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**LEARNING STUDIES IN HONG KONG SCHOOLS:
A SUMMARY EVALUATION REPORT ON THE 'VARIATION
FOR THE IMPROVEMENT OF TEACHING AND LEARNING'
(VITAL) PROJECT¹**

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INTRODUCTION

The VARIATION FOR THE IMPROVEMENT OF TEACHING AND LEARNING PROJECT (VITAL) was funded by the Hong Kong Education and Manpower Bureau over three years from 2005 to 2008, and based in the Centre for Learning Studies and School Partnership (CLASP) at the Hong Kong Institute of Education under the leadership of Professor Lo Mun Ling. The project involved the application of a unique combination of the Japanese and Chinese lesson studies tradition (see Lewis, Perry and Friedkin 2009) and a learning theory of variation developed at the University of Gothenburg in Sweden by Ference Marton and his co-workers (see Marton and Booth 1997). Lo (2006 p.135) summarises variation theory in the following terms:

According to the theory of variation, learning is a function of discernment and presupposes an experienced variation. In other words, people tend to notice things that change or vary. Numerous empirical studies indicate that it is possible to help students discern certain aspects of the intended object of learning by pedagogically making use of relevant patterns of variation, that is, keeping certain aspects constant and varying other aspects.

Lo claims (p.135) that previous research in Hong Kong that made use of variation theory as an analytic tool had shown:

Firstly, the effectiveness of the lesson was not related to the traditional distinction between teaching strategies (progressive or traditional, group work or direct teaching, etc.) adopted by the teacher. Secondly, better learning outcomes were related to how the teacher structured the content, what was kept invariant, and what was varied, i.e. the pattern of variation that emerged with respect to the content.

The VITAL Project therefore combined Asian and Western ideas about how to improve teaching and learning in classrooms that originated in Hong Kong in a rather unique form of theory informed action research (see Lo 2006 pp 136-137). A total of 120 schools were entered into the project in three cohorts (one cohort per year).

An independent evaluation of the project, by the authors, was commissioned and carried out over a

three-year period. The aims of the evaluation were to provide publicly accessible information about 1) the potential of learning studies as a pedagogical change strategy and 2) the conditions for optimising this potential.

The evaluation report argues that the key question for policy-makers is not whether the VITAL procedures as a whole can be institutionalised on a large-scale in schools, but whether they have the power when injected into the system to effect sustainable improvements in the pedagogical capabilities of teachers. It concludes that, on the basis of evidence assembled, they do.

QUESTIONS

The evaluator asked principals and teachers the following questions based on his understanding of the information needs of principals and their staff, academic facilitators, and government officials at the Education and Manpower Bureau (EMB).

(For the principal) Tell me the story of how the school came to be involved in the VITAL project?

(For the teachers) Tell me the story of how you got involved with this project?

What benefits do you hope to gain from involvement with the project?

What are the 'costs' of involvement, and are the benefits likely to outweigh them?

What for you would be the main indicators of success and failure with respect to the impact of learning studies in the school and the classroom?

Can you cite any evidence of impact (positive or negative) to date?

What do you see to be the main problems and difficulties in implementing learning studies in the school on a sustainable basis? Can they be resolved? If so, how?

MAJOR THEMES

1. How the schools got involved with the VITAL programme

1.1 Who selected the schools?

Evidence from the evaluation of the EMB funded programme of learning studies in primary and secondary schools suggests that the majority of the schools who responded to the questionnaire survey (50% return rate) were self-selecting and that in these schools the initiative was largely taken by the principal or a senior member of staff. In a minority of the respondent schools, teachers themselves were the initiators of the project. Some School Development Officers (SDOs), particularly at phase 1, did play a strong initiating role (see 1.1a).

In cases where the SDO initiated the involvement of a school this would tend to shape internal decisions about the curriculum area and staffing (see 1.1b). Often this was because such actions followed an external school review. Some schools were initially invited to participate by the Centre for Learning Study and School Partnership at HKIEd (see 1.1c). Many principals, however, initiated the involvement of their school in the programme (see also 1.1d). In this context the SDOs played a liaison role, which included the need to feel satisfied that the schools had good reasons for wanting to participate. The SDOs would want to know from the principal the reasons why they wanted their school involved.

1.2 The implementation of the VITAL Project in the schools tended to be centrally coordinated by the principal

The principals, in the main, decided which curriculum areas and staff were to be involved (see 1.2a). This was perhaps an inevitable consequence of the resource management implications of the VITAL Project.

1.3 Although many principals initiated communication with their SDO, with a view to becoming involved in VITAL, they did so in most cases only after being assured of a measure of staff support

Indeed some principals made bids to get involved in response to expressions of interest from their teachers. Principals' decisions about which curriculum area to select for the learning study and which teachers to involve often followed consultation with staff, rather than being made in an autocratic manner (see 1.3a and b). As one teacher from a VITAL Project school explained the principal's decision to approach the senior school development officer was only after engaging certain teachers in a process of information gathering and discussion.

There were cases where teachers initiated discussions with the principal following a course at the Hong Kong Institute of Education. Teachers' influence on principals often stemmed from their attending an in-service course or seminar organised by CLASP.

In one case the principal's communication to her staff about the possibility of participation in the VITAL Project activated a group of staff faced with the prospect of teaching the new core subject of Liberal Studies in the Senior Secondary Curriculum (see 1.3c). They felt that a learning study in the area of Integrated Humanities would be a useful preparation for them. Given the challenge and controversy surrounding the introduction of Liberal Studies it is interesting that few schools gave priority to preparing their teachers to teach a new subject that focused on contemporary issues.

1.4 School principals in responding to the questionnaire survey gave a variety of reasons for getting involved in the VITAL Project

These included: making classrooms more interactive learning environments; promoting more independent learning; building a collaborative professional culture through co-operative lesson planning and teaching; fostering a research stance to teaching though the use of variation theory.

In interview some principals spelt out even more specific reasons for involving their schools, such as the need for curriculum change/improvement in a particular Key Learning Area (KLA). One principal, for example, wanted to see teachers' teamwork promoted in the area of Chinese for both junior and senior secondary forms (see 1.4a). A number of principals perceived a greater need for change in the area of Maths as opposed to Languages.

