INVESTIGATING RESEARCH INTO SCHOOLING, CURRICULUM, TEACHING AND LEARNING

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Research Proposal

Background

In his 2004 National Day Rally speech, the Prime Minister of Singapore, rallied the country's educators to "teach less to our students so that they will learn more" (Lee, 2004). Thus began the Ministry of Education's (MOE) Teach Less, Learn More (TLLM) movement which was fundamentally about transforming learning from quantity to quality (Shanmugaratnam, 2005). TLLM called on teachers to re-visit why, what and how they teach, so that students can be better prepared for the 21st century. Teachers were reminded that they were teaching the whole child and helping them learn through acquiring deeper understanding of content and skills (MOE, 2004). In reconsidering how they teach, teachers are encouraged to engage students through differentiated teaching methods; to guide students and facilitate learning; and to use more formative and qualitative assessments.[1]

To support and guide schools in improving the quality of learning, the MOE produced the *Toolkit for Engaged Learning and Teaching* in 2005. This toolkit articulated the five principles of engaged learning, of which Assessment for Learning (AfL) is one, within the PETALS framework (see Figure 1). This framework provided schools with a common understanding and language to discuss engaged learning and helped schools improve coherence in their programmes. Equally important was the reminder that AfL plays an important part in the learning process.

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[1] While some authors do differentiate between the terms 'Assessment for Learning' and 'Formative Assessment', in the context of this proposal both terms would be used interchangeably. One reason for this is that the PETALS framework that was introduced to schools does not differentiate between the two.
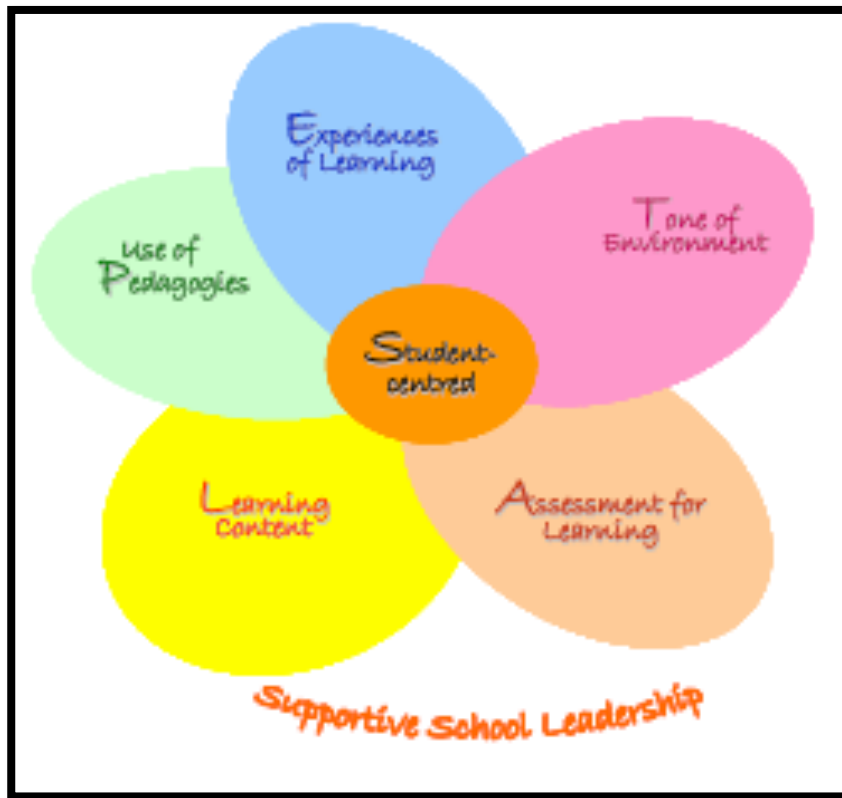
Figure 1 The PETALS Framework, 2005

In 2012, there was yet another reminder to teachers on the need for quality teaching and learning through the MOE's assessment philosophy. The message this time was focused on the effective use of assessment to check student learning (MOE, 2012). The MOE's assessment philosophy reminded teachers that assessment plays an integral part in learning and it should be balanced, comprising both Assessment of Learning and AfL. The assessment philosophy was incorporated into the teaching and learning guides (TLG) for each subject, used by teachers nationwide. The TLG for the 2013 revised upper secondary social studies (SS) syllabus was one of the first to include the Ministry's assessment philosophy as well as information and references about AfL. In line with this, several professional development workshops on the use of AfL were developed in partnership with the National Institute of Education (NIE) to provide teachers with more support.

