IS TEACH LESS, LEARN MORE A QUANTITATIVE OR QUALITATIVE IDEA?

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ABSTRACT
The Teach Less, Learn More (TLLM) initiative is a fairly recent discourse on the use of learning centered pedagogies in the Singapore Education System. First mentioned by the Prime Minister of Singapore in his National Day address in 2004, Teach Less, Learn More and its accompanying acronym TLLM is frequently mentioned in relation to ideas and practices aimed at enhancing student learning. However, the widespread use (and misuse) of the term may have given rise to some confusion over its precise meaning.

This paper examines the underlying discourses of the TLLM initiative in the Singapore education system and questions whether it is understood in ways which are consistent with its original intentions. The term ‘Teach Less, Learn More’ itself suggests a strong tendency to interpret TLLM with a quantitative perspective. However, official statements pertaining to shifting the TLLM focus from “quantity to quality in education” indicate a qualitative intent.
Quantitative and qualitative discourses share different origins and epistemologies. Consequently, the contrasting quantitative and qualitative understandings of the goals of education, the means of teaching, the manner of assessment and evaluation and the notion of student learning exists in tension with each other. The tension between quantitative and qualitative discourses in the Teach Less, Learn More initiative in the areas of curriculum, assessment and learning are explored in this paper and three possible ways to (re)interpret the Teach Less, Learn More initiative are suggested.
INTRODUCTION

In recent years, the pace and extent of changes to the educational system in Singapore have posed significant challenges and opportunities for classroom teaching, assessment practice and the goal of education. The increasing authority vested in schools and policies, such as direct admission exercises to junior colleges and universities, means that more high stakes assessment and curriculum development and devilmint will be managed directly by schools. Such increased responsibility for teaching, curriculum and assessment also provides teachers with significant opportunities utilise the full benefits of overarching educational initiatives for school based reform in order to pursue student centred interests. In this context, the Teach Less, Learn More initiative is a relevant policy for examining how recent changes in Singapore education are interpreted, reconstructed and applied on students and their learning.

The Teach Less, Learn More (TLLM) initiative is a fairly recent discourse on the use of learning centered pedagogies in the Singapore Education System. First mentioned by the Prime Minister of Singapore in his National Day address in 2004, Teach Less, Learn More and its accompanying acronym TLLM is frequently mentioned in relation to ideas and practices aimed at enhancing student learning. However, the widespread use (and misuse) of the term may have given rise to some confusion over its precise meaning.

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**CONTRADICTORY DISCOURSES IN TLLM**

Various discourses are constructed and asserted in TLLM. Identifying a set of conflicting discourses permits us to set out the dialectic tensions in TLLM which (re)constructs its shifting means. The quantitative/qualitative discourse(s) of TLLM thus hints at the tensions at play, and the extreme referents, from which we commonly identify the continuum of moving from quantitative to qualitative ideas articulated in TLLM rhetoric.

**Quantitative versus qualitative discourses**

Quantitative and qualitative discourses share different origins and epistemologies. Consequently, they exist in tension over the goals of education, the means of teaching, the manner of assessment and evaluation and the notion of student learning. Do they exist in polemic tension or succumb to the notion of sovereign discursive power that only one can eventually reign supreme?

The following table list out key differences between quantitative and qualitative approaches to education.
### Table 1.1: Differences between quantitative and qualitative approaches to education

<table>
<thead>
<tr>
<th></th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much students have learnt?</td>
<td>Focuses on whether answers are correct or incorrect</td>
<td>Recognises how students make sense and connections of their knowledge.</td>
</tr>
<tr>
<td></td>
<td>Curriculum is understood as aggregation of unrelated information / topics.</td>
<td>Curriculum is how students are able to relate different topics in relation to each other and the subject discipline.</td>
</tr>
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</table>

Qualitative and quantitative notions and assumptions of assessment differ greatly in their epistemology. In the quantitative outlook, learning is understood as the aggregation of content and knowledge tends to be treated as discrete and unrelated information. Consequently, the curriculum is a repository of discrete units of content.