Teachers working in the KLA selected by the principals were expected to comply with the requirements to undertaking the learning study. However, in the main teachers willingly engaged in learning study. Although many were not volunteers, as indicated above, they did not necessarily feel coerced by their principals (see 1.4b and c).

Some principals took the initiative to involve their school in response to their own interested subject area (see 1.4d). Others discerned a match between what VITAL had to offer and areas within the school that needed to be developed (see 1.4e and 1.4f).

Prior to involving his school in VITAL one principal had already associated his deputy and Chinese and English panel chairs with Professor Lo, Mun Ling's work on learning study. As a consequence the school gained experience of a learning study in the area of Chinese. In the context of VITAL the principal had hoped to secure additional resources and external support for developing teaching and learning in the area's of English and Liberal Studies (see 1.4g).

Some principals felt that external input from education professionals was essential to support staff development in their school (see 1.4h) and that one of the attractions of the VITAL Project was that such input could be secured without additional cost to the school. Some also referred to the possibility of obtaining a capacity enhancement grant to buy in substitute teachers and thereby to free the VITAL project teachers from a heavy additional teaching load.

1.5 There was evidence of some tension between the school development perspective of some principals, HKIEd's concern that the schools selected had demonstrated potential for improvement, and the EMB's/SDO's concern to distribute resources fairly and equitably across the schools (see 1.5a)

1.6 School Development Officers in the main played an important liaison role with schools and provided support to obtain necessary resources (see 1.6a and b)

The principals were asked (in the questionnaire survey) what value the involvement of the SDO's added to learning studies? The importance of front line teachers getting recognition from the wider

system for their commitment and effort to improve teaching quality was frequently cited, along with an appreciation of the encouragement, advice and support provided by most officers. Some principals also saw the involvement of the SDO as an indicator of the importance and significance of the project from the governments' point of view.

Less than one-third of teacher respondents to the questionnaire perceived added value from SDO's, which is perhaps not surprising since the latter's liaison role will mainly relate to principals. However, those teachers that perceived added value cited improved understanding of the difficulties they were facing in schools, an acceleration of the implementation process, their role in channeling resources from the government into the school, clarifying the EMB's point of view, providing access to the practical experience of other schools, and generally affirming the value of teachers involvement in the project. Some teachers also referred to the helpful way in which their SDO participated in group discussions and meetings.

In interview School Development Officers tended to stress the importance of their liaison role in the implementation process, for the pulling together of the disparate resources needed to support a learning study (see 1.6a).

The liaison role of the SDO included assessing the readiness of a school to participate in the project, and ensuring that the principal was committed to establishing the internal conditions for implementing learning study. Initially, with the first cohort of schools, SDOs tended to assume that their role was to monitor the project in their participating schools in accordance with their traditional role in the system as inspectors. However, it gradually became clear to them that their role was more one of support, not simply for implementing the specific requirements of the VITAL Project but also for ensuring the sustainability of learning study within the wider school context (see 1.6b).

In interview SDOs were asked to clarify the relationship between their role as officers of the EMB School Development Section and that of the officers in the School-based Professional Support Section of the EMB. One view expressed (see 1.6c) was that there was a difference of emphasis. The SDO's role was primarily to focus on the holistic development of schools, whereas the School-based Support Officers' role was perceived to be more focused on the imple-

mentation of specific school-based projects within the school. From this point of view the primary responsibility for providing external support for the VITAL Project rested with the HKIEd. (see 1.6c).

2. Building capacity for innovation in the H.K. educational system through the VITAL Project

2.1 *The project made a significant difference in schools with respect to effecting changes in the professional culture and in the capabilities of teachers*

The questionnaire survey asked principals whether the involvement in the VITAL project had made much difference in their schools and the working environments of the staff. The vast majority of the respondents (90% 53/60) felt that the project had made a lot of difference. The main difference cited was the development of a collaborative professional culture-cooperative lesson planning, peer observation, and deep discussion of classroom experiences. With respect to the latter some principals clearly associated the quality of the discussions between teachers with them acquiring a language – the terminology of variation theory – for talking about teaching and learning together. This supports Stenhouse's contention (1975 p.157) that teachers need a syntax of theory as a framework for analysing their teaching together. Other differences cited included an enhanced capability on the part of teachers at diagnosing students' misconceptions of the subject matter and the gaps between the teacher's intended object of learning and students' conceptions of it. Also reference was made to teacher's no longer imposing limits on some students' learning potential. The transference of capabilities acquired through a learning study to other lessons was cited as an indicator of impact, but there was some disagreement about the extent to which transference had occurred. This issue will be explored further in this report.

There was considerable overlap between principals' and teachers' perceptions of difference. Both tended to perceive impact on the professional development of front line teachers. However, in responding to the questionnaire teachers (159/232) tended to cite specific capabilities they had acquired in greater detail. These included improvements in subject matter knowledge, in interviewing, research

and teamwork skills, in identifying students' learning needs and potential, in 'assessment for learning' capabilities. Also, when asked whether the schools had followed up their involvement in the project with further learning studies over half of the teacher respondents said they had. In total these VITAL follow-up studies embraced all the main areas of the new curriculum.

2.2 *The involvement of academic subject experts and teacher development consultants from HKIEd in the learning studies process significantly accelerated the development of teachers' subject matter and pedagogical content knowledge in forms that enabled them to face up to the challenges of curriculum and pedagogical change at the classroom level*

The combination of external support from subject matter experts and seconded teachers serving as teacher development consultants (TDCs) appears to have been particularly effective in accelerating the acquisition of relevant knowledge and skills (see 2.2a). They were also seen as reliable informants about the VITAL project experience in other schools, such that teachers could learn from the experience of those schools and not simply repeat their mistakes.

The respective roles and responsibilities of Academic Consultants and TDC's were defined in the following terms:

Being a subject advisor – give advice on the knowledge and characteristics of the subject
Being a facilitator to stimulate and guide the participating teachers

It's difficult if there is no academic consultant. It's difficult. I can't think of an effective substitute at this moment. ... External advice is more acceptable. Teachers tend to consider it more seriously, though not necessarily taking it all. But conflicts would arise easily among peers. ... It takes an academic consultant of strong reasoning power to convince these teachers (Lai).