Interest and rationale

AfL has been much publicised for over a decade in Singapore. However with far greater emphasis on high-stakes, summative assessments, anecdotal evidence seems to suggest that the use of AfL is not pervasive in Singapore despite the efforts of the MOE.

The purpose of this exploratory study is to find out the current state of affairs in the implementation of AfL in the revised upper secondary SS curriculum as well as SS teachers' perceptions about the MOE's assessment philosophy and AfL. The main and sub-questions this study hopes to answer are:

How has the MOE's assessment philosophy influenced the perception of SS teachers in secondary schools about AfL?

(a) Has the MOE's assessment philosophy, captured in the new SS TLG, helped teachers develop a common understanding of AfL?

(b) What is the dominant view of AfL among SS teachers in terms of what it is supposed to achieve and how it looks like in class?

(c) What do SS teachers perceive as barriers to the implementation of AfL practices in class?

(d) What kind of support do SS teachers regard as particularly useful in helping them become better at using AfL?

Review of relevant research literature

There is a widely held belief that high-stakes testing is incompatible with the use of AfL practices and hinders its effective implementation (Wiliam, Lee, Harrison & Black, 2004). Interestingly McMillan's study, 'The impact of high-stakes test results on teachers' instructional and classroom assessment practices', shows otherwise (2005). As high-stakes examination is a key feature in Singapore's educational landscape, McMillan's study can offer insights into the impact and likely success of implementing formative assessment practices across different levels and subjects in Singapore.

In investigating the relationship between teachers' receipt of high-stakes test results of their students and changes in their instructional and classroom assessment practices, McMillan sampled a total of 722 elementary, middle, and high school teachers from seven school districts in Richmond Virginia. Schools were chosen randomly and surveys were distributed to teachers from the selected schools. The survey, which was pilot tested and had an alpha reliability of 0.80, had items based on a five-point scale (much less, less, no change, more, much more) indicating the degree of change on 19 teaching and grading practices. 1640 surveys were distributed, and 722 response collected (44% response rate). Anonymity of respondents was maintained and surveys were returned to principals' offices.

On the whole, McMillan's study is coherent with the research questions clearly stated and the results closely aligned to them. The main findings include the following:

1. Elementary teachers reported more change in their instructional and assessment practices than secondary teachers.

2. Receiving high-stakes test results has positive effects on instruction and assessment practices, such as greater emphasis on depth of learning and higher cognition, more teacher collaboration and use of formative assessment.

3. English teachers had more positive change such as using more advance cognitive processes, while social studies teachers had more negative changes such as using more rote memorising.

4. The timing of when teachers receive high-stakes scores does influence the degree of change in teachers' assessment practice.

However one has to exercise some caution when interpreting the results. One weakness of this study is the use of a written survey that is essentially a self-report. Harris and Brown (2010) warn that self-reports may be inaccurate as respondents may respond based on what they believe to be socially desirable rather than what they think is true. To his credit, the author acknowledges that since respondents are reporting what has or will occur, reality may be somewhat different. Perhaps what may exacerbate the inaccuracy in this study is the fact that completed surveys were returned to principals' offices. Even though the survey ensures anonymity, submissions through principals may still have an impact on the way teachers respond, especially since respondents can easily be tracked if the principal chooses to do so. Defending the claims made in the study may need more corroboration from classroom observations and interviews with students.

McMillan obviously lacks clarity in his analysis of data, which would surely confuse readers. Firstly, for the data in Table 3 which shows the relationship of test use and assessment practices with level of teaching, he states it shows the results of '1 x 3 ANOVAs'. It would be more accurate if phrased as 'one-way ANOVA with 3 levels' (namely, elementary, middle

and high). More importantly, while he claims to have used ANOVA, his data seem to imply that he had used the t-test instead, although readers cannot be totally sure since 't-test' is not mentioned anywhere.   If ANOVA had been used, Tables 3 should report the F ratios and effect sizes measured by eta-squared. Instead, he seems to be comparing the means of 2 groups of teachers at a time using the t-test with Cohen's d for effect size. He does not report the values for the t-test as such, but the significant relationship between means he has found, for example, the mean of group a is significantly larger than b etc. He does the same for the data in Table 4 which compares teachers across four different subject areas. Extra caution has to be exercised in the case of Table 4 as using the t-test instead of ANOVA with four-levels in this case would increase the likelihood of a Type I error, i.e. finding relationships between variables when there is no relationahip. Lastly, the accuracy of the t-test requires the sample means to have a normal distribution. We cannot be sure of this as this is not reported.   However, the relatively large sample size of each group of teachers may work in his favour to moderate any violations of the need for a normal distribution.