In contrast, the qualitative outlook emphasizes that students should learn cumulatively by interpreting and incorporating new material with what they already know. Enhanced learning in a qualitative sense connotes qualitative changes taking place in the nature both of what is learned, and how it is structured in relation to prior knowledge. A key concept in the qualitative notion of teaching and learning is constructivism – that students construct their understanding of what they are taught and interpret how such constructed understanding connects to their prior knowledge.

### DISCIPLINARY POWER AND TLLM

Whilst TLLM focuses on teaching and learning in causal terms, it also asserts positions of power and authority on teachers and students at the same time. One way of deconstructing the disciplinary effects of power in TLLM is to unpack its various discourses of power. A discourse in the Foucaultian sense is a particular way of organising meaning and hence of ordering the world (Lee, 1992). Discourses can therefore be understood as forms of...
regulation of social meaning and social actions. They may exist as a linguistic unity or group of statements which constitutes and delimits a specific area of concern, governed by its own rules of formation with its own modes of distinguishing truth from falsity (Gilbert & Low, 1994).

TLLM may also be understood as a discourse in itself, exercising and enforcing a form of disciplinary power over those it seeks to ‘empower’. Consequently, teachers and students may be vulnerable to forms of self-surveillance through confession and examination – classical tools of the authorities to monitor the compliance of its subjects.

Disciplinary power is seen to exist not merely through overt expressions of the exercise of power (Tan, 2004). Power is not viewed through episodic demonstrations of A’s power over B. Neither is power viewed as pitting individuals as subjected to hegemonic structures. Instead, power is seen to subject a person through covert and overt forms. Disciplinary power may be exercised in TLLM initiatives through examination and confession.

**Examination**

Disciplinary power works through the construction of routine. Power is moved from the distant horizon into the very centre of daily life. Its object is to impose an ubiquitous pattern of normality and eliminate everything and every body which does not conform. TLLM may therefore be utilized to impose a set of practices promote the observation, surveillance and examination of teachers and students which renders them knowable and identifiable as sites of intervention and control. Because disciplinary power requires knowledge over the subjects to be exercised efficiently, teachers and students adhering to TLLM tenets can be examined
in terms of whether their actions conform to what is privileged and asserted in TLLM discourse.

Discursive power may be exercised by those who define their own preferences as being consistent with TLLM and then imposing such ‘truths’ on their subordinates, colleagues or students. The effect is that teachers and students may then have to examine their own teaching and learning respectively to ascertain whether it is consistent with ‘teaching less’ and ‘learning more’ respectively.

Confession

Alternatively, teachers and students may exercise self-governmentality by confessing their actions and acquisition of knowledge in TLLM and thereby subjecting themselves to the disciplinary forces that such knowledge serves. Reynolds & Trehan (2000) warn of the risk of participative practices, especially in student assessment, that imposes a form of governmentality through the action of teachers and students being their own policeman. Thus, freedom to innovate in TLLM may come at a price – that teachers may change what they want in TLLM and are encouraged to share their best TLLM practices. But the sharing of such practices exposes their actions which in turn influences them to construct or modify TLLM innovation according to what they want others to know about them.

This results in TLLM practices becoming part of the machinery of normalisation utilising confessional techniques for the teachers to subject themselves In this way, teachers offer themselves to surveillance by demonstrating how their TLLM practices conforms to what they perceived is emphasized in TLLM. Given the conflicting quantitative and qualitative tensions in TLLM, this presents a dilemma for most teachers – should they understand TLLM
to be more quantitative, or qualitative, and in sharing their TLLM practices should they have to accommodate members of their audience, especially those in positions of formal authority, who may view TLLM differently from themselves? Given the ambiguities in TLLM, perhaps a teacher may only know of such differences when a TLLM practice or innovation is shared only to discover that feedback from superiors strongly indicate contrary ideas. Hence, TLLM sharing of innovation and practices risks becoming a form of a confessional technique which hides behind notions of professional development but in effect act as complex mechanisms of monitoring and control. (Ball, 1990).

**TLLM AND STUDENT ASSESSMENT**

Much of the intended outcomes of TLLM can be gleaned from how it is assessed, and how student learning in Singapore continues to be predominantly assessed, since assessment drives student learning and concomitantly teaching.