TDCs play a significant role of coordination, administration and organisation.

TDCs are able to direct the whole work flow and understand the concerns and difficulties of the teachers.

TDCs are able to give professional advice according to their rich experiences gained in other cases.

TDCs provide good groundwork that allows academic consultants to work on academic issues.

TDCs provide theoretical support of variation theory as well as practical classroom information.

In one interview it was suggested that teachers would take more notice of advice from an external source than from their peers and colleagues. Few teachers it appears can become “prophets in their own country.”

2.3 The potential for securing non-coerced system wide educational change appears to be greater in HK than in some western countries. Why?

In explaining evidence of high impact the organizational culture in Hong Kong's schools might be significant. Schools as organisations and work places tend to be responsive to holistic as opposed to piece-meal visions of change. This explains how some principals successfully managed to use learning studies as a way of getting their teachers to shift from individual to collaborative lesson preparation and teaching over time with a minimum of resistance (see 2.3a and b). They used a specific set of actions – the VITAL Project – to accomplish a school wide transformation in the culture of teaching and learning. Teachers tended not to resist involvement in the project – many enthusiastically embraced it – providing the principal and other senior teachers openly acknowledged and dealt with the issue of increased workload and established conditions and incentives that were experienced as benefits that outweighed the costs of change. The major resistance to change in Hong Kong stemmed from increases in workload rather than educational philosophy (see 2.3 a and c). However, in general teachers expected the principal to initiate change on the basis of a shared rather than purely personal vision of what their school as a whole can become.

In leading a successful change process within their schools certain principals appeared to be like weavers knitting different strands of opportunity together into a harmonious whole in response to situations as they unfolded over time. This can be contrasted with the more western model of school leadership involving setting specific and fixed standards or targets in advance of situations (see 2.3d).

One principal contrasted the ‘weaver’ style of leadership, aimed at cultural transformation over time, with the leadership training for the new senior secondary curriculum reforms (within the 3+3+4 system of secondary and higher education). The latter it was argued abstracted the curriculum reform process from the cultural context of the school and in doing so rendered it a technology of change rather than a normative and re-educative process of transformation.

2.4 Some School Development Officers appeared to use learning studies as a measure/indicator of a school's capacity for innovation and change.

The successful implementation of the VITAL Project was seen by some SDOs to be indicative of a very high level of capability for change in a school. Lack of success indicated where deficiencies in capability lay. It helped to identify significant areas for improvement (see 2.4a). A number of SDOs saw the involvement of a school in the project as an opportunity to influence cultural changes in the school that have a direct impact on the quality of teaching and learning. Indeed teachers themselves often judged the success of a learning study in terms of its contribution to the development of a common professional culture.

3. The learning study as method

3.1 Teachers generally experienced learning studies as a rigorous school-based curriculum development method with a well-defined and tangible package of procedures, which has significant impact on the quality of teaching and learning

The method involves collaborative lesson planning meetings, pre and post-lesson testing, peer observations of lessons, post-lesson interviews with a group of students, post-lesson conferences, and video recording of lessons. Teachers learn to:

- systematically review the effectiveness of their teaching by evaluating students' performance and perceptions in the lesson.
- evaluate students learning difficulties and adjust their teaching to provide better support in overcoming them.

keep the learning objectives precise and concise.

establish meaningful links between subjects (e.g. the humanities) through collective lesson planning.

develop their 'assessment for learning' capabilities, although they did not always recognise them as such.

Some principals saw the learning studies method as a repackaging of action research that teachers feel comfortable with because it takes away the fear associated with the term 'research' (see 3.1a),

Staff in the Centre for Learning Study and School Partnership (CLASP) also viewed the method as a form of action research, but in interview emphasised the way it incorporated assessment as an integral component. Assessment in the context of the learning study was not viewed by CLASP staff as an activity that 'drove' the teaching and learning process but as an integral dimension of it when conceived as a reflective process. CLASP staff were keen to point out that the 'assessment for learning' activity embodied in the method is a feedback system that covers both the learning of students and teachers (see 3.1b).

The change in teachers' assessment practices through the learning study method is important, given that government surveys of teachers' perceptions of the HK curriculum reforms have shown that this is an area of change in which teachers have faced considerable difficulties.

However, some teachers discerned problems with the assessment aspect of the method. The focus on a single lesson was considered too short a time span to draw conclusions about the extent to which meaningful learning has taken place (see 3.1c).

Other teachers argued that the pre- and post-test began to shape the pedagogy and over-ride their own judgments about appropriate content and materials (see 3.1d).

3.2 In some circumstances the method broke down. Formal procedures were observed but the link between research and lesson development got weakened in the process (see 3.2)

3.3 Academic subject experts from the HKIED (departmental rather than CLASP staff) testified to the difference the use of the learning study

method made to the quality of teaching and learning

External subject consultants talked about the learning study effecting shifts from 'surface' to 'deep' learning, increasing the willingness of teachers to change their pedagogy, promoting a greater understanding of children's learning difficulties, changing teaching from an individualistic to a co-operative activity and giving students a voice in lesson planning.

3.4 Teachers and students tended to enjoy the learning study process

This was evidenced in the case of teachers by their high level of engagement in meetings and the positive feedback they gave to panel chairs and principals. In the case of students it was evidence in their enhanced engagement in learning tasks (see 3.4).

4. Do the costs of a VITAL Project learning study outweigh the benefits?

4.1 The consumption of scarce time and resources during a VITAL project lesson study is very costly

A few SDO's felt that the concentration on a small amount of content involving many meetings lasting several weeks was unlikely to yield benefits to teachers and schools that outweighed the costs of time and effort and financial expense (see 4.1a).

However, when teachers were asked in the questionnaire survey "Do the benefits to your school from doing a learning study outweigh the costs?" approximately two-thirds (68%) of the 159 respondents said they did. This still leaves approximately one-third of the respondents feeling that the costs outweighed the benefits. In this section we will summarise both the costs and benefits cited by participants in the VITAL Project. In general we felt that there was a considerable consensus about both costs and benefits, with the different outcomes of the cost-benefit calculation arising from differences in the weighting placed on perceived benefits in relation to costs. Two explanations for this difference in weighting are tentatively offered (see 4.2); namely, in terms of the estimated risk of getting poor examination results, and the ability of the principal and school leaders to create

connections with other programmes and developments in the school.