Despite these shortcomings, the conclusions drawn remains valid as McMillan has used the appropriate t-test to compare the means of 2 groups of teachers at a time, even if he called wrongly labelled it ANOVA. What is uplifting is the increase in the use of formative assessment practices even in a school culture with high-stakes examinations.   Also, his findings about SS teachers increasing the use of rote memorising and other less desirable practices is a warning for policy-makers in Singapore to look out for in the new SS syllabus.

Hill (2011) had a different focus in her exploratory study of the implementation of formative assessment in schools, "'Getting traction': enablers and barriers to implementing Assessment for Learning in secondary schools". This study, which was sponsored by the

New Zealand Ministry of Education, was to investigate: 'What factors appear to enable the implementation of more effective assessment for learning practices in large secondary schools?' (p. 352).   Secondary schools in New Zealand described in the study are similar to those in Singapore in that students have to be prepared for national examinations and that schools are organised by subject departments.   Parallels can therefore be drawn from findings in this study and offer valuable lessons on what can encourage the successful implementation of AfL in Singapore secondary schools.

Hill employed Brinkerhoff's (2003) success case method (SCM) to investigate her research question.   She stated that the short timeframe imposed on the study and the focus on finding out enabling factors justified the use of SCM which was designed to be a quick an easy method of surfacing success factors through the use of narratives and evidence that 'can stand up in court' (Brinkerhoff, 2003, p. 4).   Purposive sampling was used in this study. With the help of the Ministry of Education, four schools among those that took part in the Assess to Learn (AtoL) professional development programme, were judged through evaluation reports and data collected at each school as being successful in implementing AfL.   Of these, three agreed to participate in the study and their names were given to the researcher.

One-on-one interviews were conducted with each of the three AtoL facilitators who had worked with the participating schools.   Audio-recorded focus group interviews were also conducted with school participants from each school comprising the principal, assessment and curriculum lead teachers.   Field notes were recorded and school documents which exemplified AfL and school systems that facilitated implementation were collected.

As required in SCM, an impact model that serves to define what success looks like and articulates what would be happening in schools where AfL was being used was created. The researcher based the model on Davies and Busick's (2007) descriptions of teachers' AfL practices and validated it with input from the three AtoL facilitators who were asked to describe how they would know if a school had been successful in implementing AfL.

The study revealed that school participants regarded the following six factors as enablers of effective AfL in school:

1. The full involvement of a knowledgeable principal who acted as a 'conductor' of change.

2. The involvement of senior staff and management team with explicit knowledge of AfL.

3. Aligning AfL practices with national examinations.

4. Structures that allowed teachers to learn about AfL, within and across subject departments.

5. Embedding AfL as part of the school culture which focuses on learning.

6. Establishing an external facilitation model that is tailored to the individual needs of each school.

While the researcher made efforts to ensure that the data collected was validated through the process of triangulation built into the SCM, where information from one source can be verified by another source, some caution must be exercised when interpreting the data. Given the title of the article, which mentions both 'enablers' and 'barriers', one would have thought it necessary to include in the study schools that have not been successful in implementing AfL. It would have been interesting to see if their lack of success in implementing AfL occurred due to an absence of the six factors listed above. This would

make the conclusions more compelling. Related to this, readers must consider the possibility of reverse causality in the findings. For example, while it is entirely possible that having 'the full involvement of a knowledgeable principal who acted as a 'conductor' of change' can enable success in implementing AfL, it is also equally possible that it was the success of implementing AfL that caused principals to become more knowledgeable about AfL and hence become more interested and involved in the change process. Even if we assume that the researcher had reached these conclusions directly through interviews and focus group discussions, we can only conclude that these are what participants *perceived* as enablers and further research must be carried out before we can conclude that they are indeed enablers. Changing the title of Table 2 in the article from 'Factors that enabled implementation of effective assessment for learning' to 'Existing conditions in schools that use AfL effectively' would remind readers of the dangers of jumping to conclusions without taking away any of the learning points about positive change management in successful schools.

Lastly while being an exploratory study justifies the focus only on three successful schools, which all happened to be in the higher socio-economic group, future studies should widen the choice of schools to include those in the lower socio-economic group so as to compare if the 'enablers' are similar and therefore generalizable across different types of schools.