One of the most significant changes in assessment thinking in Singapore in recent times is the greater emphasis and recognition given to formative assessment. Whereas assessment was previously understood and emphasized as being primarily summative in nature and purpose, i.e. to measure students’ learning, teachers in Singapore are increasingly encouraged to design assessment that enhances students’ learning as well.

This has implications on the ways that assessment should be understood and used in Singapore schools. Clearly, there is a pressing need for innovative and informed assessment practices to support innovative pedagogies such as ‘Teach Less, Learn More (TLLM). A qualitative approach to assessment is suggested as a comprehensive way of meeting the various assessment needs of students, teachers and the education system in Singapore. It is argued that the intended new direction for assessment practice in Singapore, articulated through the Teach Less, Learn More initiative, is essentially qualitative and consequently requires qualitative approaches and methods.
A clue to what is needed in enhancing assessment practice lies in first deciding what are the forms of learning that assessment needs to prompt, measure and enhance. Assessment and learning are best understood as a dialectic, each understood and having meaning only in relation to each other (Tan, 2007). Without assessment, one is unable to know what one has learnt. Without learning, one does not know what and how to assess.

In this respect, the TLLM initiative hints at what assessment practice should be arising from the viewpoint of enhanced pedagogy. On the website of the Ministry of Education, it is stated that assessment supporting enhanced pedagogy and learning in TLLM should be “more qualitatively, through a wider variety of authentic means, over a period of time to help in their own learning and growth, and less quantitatively through one-off and summative examinations”.

Clearly, there is a shift in the emphasis from focusing on quantitative to qualitative ideas, all the more remarkable considering that the Teach Less, Learn More label is phrased in quantitative jargon. But what precisely is a qualitative approach to assessment and how can it be practiced?

A qualitative approach to TLLM student assessment may be understood in terms of its emphasis on a holistic view of knowledge and understanding. Tests and examinations are typically conducted in controlled environments and this is useful and convenient from the view of managing students and handling marking loads. However, the cost of such administrative convenience is the tendency to isolate students through assessment practice and giving the impression that knowledge can be reduced to periods of intense examination. Because tests and examinations need to reduce the examination of learning to a fixed period of time, this in turn pressures the forms of learning to be demonstrated into isolated instances of different learning outcomes. Inevitably, a reductionist view of learning is constructed and perpetuated.

A qualitative approach to assessment that TLLM requires emphasizes the holistic dimension of assessment and learning. Qualitative assessment may be described as assessment practices that encourages open ended responses (as opposed to standardised instruments), permits meaningful student involvement (as opposed to unilateral testing) and takes place over a
period of time (as opposed to controlled environments) in order to prompt, judge and enhance holistic understandings.

TLLM AND HOLISTIC LEARNING
A holistic view of learning and knowledge assessment requires assessment practice to prompt students to demonstrate how well knowledge is connected with each other, rather than how much knowledge is understood. Qualitative assessment requires us to look for concepts and tools that can describe what connections between different types of knowledge mean and how we can differentiate better or poorer ways of connecting knowledge. The Structure of Observed Learning Outcomes (SOLO) taxonomy is a specific taxonomy designed for this qualitative purpose.

The Structure of Observed Learning Outcomes (SOLO) taxonomy was developed by Biggs and Collis (1982) as a way of describing qualitatively different learning outcomes. Its premise is quintessentially qualitative, in order to differentiate the quality and sophistication in which students are able to make sense, and connections, of their knowledge.

The premise of the taxonomy is that knowledge is not isolated. Rather, knowledge is inherently relational and understood best in the context of other relevant knowledge. Every piece of knowledge hence needs to be understood in the context of what that knowledge is related to. Consequently, the SOLO taxonomy argues that how, and how well, knowledge is structured leads to qualitatively different levels of understanding. The emphasis of the taxonomy is thus on structure – a superficial understanding of the structure of a complex idea belies poor understanding, whilst an advanced understanding of the same complex idea is evidenced (or ‘observed’ in the parlance of the SOLO taxonomy) by a sophisticated understanding of the structural constitution of that knowledge.