In responding to the questionnaire survey teachers were asked to list the main costs of doing a learning study. Their responses largely refer to the amount of time given to meetings in both school and after-school time and the strain this imposed on the distribution of staff resources to cope with the normal work load of teachers.

Without doubt the majority of teachers experienced a learning study as so time consuming that normal tasks, such as marking and advising students and extra-curricula activities, had to be set aside or reduced during the period in which it took place (see 4.1b).

The implementation of a learning study was not only costly of teacher time but also of management time. Some principals felt that the investment of their time and effort in securing conditions for learning study was worthwhile, inasmuch as it resulted in permanent changes in the mindset and skills of teachers even though the full scale learning study itself proved to be unsustainable as a part of normal practice on a continuous basis (see 4.1c),

One principal in particular felt that given the collaborative culture in the school, which was newly established, much had been done to release the workload and pressures on teachers, with the implication that something like the full scale learning study might be sustainable (see 4.1d).

4.2 In the context of the Hong Kong education reforms many teachers were experiencing the demands of multiple changes across the curriculum (see 4.2a and b) in addition to the normal demands exerted by a high-stakes examination system

Teachers not only had to put aside many normal tasks during their involvement in a learning study but also experienced change agendas and programmes that conflicted in practice. This is particularly the case with respect to the radical changes that were taking place in the secondary school curriculum (see 4.2a). Principals appear to have found it increasingly difficult to manage the implementation of the HK reforms as a holistic process, with the result that they posed conflicts with respect to resource allocations (see 4.2b).

In the questionnaire survey, however, principals cited a number of ways in which they were seeking to connect learning studies, particularly its theoretical framework and research stance, to whole school curriculum development, initiatives to improve teaching and learning, and lesson planning in general.

There was evidence that in schools with band 3 intakes teachers felt that they could not risk bad exam results by departing too radically from tried and tested methods that minimise such a risk. This made it difficult for such schools to create the time and space for a VITAL learning study (see 4.2c). Even in higher band schools that managed to create space without much difficulty there was a feeling that giving priority to learning studies on a frequent basis was in conflict with the imperative to maximise examination results (see 4.2d).²

Although many principals were able to create conditions for a single lesson study they felt they were unable to sustain these conditions as a permanent feature of school-based curriculum and teacher development. The level of teacher engagement that is necessary is too great given the current pressures on schools to maximize examination success, in spite of the perceived benefits of such engagement for the quality of teaching and learning (see 4.2d).

4.3 Many teachers found that the benefits from a single full-scale learning study outweighed the costs in time. They argued that what they learned from the full-scale study could subsequently be applied to their teaching generally in less time consuming and smaller scale learning studies (see 4.3a). The former tended to be viewed as a significant learning experience that was necessary if not sufficient to improving the effectiveness of their teaching more generally (see also 4.3b)

Many principals and teachers did not in the main view the VITAL learning study as an integrated component of school-based curriculum development. It tended to be viewed as an intervention that is of value as both an initial and top-up 'injection of capabilities' for effecting curriculum and pedagogical change in the school (see 6.2-6.5, for examples of capabilities). Such interventions often take place where principals and their staff discern space for change within the organisation.

The costs of a full-scale VITAL learning study were perceived to outweigh the benefits when there was little evidence of transference of knowledge and skills (capabilities) into normal practice in classrooms. Most teachers and students appear to have experienced regression back to the previous pedagogical routines, which fell short of total regression. However, many of the teachers – approximately two-thirds of the questionnaire respondents – may well have perceived the benefits of the VITAL learning study to have outweighed the costs because they were able to transfer something of the capabilities they had acquired in the process into their normal practice in sustainable forms. The significant minority of questionnaire respondents – approximately one-third – who perceived the costs to outweigh the benefits were perhaps those who felt that they were unable to transfer capabilities from the VITAL study into normal practice (see 4.3c).

4.4 Most of the principals interviewed were sufficiently appreciative of the benefits of a VITAL Project learning study that they tried to find ways of adapting the method to achieve more sustainable forms, given the inevitable constraints on time and resources

In the questionnaire survey principals cited a variety of ways the package of activities introduced through the VITAL Project was being modified and changed to render learning studies more sustainable in their schools. The interviews with principals also elicited variations in their views concerning the main features of a condensed form of learning study. Many principals proposed to reduce the scale of the lesson study by restricting the number of teachers involved to pairs or triads (see 4.4a).

Some principals felt that the videotaping of lessons could be eliminated (see 4.4a) or at least its use of manpower drastically reduced from that which prevailed in VITAL (see 4.4b). Video taping lessons was of some concern on the grounds of its obtrusiveness and the extent to which it added to the numbers of observers present in lessons.

There were a number of principals who proposed to retain the research elements of the VITAL Project, particularly peer observation (see 4f although see also 4.4e), but there was some variation in the emphasis they placed on the use of variation theory and its

practical applications in the forms of the pre and post-testing and interviews with students (see 4.4c and d).

One principal proposed to consult teachers about the components of an adapted, highly focused and more manageable form of learning studies within a basic framework of collaborative inquiry (see 4.4f).

One SDO reported that two schools would experiment with both a full and reduced version of learning study with a view to longer-term sustainability beyond the VITAL Project (see 4.4g). The emphasis in the reduced version would be placed on preparatory lesson planning and the pre and post-tests plus student interviews.

The evidence gathered from interviews with principals reflected some of the diversified ways in which learning study is being adapted following its initial introduction into the schools through the VITAL Project. When principals were asked in the questionnaire survey to identify the major components of the follow-up learning studies just over approximately half who responded said their schools continued to employ such concepts as the ‘objects of learning’ and ‘critical features’ (34/60) and to make use of variation theory as a pedagogical tool (26/60). Only one third of the principals (20/60) said their school continue to use the pre- and post-lesson tests. According to their perceptions, the most popular components retained appear to be those of peer observation and pre- and post- lesson conferencing (38/60).

