive since the renovations began	-0.30
Q48. There is greater willingness among staff in the school to embrace the changes required from the renovations	-0.37
Q49. There is shared understanding of the purpose of the renovations	-0.40
Q47. Teachers in the school are collaborating more since the renovations began	-0.77

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 20.81 100.00%	100.00%
Variance explained by measures	= 12.81 61.60%	61.60%
Unexplained variance (total)	= 8.00 38.40%	38.40%
Unexplained variance explained by first contrast	= 1.84 8.90%	

The person and item separation reliabilities were 0.90 and 0.98 respectively. The Cronbach alpha for this scale was 0.92. The results indicated that most respondents perceived that teachers in their school were collaborating more following the implementation of the renovations (Q47). However,

they had great difficulty agreeing that they were empowered to make decisions since the renovations began (Q53).

Appendix 9: Student learning outcomes

The extent to which teachers perceived that the renovations had contributed to holistic learning for students was measured using teacher responses to five items using a five-point scale (1 = Strongly disagree to 5 = Strongly agree). Results of Rasch residual-based PCA (Table 9) showed that the five items loaded onto one latent factor, Outcomes, explaining 62.00% of the total variance. The magnitude of the first contrast was 2.07.

Table 9. Measures and PCA for Outcomes.

Items	Measures (logits)
Q56. Teachers are giving more emphasis to preparing students as well-rounded future citizens since the renovations started	0.44
Q55. Teachers are giving more attention to raising the learning standards of low ability students since the renovations began	0.10
Q54. Teachers are giving more consideration to individual students with learning difficulties since the renovations began	0.02
Q57. Teachers have been emphasizing the school as a place where students see learning as enjoyable since the start of the renovations	-0.08
Q58. Teachers have been emphasizing the importance of students developing a sense of self-confidence in their learning since the renovations began	-0.48

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected	
Total variance in observations	= 13.17	100.00%	100.00%
Variance explained by measures	= 8.17	62.00%	61.80%
Unexplained variance (total)	= 5.00	38.00%	38.20%
Unexplained variance explained by first contrast	= 2.07	15.7%	

The person and item separation reliabilities were 0.84 and 0.86 respectively. The Cronbach alpha for this scale was 0.91. The results indicated that most respondents perceived that the school had been emphasizing the development of self-confidence in students (Q58) but less so in terms of preparing students for future citizenship (Q56).

Appendix 10: Looking to future implementation of renovations - *Perceived importance of school leadership*

The perceived importance of school leadership to the future implementation of renovations was measured using teacher responses to five items using a four-point scale (1 = Not important to 4 = Very important). Results of Rasch residual-based PCA (Table 10) showed that the five items loaded onto one latent factor, LeadershipForFuture, explaining 49.50% of the total variance. The magnitude of the first contrast was 2.05.

Table 10. Measures and PCA for LeadershipForFuture.

Items	Measures (logits)
Q59. Opportunities for bottom-up communication from schools to district/provincial government	0.83
Q60. Opportunities for schools to contribute to policy making through being consulted by government	0.82
Q62. School managers/leaders to take greater responsibility for the performance of students in their schools	-0.34
Q61. School managers/leaders to take greater responsibility for improving their schools' performance	-0.46
Q63. School managers/leaders to take more responsibility for motivating their teachers	-0.86

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 9.91 100.00%	100.00%
Variance explained by measures	= 4.91 49.50%	49.60%

Unexplained variance (total)	=	5.00	50.50%	50.40%
Unexplained variance explained by first contrast	=	2.05	20.70%	

The person and item separation reliabilities were 0.64 and 0.98 respectively. The Cronbach alpha for this scale was 0.82. The results indicated that respondents perceived that it was very important for school leaders to motivate their teachers for future implementation of the renovations (Q63). In contrast, respondents did not feel that creating opportunities for bottom-up communication between schools and the government was as essential in the implementation process (Q59).

Appendix 11: Looking to future implementation of renovations - *Perceived importance of teacher resources*

The perceived importance of making available various resources to help teachers implement the renovations in the future was measured using teacher responses to five items using a four-point scale (1 = Not important to 4 = Very important). Results of Rasch residual-based PCA (Table 11) showed that the five items loaded onto one latent factor, TeachersForFuture, explaining 46.60% of the total variance. The magnitude of the first contrast was 1.46.

Table 11. Measures and PCA for TeachersForFuture.

Items	Measures (logits)
Q67. Teachers are given teaching assistants to help them implement student-centred methods in large classes	0.54
Q64. Teachers are given smaller class sizes	-0.06
Q65. Teachers are given textbooks that contain a range of flexible teaching methods	-0.11
Q68. Teachers are given more class preparation time	-0.15
Q66. Teachers are given the responsibility of varying teaching methods to meet the different learning needs of individual students	-0.23

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 9.36	100.00%
Variance explained by measures	= 4.36	46.60%
Unexplained variance (total)	= 5.00	53.40%
Unexplained variance explained by first contrast	= 1.46	15.60%

The person and item separation reliabilities were 0.56 and 0.89 respectively. The Cronbach alpha for this scale was 0.84. The results indicated that respondents perceived that it was very important for teachers to be responsible for varying their teaching methods to cater to student learning needs (Q66) but less important for there to be teaching assistants to help implement student-centered methods in large classes (Q67).