Research design and general approach

While the intent of my exploratory research is not to build up a theory to allow for generalisations, I would still like to be guided by the principle underlying the grounded theory approach where I suspend my own preconceptions and hypotheses and allow my understanding of the context to build from ground-up (Ary, Jacobs, Razavieh & Sorensen,

2006; Creswell, 2013). By allowing the experiences and views of participants to emerge, I will be able to understand their concerns and serve the community of SS teachers better with follow-up actions that are tailored to their specific needs. This study will constitute the first step towards understanding the concerns and needs of SS teachers in the use of AfL as they work to implement the revised syllabus in schools.

Empirical setting

The empirical setting will specifically be upper secondary SS classrooms where the revised syllabus is being implemented. Purposive sampling will be used to recruit SS teachers who are currently teaching the revised syllabus.[2] Six SS teachers, from different mainstream schools, will be recruited, at least two of whom will be less experienced teachers with between 1 to 3 years of teaching experience. This is because the revised syllabus is into its second year of implementation and it might be worth exploring if new SS teachers, who have not been overly used to the previous syllabus, will have different experiences to share.

Data collection will include one-on-one audio recorded interviews with teachers. Interviews are useful in my study since the aim is to draw out what teachers think, what they know and the meanings they construct (Dowling & Brown, 2010). Since I lack experience in conducting interviews as a researcher, it will be prudent to prepare a simple interview guide to help keep my questions focused. My question will largely be open-ended and will be drawn from the sub-questions in the study. The questions will include:

1. How has your experience in implementing the revised SS syllabus been?

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[2] As there are still students offering the previous syllabus, there may be some teachers who are deployed to teach that syllabus and not the revised one.

2. How helpful has the TLG been in helping you understand the assessment practices recommended in the revised syllabus?

- What have you learnt about MOE's assessment philosophy from the TLG?

- In what ways have MOE's assessment philosophy been useful to you?

3. How do you find out how well your students are doing?

- How do your students know how well they are doing?

4. Can you describe a particular instance of when you have used AFL?

- Why did you choose to do that?

- In what whys have your use of AfL changed with this revised syllabus?

5. What difficulties have you faced in using AfL with this revised syllabus?

6. In your opinion, what support measures would be useful to help teachers improve their use of AfL? Why?

Data analysis will begin as the data is collected. Using open coding to derive major categories of information and through the process of constant comparison, where new data is continuously compared to emerging categories (Creswell, 2013), one can ensure that all data are analysed systematically (Fram, 2013, citing O'Connor et al., 2008). Comparisons can be made with data within a single interview, between interviews with same group (e.g. the group of experienced teachers), and of interviews from different groups (e.g. experienced and less experienced teachers) (Fram, 2013).   Dowling and Brown (2010) recommends memoing as a productive strategy where researchers record reflective notes about what they are learning from the data, especially about relationships between categories. This will provide a base for further analysis as well as provide documentary evidence of the meanings the researcher has gathered from the data (Groenewald, 2008).

The main contingency I will have to plan for relates to the availability of teachers during a very busy time in the school calendar i.e. between July and September. During this period, many SS teachers, who also teach English, may be involved as oral examiners in external national examinations. To widen the pool of participants to select from, I may have to depend on my network of colleagues who have participated in SS workshops I have conducted in the past to recommend fellow teachers, especially those who have less experience.

Ethical issues

The study will be guided by British Educational Research Association guidelines (2011). Foremost would be to ensure that participants have given informed consent to take part in the study. Permission from school principals will also be obtained since participants may reveal school practices during the interview. The school principals and participants will be assured of 'their rights to confidentiality and anonymity' (BERA, 2011, p. 7). These assurances would be necessary to ensure participants are comfortable in openly sharing even information that might be sensitive especially with regards to their classroom and school practices. In addition, to reduce anxiety, participants will be informed of their right to withdraw from the study should they feel uncomfortable at any stage. Keeping in mind the notion of reciprocity, participants and principals will be offered the opportunity to discuss the findings of the study so that they can use the information to help improve their practices.

Professional/researcher development

As a curriculum planner with the MOE, I am involved not only in producing teaching and learning resources for use in schools, but am involved in planning and organising professional development for teachers in Singapore as well. With a better understanding of ground sentiments, concerns and practices of AfL in relation to the revised SS syllabus, more targeted resources can be developed to help teachers with the use of AfL practices in the classroom and professional development can be specifically tailored to those who may have concerns about their level of expertise in using AfL. With input from teachers, support from the MOE would likely create a bigger impact in terms of teaching and learning outcomes. This will contribute towards the Ministry's target of creating a more balanced assessment environment in Singapore schools to improve student learning.

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