4.5 When teachers were asked in the questionnaire survey to identify the major components of the follow-up learning studies their responses were largely consistent with those of principals. In interviews teachers said they wanted follow-up studies that could be carried out in shorter time-scales and in smaller groups

The proportion using peer observation (35% 82/232) and, pre- and post conferences (39% 91/232) was higher than the use of other components, hence confirming the principals’ perceptions. The continuing use of the concepts of teaching and learning was cited by approximately one third of the respondents (36% 84/232) and variation theory itself by just over a quarter. Again, this is broadly consistent with the perceptions of the principals as was the teachers’ perceptions of relatively low use of

pre- and post lesson interviews with students (18% 42/232). However, the proportion of responding teachers (232) identifying the continuing use of pre- and post-lesson tests was rather less (29%) than the proportion of principals citing such use.

Teachers in interview emphasised the need for studies that could be carried out in shorter time-spans than VITAL studies and on a smaller scale involving smaller groups of teachers (see 4.5a). In this context some viewed the pre- and post-lesson testing procedures in the VITAL Project as too time consuming and needing to be more integrated into the actual teaching-learning process through verbal questioning at the beginning and end of lessons (see 4.5b). This view was supported by some students who complained that the information from the testing did not feed back into their learning (see 4.5c).

In one school, teachers proposed a reduction in the frequency of peer observation (see 4.5d). One teacher who had participated in a full-scale lesson study would then give a demonstration lesson in the topic area to teachers who had not participated in the lesson study, and leave them to adopt the teaching approach on their own without being observed. Their experience would be shared by being reported back and discussed at the weekly subject panel sessions.

Teachers in Band 1 schools appeared to feel less need to adapt the VITAL Project procedures to render learning studies more sustainable. In these schools the organisational context of teaching and learning and its interactive nature may better fit the requirements of the VITAL Project (collaborative curriculum planning and teaching aimed at promoting active learning). In such contexts teachers will tend to feel happier about taking risks by tailoring the examination syllabus to their need to improve the quality of teaching and learning (see 4.5e).

Giving students more direction over, and more responsibility for, their own learning is what many students desired from a lesson study (see 4.5f). It should perhaps frame all deliberations by principals and their staff about how to adapt the VITAL method to render learning studies sustainable in their school.

5. Benefits for learners

5.1 Students' motivation to learn was enhanced though learning studies, which promoted a more

active and less passive learning process together with a happy learning environment in classrooms

In interview one group of senior secondary school students discussed what characterised a worthwhile learning process in schools (see 5.1a). They argued that it should be an interactive process with the teacher in which the teacher and students think together about the content of a lesson. They wanted students to be given more space to work on the content on their own and the boundary between class work (teacher dependent) and homework (student dependent) abolished. The emphasis in schools on the passive processes of copying and memorising in classrooms was regarded as demotivating, and it was argued that an emphasis should be placed on the development of students' powers of independent reasoning. This, it was argued, would arouse their interest in the content and motivate them to learn. Also it was felt that there should be an emphasis on the acquisition of practically useful knowledge and skills rather than on content to be learned for the sole purpose of passing public examinations. Learning occurred, it was pointed out, not only in the context of schooling but also in the course of everyday life and the students appeared to be calling for a better blending together of formal and informal learning. Indeed they were able to recall things that they had learned two years previously in the context of a learning study, and which had proved useful to them in the context of everyday life.

The students interviewed were asked about their experience of the learning process in the VITAL learning study and how it differed from their normal learning experiences at school. Most clearly enjoyed a learning process that they experienced as more active and self-directed than the one they were accustomed to (see 5.1b, c, d, f, g, i). This partly explains their ability to recall a learning study lesson long after it had finished (in some cases two years previously). They were also able to recall a lesson long after the event because the more active/interactive process, which they experienced, generated learning in greater depth that was retained in the long term memory, rather than simply being stored in the short term memory for the mere purpose of passing public examinations. On the basis of student testimony the VITAL Project learning studies appear to have transformed pedagogy – at least temporarily –

in ways that are consistent with the pedagogical aims of the Hong Kong Curriculum Reforms.

Students tended to experience a greater variety of activities in the learning study lessons than in normal lessons. They felt that such activities were designed to promote discussion and stimulate their thinking (see 5.1b). In the learning study lessons one significant difference for students compared with their normal lessons was the expectation that they express their ideas and thinking via the spoken as well as the written word (see 5.1c,d). This was experienced as the teacher talking less and themselves more. Although students appreciated opportunities in the classroom to express themselves verbally, some were nevertheless reluctant to take them because they lacked confidence in their ability to do so in front of their peers. This is why the active learning process that was developed through the learning study often involved giving individuals peer support for expressing their ideas in words e.g. through small groups of students collaboratively developing verbal presentations to the whole class. In the area of language development some learning studies focused on developing specific spoken language skills (see 5.1e).

In science lessons one big difference identified by students was discovering things for themselves by 'doing experiments', as opposed to the normal practice of copying things from a blackboard or textbook and then committing them to memory. This discovery learning process was experienced by students as developing their understanding of concepts as opposed to simply learning the definitions of words (see 5.1f). Students testified to the ways in which their understanding of concepts acquired through a lesson study impacted upon their experiences in everyday life.

Students experienced an active learning process as developing a deeper understanding of the topic than would be the case in a normal lesson, where a passive learning process tends to prevail (see 5.1g,h).

Sometimes what might appear, from an observer's perspective, to be relatively small departures from normal practice through a learning study were in fact experienced by students as significant for their learning e.g. moving from blackboard to powerpoint and changing the context in which work-sheets are used in the mathematics classroom (see 5.1i). In this example the students' accounts of a more active learning experience in mathematics suggested that what they learned in the lesson itself was retained

in a form that rendered subsequent reinforcement of their learning through homework unnecessary. However, there was some disagreement about the extent to which they were able to apply their learning in everyday life.