Appendix 12: Looking to future implementation of renovations - *Perceived importance of school evaluation*

The perceived importance of school evaluation in future implementation of renovations was measured using teacher responses to three items using a four-point scale (1 = Not important to 4 = Very important). Results of Rasch residual-based PCA (Table 12) showed that the three items loaded onto one latent factor, EvaluationForFuture, explaining 50.70% of the total variance. The magnitude of the first contrast was 1.58.

Table 12. Measures and PCA for EvaluationForFuture.

Items	Measures (logits)
Q70. School evaluation criteria are made more demanding	0.78
Q71. School inspection is aimed more at school improvement	0.10
Q69. School evaluation criteria are aligned with key goals of the renovation	-0.88

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 6.09 100.00%	100.00%
Variance explained by measures	= 3.09 50.70%	50.70%
Unexplained variance (total)	= 3.00 49.30%	49.30%
Unexplained variance explained by first contrast	= 1.58 25.90%	

The person and item separation reliabilities were 0.58 and 0.98 respectively. The Cronbach alpha for this scale was 0.71. The results indicated that respondents perceived that it was very important for school evaluation criteria to be aligned with the key goals of the renovations (Q69) but less important for these criteria to be made more demanding (Q70).

Appendix 13: Looking to future implementation of renovations - *Perceived importance of parental involvement*

The perceived importance of parental involvement in future implementation of renovations was measured using teacher responses to four items using a four-point scale (1 = Not important to 4 = Very important). Results of Rasch residual-based PCA (Table 13) showed that the four items loaded onto one latent factor, ParentsForFuture, explaining 60.80% of the total variance. The magnitude of the first contrast was 1.58.

Table 13. Measures and PCA for ParentsForFuture.

Items	Measures (logits)
Q72. Parents are given more influence over their children’s education	0.21
Q75. Schools are made more accountable to parents for their performance	0.11
Q74. Parents are given more opportunity to assist the teacher in classroom learning	0.09
Q73. Parents are given opportunity to discuss their child’s progress with the teacher more frequently than at present	-0.41

PCA standardized residual variance (in eigenvalue units)

	Observed	Expected
Total variance in observations	= 10.21	100.00%
Variance explained by measures	= 6.21	60.80%
Unexplained variance (total)	= 4.00	39.20%
Unexplained variance explained by first contrast	= 1.58	15.50%

The person and item separation reliabilities were 0.00 and 0.84 respectively. The Cronbach alpha for this scale was 0.81. The results indicated that respondents perceived that it was very important for schools to give parents more opportunities to discuss their child’s progress with the teachers (Q73). In contrast, they had more difficulty agreeing that parents should be given more influence over their children’s education (Q72).

Appendix 14: Intervention 1 - Applied, Holistic, Competency-Based Curriculum

	Time 1						Time 2					
	A	B	C	D	NG	Total	A	B	C	D	NG	Total
Aspect 1: Participative decision-making	0	36	14	1	0	51	0	34	23	4	1	62
Aspect 2: Support of senior leaders	0	1	15	34	1	51	0	2	13	47	0	62
Aspect 3: Teacher collaboration	0	8	13	30	0	51	0	7	20	34	1	62
Aspect 4: Collaborative action learning	0	17	32	1	1	51	1	19	42	0	0	62
Aspect 5: Team confidence	0	3	37	7	4	51	0	1	48	12	1	62
Aspect 6: Team engagement	0	6	37	8	0	51	2	1	42	13	4	62
Aspect 7: Instructional Leadership	0	0	42	7	2	51	1	1	45	13	2	62
Aspect 8: Teacher Leadership	0	5	34	3	9	51	0	1	49	1	11	62
Aspect 9: Parental involvement	2	10	11	27	1	51	1	6	20	24	11	62
Aspect 10: Student enjoyment of learning	0	0	15	31	5	51	0	0	15	44	3	62
Aspect 11: 21st century competences	0	0	30	18	3	51	0	0	44	18	0	62

N.B. “Time 1” means the first time of evaluation; “Time 2” means the second time of evaluation

A = No change; B = Slight change; C = Moderate change; D = Much change; NG = No Answer Given; Total = Total Number of Respondents

Appendix 15: Intervention 2 - Student-Centered Pedagogy

	Time 1						Time 2					
	A	B	C	D	NG	Total	A	B	C	D	NG	Total
Aspect 1: Participative decision-making	0	47	27	2	1	77	0	57	46	5	6	114
Aspect 2: Support of senior leaders	0	3	31	42	1	77	0	7	49	55	3	114
Aspect 3: Teacher collaboration	0	6	41	29	1	77	0	18	49	44	3	114
Aspect 4: Collaborative action learning	0	38	33	4	2	77	0	42	57	10	5	114
Aspect 5: Team confidence	0	8	52	12	5	77	0	1	94	17	2	114
Aspect 6: Team engagement	4	8	49	13	3	77	5	3	75	25	6	114
Aspect 7: Instructional Leadership	0	1	62	11	3	77	2	3	73	22	14	114
Aspect 8: Teacher Leadership	0	6	53	7	11	77	0	9	88	2	15	114
Aspect 9: Parental involvement	7	17	16	29	8	77	23	16	33	25	17	114
Aspect 10: Student enjoyment of learning	0	0	24	47	6	77	0	4	31	73	6	114
Aspect 11: 21st century competences	0	1	48	24	4	77	0	3	77	30	4	114