One SDO observed that learning studies created a happy learning environment for students. This is again consistent with the pedagogical aims

of the curriculum reform in Hong Kong (see 5.1j). Teachers also testified to the fact that the active learning process developed through the learning study – involving more peer interaction and space for experimentation and discussion – promoted a happier and more trusting learning environment for students than that which normally obtained in lessons (see 5.1k)

5.2 Through a learning study students were able to apply their learning to everyday life (see also 5.1f,i)

In particular the learning study appears to have created a stronger linkage between mathematical learning and its usefulness in everyday life. In one group interview the issue arose about whether this was because the topic was chosen for the learning study in terms of its relevance to daily life or whether any mathematical topic could be taught in a form that enabled students to discern its practical significance (see 5.2 in relation to the student experience reported in 5.1i).

5.3 Learning studies was perceived by some principals and teachers to reduce the gap between high and low- achievers.

One of the claimed benefits of learning studies (see Lo, Pang & Pakey 2005) is that it enables teachers to reduce the gap between high and low achievers in a way that normal practice has not. This claim was supported by some principals and teachers (see 5.3).

One academic consultant, when interviewed, felt that any significant reduction in the achievement gap at the whole school level through learning studies would depend upon a significant transformation of the teaching and learning culture within a school through cumulative studies that supported sustainable changes in pedagogy.

5.4 The impact of a lesson study on students' learning was perceived by some teachers to be a consequence of teachers having the time to focus together and in detail on teaching a small amount of content (see 5.4a)

Given the large amounts of syllabus content that needed to be covered for examination purposes, combined with a scarce staff resource, a number of teachers felt that, regardless of the evident benefits that the VITAL lesson studies brought to learners, the pedagogy developed in that context could not become fully integrated into normal practice for the foreseeable future (see 5.4b,c). This feeling was also shared by many students', who accepted the requirements of an examination oriented education system (see 5.4d). The feeling appeared to be particularly acute with teachers in band 3 schools who were involved in the VITAL Project. In such schools there is a tendency for teachers to feel that their school's survival depended upon students performance in public examinations. In spite of the general policy of the EMB to reduce the pressures of high stakes assessment in schools it may not have been experienced as such in the band 3 schools involved. Some teachers interviewed claimed that such pressures had intensified in band 3 schools (see 5.4e). However, even here there were teachers who proved the exception to the rule by being able to sustain the pedagogy developed through a lesson study as part of normal practice (see 5.4d).

The realism expressed by teachers in interview did not make most of them feel that the VITAL Project learning studies were a waste of time, since they opened their eyes to what could be achieved under different conditions and resource levels. In other words many teachers adopted an experimental attitude to learning study. It opened up new directions for the development of pedagogy. One of the great fears, particularly in band 3 schools, was that any radical redirection of pedagogy might plunge them into chaos by losing control over students' behaviour in lessons (see 5.4f).

5.5 Although many principals, teachers and students felt that teaching tended to revert back to normal following the completion of a learning study they also felt that there were some sustainable improvements in teaching quality

Students often cited specific changes in the pedagogy of their teachers, such as making lessons more interesting by giving them more space to do their own thinking and hold discussions with others (see 5.5a).

Some teachers cited permanent changes in mindset or attitude that stemmed from the VITAL lesson study experience (see 5.5b,c). Hence, they might find themselves adopting the conceptual framework of variation theory as a basis for collaborative lesson planning rather than the full VITAL Project methodology. The VITAL Project lesson studies certainly appear to have activated a marked shift towards collaborative teaching in many schools based on condensed forms of learning study (see 5.5c). In many VITAL project schools the culture of teaching became less individualistic as teachers have come to value talking together about teaching and learning in their classrooms (see 5.5b,c, d).

In one school (see 5.5c) there was a policy of annually selecting one topic for a learning study (perhaps in a condensed form) in each subject at every level of the school. Hence teachers were able to improve their teaching of specific topics by accumulating experience from learning studies (see 5.5d).

6. Benefits for teachers?

6.1 When asked in the questionnaire survey to list the main benefits of undertaking a learning study in the VITAL Project, teachers responses included reference to variation theory, the development of their subject matter knowledge and pedagogical skills, the importance of action research as a reflective process and increases in their sensitivity to the learning difficulties and needs of students

6.2 What value does variation theory add to building capacities for pedagogical change at the classroom level?

The main capabilities associated with variation theory in the VITAL Project are:

Understanding variations in the ways students understand the intended object of learning (V1),

Understanding variations in the way teachers understand and handle the particular object of learning (V2),

Using V1 and V2 to plan learning experiences, which make use of patterns of variation that

are judged appropriate for enhancing a critical discernment of the object of learning (V3).

In interview CLASP staff were asked to clarify their understanding of the range of applications of variation theory involved in the VITAL Project lesson studies and the extent to which they captured the capabilities teachers need to develop to improve the quality of teaching and learning in their classrooms. In general CLASP staff believed that they covered these capabilities (6.2a).

There was a great deal of variation in teachers, principals, SDOs', and academic consultants' understanding of variation theory and its applications. Many found it difficult to fully master the theory and its concepts.

Some academic consultants perceived limitations in the usefulness of variation theory as a pedagogical tool in some curriculum areas, such as languages.

In responding to the questionnaire survey, 45% of the 232 teacher respondents claimed that they were using variation theory in their daily teaching practice.

Interestingly the majority of the examples cited are in the area of Mathematics. Fewer examples referred to uses of variation theory in the cultural and humanity subjects. The total responses also indicated that teachers' understanding of variation theory was somewhat divergent. However, the examples cited were judged by the authors of this report to indicate a reasonable level of understanding.

In using variation theory as a pedagogical tool:

Teachers experience lesson planning as a form of coordinated action;

Teachers observe and discuss each others' practice;

Teachers elicit students' perspectives on lessons.

In one school teachers felt that aspects of variation theory was something that mirrored things teachers were tacitly aware of and served as a reminder to ensure that they were embedded in their practice. Hence, it became incorporated into the teachers' technical repertoire as a "trick of the trade" (see 6.2b). It was certainly regarded by some teachers as a pedagogical tool that enabled them to reflect about the significance of what is varied and what is held constant in the pedagogical situation for the quality of learning (6.3c). Viewed from the standpoint of variation theory teaching was cast in the form of an experimental science (see 6.2d).

6.3 Strengthening teachers' subject and pedagogical knowledge

In one interview it was suggested that teachers whose subject knowledge is weak might be frightened of this being exposed if they participated in the VITAL Project (see 6.3a). In order for the learning study to strengthen teachers' subject knowledge they must experience it as a safe learning environment. The evidence gathered in the course of this evaluation suggests that the vast majority of participating teachers experienced it in these terms.

One of the benefits claimed for lesson study is that it links the development of subject knowledge with the development of pedagogical knowledge. The latter consists of knowledge about the problems students have with learning certain topics, and how pedagogically they can be helped to over-come them (see 6.3b).

The growth in teachers subject and pedagogical knowledge through the VITAL Project was clearly evidenced in teachers' testimony that they now knew how to choose a topic, to plan a lesson around it, and to teach it (see 6.3c).

6.4 Improving the practice of assessment for the purpose of improving both learning and teaching

In spite of the extensive use of pre- and post-tests and the general emphasis on the importance of assessment for learning, teachers' questionnaire responses (232) showed that only 41% claimed that their practice of assessment had been influenced by the learning study. With respect to these teachers, their involvement in a learning study appears to have impacted on both their conceptual and practical understanding of assessment.

In addition to pre and post-tests more teachers were using information gathered in conversation with students and via close observation of their performance on learning tasks (see 6.4a).

6.5 Enhancing capabilities for reflection

There is little doubt that the VITAL Project learning studies provided a context and space in which teachers were able to reflect on their classroom practice (see 6.5a). They provided teachers with an

opportunity to reflect about their teaching from the learners' point of view (see 6.5e). In addition to using student data from pre- and post-lesson tests and interviews, a great deal of information stemmed from informal dialogues and discussions with students during the course of a lesson (see 6.5b). This appears to have permanently changed the way teachers viewed and related to students and vice versa (see 6.5c), and made them more self-reflexive in their interactions with them (see 6.5d). Teachers involved in the VITAL Project now increasingly plan their lessons from the students' perspective (see 6.5f).

6.6 Strengthening teachers' team spirit in schools

The development of team spirit amongst school staff, which spread well beyond the original study group, is a significant consequence of the VITAL Project (6.6a). This development was accelerated initially by the spiral model of collaborative lesson studies (6.6b), and generates self-motivated individuals who can take responsibility for sustaining the learning studies process in schools independently of the principal (6.6d).

7. Benefits for the relationship between academic institutions and the school system

7.1 A new role for the academic subject expert?

Some academic staff at the HKIEd accepted invitations to become academic consultants for a lesson study because they saw their participation as a way of bridging the gap between theoretical knowledge about teaching their subject and practice in schools.

From the perspective of principals the benefits of involving academic subject experts in learning studies include helping teachers to rethink the processes of teaching and learning, providing them with a credible source of expertise that they are reluctant to acknowledge within their own peer group, giving emotional support by enabling teachers to feel less isolated and disconnected from the major centres for innovation and change and what other schools are doing.

The vast majority (91%) of teacher respondents to the questionnaire (232) felt that the involvement of lecturers from the HKIEd added value to the learning

study by broadening their horizons and enriching their experience of teaching and learning through enhancing theoretical understanding of teaching and learning, improving their subject knowledge, and developing research skills.

7.2 Academic subject experts are perceived to contribute important theoretical resources

Access to theoretical resources for conceptualising curriculum development and change was a much valued aspect of the contribution of academic subject experts (see 7.2a). Such resources took the form of both reading material and face-to-face communications. In the context of the learning study, teachers tended to value the theoretical discourse that accompanied it in spite of the time consumed. Generally teachers did not perceive the gap between theory and practice in this context to be unbridgeable (see 7.2b). Teachers also valued the way academic subject experts gave them access to the experience of their peers in other schools.

One member of staff in the Centre for Learning Study and School Partnership (CLASP) at the HKIEd felt that the academic consultant had a critical role in posing solutions to problems identified in the post-lesson conference. However, at times the subject expert did not always give advice that was perceived by the staff at CLASP to be consistent with the theoretical framework they had developed as a basis for learning studies (see also 7.2c). In some cases this is because they are strongly committed to a different framework.

At the heart of some conflicts between the CLASP staff and departmental staff in the HKIEd was the focus of learning studies on a single lesson rather than a curriculum unit as a whole.

7.3 The support role of seconded teachers acting as teacher development consultants (TDCs) also helped to bridge the gap between the theoretical framework of learning study and the world of everyday practice

The teacher development consultants' role was perceived by the principals and their staff as largely supportive to the learning study process (see 7.4). They helped to save time with research tasks, such

as analysing the pre/post-test data, interviewing students, and recording what was said and decided at meetings. Although they helped teachers cope with the pressures of time that stemmed from data processing requirements, this was sometimes seen to be at the expense of teachers developing a good understanding of their situation by being more involved in data processing. However, in general teachers felt that the TDCs had enabled them to undertake subsequent lesson studies independently of external support.

The TDCs' role was perceived to be different to that of the academic subject expert. The latter's role was perceived to contribute ideas from their subject matter knowledge that were relevant to planning curriculum content, whereas the formers' role was perceived to contribute ideas that were relevant to pedagogical strategies for handling the content.

7.4 Is there a continuing need for external support from a higher education institution?

Some principals felt that the involvement of subject experts from the HKIEd, although initially of great value, did not necessarily need to be sustained once capacity had been built from within (see 7.4a).

One principal planned to develop learning studies across the curriculum and desired external support to ensure that a critical mass of staff received adequate training to sustain them as a school-wide process into the future. One means of doing this was to link with further learning study projects initiated by CLASP (see 7.4b). However, one of the teachers in this school felt that there was a need for external support on an ongoing basis, in spite of progress in developing a strong culture of collaboration and enhanced capability to conduct learning studies. Given the time constraints under which teachers worked external support would inevitably add value by raising expectations of what could be achieved. This teacher also echoed the views of some academic consultants, who felt that there was a need for external subject-matter experts to undertake frequent reviews of, and provide feedback on, school-based materials prepared for whole curriculum units rather than specific lessons (see 7.4c).