N.B. “Time 1” means the first time of evaluation; “Time 2” means the second time of evaluation

A = No change; B = Slight change; C = Moderate change; D = Much change; NG = No Answer Given; Total = Total Number of Respondents

Appendix 16: Intervention 3 - Formative Assessment

	Time 1						Time 2					
	A	B	C	D	NG	Total	A	B	C	D	NG	Total
Aspect 1: Participative decision-making	0	44	18	1	1	64	0	48	39	4	5	96
Aspect 2: Support of senior leaders	0	4	23	36	1	64	0	5	35	54	2	96
Aspect 3: Teacher collaboration	0	29	24	7	4	64	1	37	36	21	1	96
Aspect 4: Collaborative action learning	0	41	19	2	2	64	0	48	34	6	8	96
Aspect 5: Team confidence	0	9	41	9	5	64	0	1	80	13	2	96
Aspect 6: Team engagement	1	7	46	8	2	64	3	2	62	24	5	96
Aspect 7: Instructional Leadership	0	1	53	6	4	64	2	3	58	21	12	96
Aspect 8: Teacher Leadership	0	4	47	6	7	64	0	8	73	1	14	96
Aspect 9: Parental involvement	7	13	9	27	8	64	18	13	25	24	16	96
Aspect 10: Student enjoyment of learning	0	2	15	41	6	64	0	1	21	69	5	96
Aspect 11: 21st century competences	0	1	42	16	5	64	0	1	64	28	3	96

N.B. “Time 1” means the first time of evaluation; “Time 2” means the second time of evaluation

A = No change; B = Slight change; C = Moderate change; D = Much change; NG = No Answer Given; Total = Total Number of Respondents

Appendix 17: Intervention 4 - Collaborative Action Learning Model

	Time 1						Time 2					
	A	B	C	D	NG	Total	A	B	C	D	NG	Total
Aspect 1: Participative decision-making	0	34	23	2	1	60	0	43	37	5	3	68
Aspect 2: Support of senior leaders	0	4	17	38	1	60	0	5	32	50	1	68
Aspect 3: Teacher collaboration	0	14	16	27	3	60	0	16	43	28	1	68
Aspect 4: Collaborative action learning	0	14	18	26	2	60	0	22	38	26	2	68
Aspect 5: Team confidence	0	6	40	9	5	60	0	1	72	14	1	68
Aspect 6: Team engagement	4	3	45	6	2	60	3	3	60	16	6	68
Aspect 7: Instructional Leadership	0	1	48	8	3	60	2	3	51	21	11	68
Aspect 8: Teacher Leadership	0	3	40	6	11	60	0	9	65	0	14	68
Aspect 9: Parental involvement	2	8	13	28	9	60	10	14	22	25	17	68
Aspect 10: Student enjoyment of learning	0	1	15	39	5	60	0	4	25	57	2	68
Aspect 11: 21st century competences	0	1	39	15	5	60	0	3	59	24	2	68

N.B. “Time 1” means the first time of evaluation; “Time 2” means the second time of evaluation

A = No change; B = Slight change; C = Moderate change; D = Much change; NG = No Answer Given; Total = Total Number of Respondents

Appendix 18: Intervention 5 - Leadership & Management

	Time 1						Time 2					
	A	B	C	D	NG	Total	A	B	C	D	NG	Total
Aspect 1: Participative decision-making	0	32	11	1	0	44	0	37	31	1	0	69
Aspect 2: Support of senior leaders	0	2	12	29	1	44	0	1	24	43	1	69
Aspect 3: Teacher collaboration	0	1	13	27	3	44	0	9	24	32	4	69
Aspect 4: Collaborative action learning	0	3	15	25	1	44	0	11	21	32	5	69
Aspect 5: Team confidence	0	0	36	3	5	44	0	0	63	4	2	69
Aspect 6: Team engagement	3	1	33	5	2	44	2	1	47	14	5	69
Aspect 7: Instructional Leadership	0	0	38	4	2	44	1	2	45	15	6	69
Aspect 8: Teacher Leadership	0	2	37	3	2	44	0	7	58	1	3	69
Aspect 9: Parental involvement	6	4	6	26	2	44	16	7	18	24	4	69
Aspect 10: Student enjoyment of learning	0	0	7	33	4	44	0	0	14	52	3	69
Aspect 11: 21st century competences	0	0	33	8	3	44	0	0	55	13	1	69

N.B. “Time 1” means the first time of evaluation; **“Time 2”** means the second time of evaluation

A = No change; B = Slight change; C = Moderate change; D = Much change; NG = No Answer Given; Total = Total Number of Respondents