8. Learning studies in the context of curriculum change.

8.1 The VITAL Project learning studies demonstrated the transformative potential of the curriculum reforms from a micro perspective

CLASP staff and a number of departmental staff serving as academic consultants saw a strong link between learning study and building capacities to participate in the curriculum reforms.

From the perspective of many academic staff involved in the VITAL Project the perceived function of the learning study package is to convince teachers to go for the curriculum reforms by enabling them to begin to develop their capabilities in new and existing curriculum areas e.g. developing students' recitation skills in Chinese Language study, teaching students the inter-relationships between historical facts and their applications in Chinese History, and understanding and appreciating contextual signs through drama.

Principals often introduced learning studies in areas where the content was new and beyond the experience of teachers. As one member of CLASP put it:

Some schools make use of this project as staff development. They want to have teachers familiar with the new topics in the curriculum. (CeS9).

One principal showed how he managed to use learning studies in his school to enhance teachers' subject matter knowledge in certain core learning areas (see 8.1). The work of the core group would be observed, recorded and discussed by panel members and insights tested and further developed through mini learning studies.

Some academic consultants claimed that learning study is more about teacher development than curriculum reform.

I don't think it's quite relevant. ... It's more concerned with teacher's professional development, in particular with novice teachers. ... Moreover, LS focuses on a smaller aspect, ... LS is capable of serving as an example to teach some difficult topics. But it's unlikely that it would cast a great impact on education reform (AcS4).

Yes, to every small section within a lesson. But we (as teacher educators and researchers) would tell a primary school how to plan the curriculum for six years (AcS1).

In looking at the implementation of learning studies as a procedural package the evaluation formed the view that one should not simply ask whether learning studies can be institutionalised in schools across the whole curriculum, but “**whether it has the power when injected into the system to effect sustainable improvements in the general capabilities of teachers to bring about worthwhile curriculum and pedagogical change?**” When learning studies were viewed as ‘injections of capabilities into schools’ the evaluation gathered plenty of evidence and testimony to their power to support curriculum and pedagogical change more generally within schools in sustainable forms.

8.2 Why have learning studies clustered around Math, Science, and Languages rather than the Humanities and Cultural Subjects?

The extent to which the VITAL learning study package is applicable across the curriculum has been at issue, particularly with respect to the relevance of variation theory in areas where divergent as opposed to convergent learning outcomes are acceptable. CLASP staff generally viewed the package as applicable to all curriculum areas.

Explanations were provided for the concentration of learning studies on a small number of learning areas. These are seen as the core areas because they are the ones in which students are most heavily assessed and tested (see 8.2a and b).

However, examples of learning studies outside the core curriculum, such as History, could be found (see 8.2c).

8.3 The feasibility of learning studies within the curriculum change context of the senior secondary school has been thrown into doubt by the fact that VITAL provides very few examples of its use in this context

The dominance of public examination pressure at this level was offered as an explanation by at least one principal (see 8.3a). However, in the lower

secondary school it was largely the core subjects, that were regarded as important for the purpose of examinations, which figured in the VITAL learning studies. At the senior level there appears to have been just too much at risk for most schools to embrace the VITAL package. We did find within the VITAL Project a few schools that were doing learning studies in the context of the new Liberal Studies in the core SSC. It offered the prospect of support in an innovatory area of the curriculum that was perceived as pedagogically challenging. Teachers perceived a considerable teaching gap between normal classroom practice and the teaching requirement for Liberal Studies, and although many may have lacked the confidence to attempt to close this gap through a learning study (see 8.3a), a few perceived the VITAL Project as an opportunity to do so with the additional support it provided.

9. The key question for policy-makers in Hong Kong

9.1 Are there more flexible, less time-consuming and work intensive ways of effecting sustainable improvements in teachers’ capabilities as curriculum change agents in schools?

Some have claimed that there are but the evidence for the power of the VITAL package to bring about sustainable improvements in teachers’ capabilities as curriculum change agents is very strong. One academic consultant suggested that the package itself could be adapted to make it more sustainable in schools without any subsequent loss of power.

If we’re going to sustain the practice of learning study, could we denote clearly what needs to be done for the meetings A, B and C, and so on, before the lesson, so that the meeting would be more fruitful? I don’t know whether it will be too mechanical. Streamlining will enhance effectiveness (AcS2).

When teachers have reached the consensus that LS should be sustained for the continuing improvement on lesson teaching with collective efforts, pre- and post-tests could be replaced by interviews with students (AcS2).

One SDO suggested that experiences of adapting the VITAL package to make learning studies a sustainable feature of the school culture should be documented and published to enable them to be shared with other schools (see 9.1a).

As reported earlier principals also had strategies for making learning studies sustainable, and cited various ways the procedural package introduced through the VITAL Project was being modified and changed.

In the questionnaire survey principals cited a number of aspects of learning studies that were being incorporated into teachers' working practices on an everyday basis without external support.

When teachers were asked in the questionnaire survey whether learning study as practiced under the VITAL Project was sustainable in their schools on a long term basis, approximately two thirds (66%) of the respondents (154) said that it was. This probably does not refer to the implementation of the total package introduced through the VITAL Project but is based on teachers' experiences of adapting the package to make learning study more feasible on a continuous basis.

However, some principals expressed a concern that adaptations to make learning studies less time-consuming should not compromise its power to effect improvements in students' learning (see 9.1c, 9.1d).

9.2 In looking at the question of the sustainability of learning studies in schools one should not only ask whether the VITAL package can be institutionalised in schools, but whether it has the power when injected into the system to effect sustainable improvements in the capabilities of teachers to bring about worthwhile curriculum and pedagogical change

The verdict of this evaluation on the basis of both the qualitative and quantitative evidence assembled is that it does have such power.

NOTES

1. A version of this report was originally presented to the symposium on 'Learning Study as Teacher Research' at the European Conference for Educational Research, Berlin 2011. Supporting data included in the full report by Elliott and Yu (see references) is referred to in brackets within this summary report. You can see online report at : <http://www.ied.edu.hk/cls/resources.htm>
2. On the basis of achievement tests at the end of the primary school phase students are allocated to one of three bands of secondary schools. Band 1 schools receive the high achievers while band 3 schools tend to receive the low achievers.

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