The SOLO taxonomy is popular amongst teachers as a framework for distinguishing different levels of learning they can observe in their classroom. The systematic and logical progressions between its levels make it highly suited to scaffold learning. Boulton-Lewis (1998) recommends the SOLO taxonomy as an effective way of influencing and assessing students’ learning outcomes to facilitate higher order thinking.
The key to greater understanding in the SOLO taxonomy focuses firmly on how knowledge is structured. Hence, its shorthand labels for its different levels of learning outcomes articulates progressively more advanced understandings of structure – prestructural (lack of structure), unistructural (single dimension of structure), multistructural (multiple structures), relational (complete integrated set of structures) and extended abstract (understanding beyond complete integrated set of structures). The five progressive learning outcomes of the SOLO taxonomy can be briefly summarized as:

**Prestructural**
This concerns irrelevant or incorrect information. This may also be understood as pre-learning. The learner does not have sufficient understanding of any of the component pieces of knowledge to begin developing a structure of understanding.

**Unistructural**
This refers to relevant and correct information but in an isolated way. Learners understand a single concept in itself, but have no idea what that has to do with other related concepts.

**Multistructural**
Learners with a multistructural level of learning understand relevant and correct information with basic connections with other relevant knowledge. However, they do not appreciate precise connections with other relevant concepts. For example, learners may know the basic similarities and differences but not the actual relationship between relevant concepts.

**Relational**
This holistic level of understanding represents an adequate integration of all relevant concepts in order to understand the larger complex idea. The learner is able to see how the different concepts are structured together to integrate into a larger complex meaning.

**Extended abstract**
As the most advanced level of the SOLO taxonomy, the extended abstract level depicts the understanding of a concept beyond the integrated concept itself. It refers to the understanding of a holistic concept (with all relevant relationships and structure) within a larger context. The larger context in turn provides the learner with a deeper understanding of the underlying influences of the relational complex idea.
One of the ways the taxonomy can be used is in framing a hierarchy of questions or outcomes in terms of different levels of complexity. The complexity of questions can be evaluated in terms of their expected outcomes or answers. Hattie & Purdie (1998) describe the five levels of outcomes in the SOLO taxonomy that questions can be designed to achieve. The table below depicts and illustrates questions that can be designed using the SOLO taxonomy as a guide:

Table 1.2: Example of SOLO outcomes from Hattie & Purdie (1998, p.154 – 155)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-structural outcomes</td>
<td>Question involves inappropriate processing that leads to incorrect knowledge.</td>
<td>Not considered appropriate.</td>
</tr>
<tr>
<td>Uni-structural outcomes</td>
<td>Question requires only one relevant aspect of the presented evidence, so the conclusion is limited and likely to be dogmatic.</td>
<td>Which is the planet that is furthest from the sun?</td>
</tr>
<tr>
<td>Multi-structural outcomes</td>
<td>Question requires using two or more discrete and separate pieces of related information.</td>
<td>Which planet is warmer – Venus or Mars?</td>
</tr>
<tr>
<td>Relational outcomes</td>
<td>Question requires two or more pieces of information that are directly related, or lead to an integrated understanding of the information.</td>
<td>How does the movement of the Earth relative to the sun define day and night?</td>
</tr>
<tr>
<td>Extended-abstract outcomes</td>
<td>Question requires use of an abstract general principle or hypothesis that requires students to go beyond the given information.</td>
<td>Given the Earth’s position relative to the sun, in what ways does this affect the Earth’s climates and seasons?</td>
</tr>
</tbody>
</table>
TLLM AND CURRICULUM

It is useful at this point to recall the contrast between quantitative and qualitative views of the curriculum. A quantitative understanding of curriculum sees its various topics as an aggregate of unrelated entities. Students need only understand the topics in themselves but not in relation to each other. In terms of the SOLO taxonomy, this would amount to a unistructural understanding of the curriculum.

In contrast, a qualitative perspective would require learners to understand the topics in a curriculum in relation to each other for a holistic understanding. Hence, a relational level of learning in the SOLO taxonomy would indicate a student’s holistic understanding of a series of related topics in a syllabus. A relational understanding would mean that students understand each topic adequately in itself (unistructural), appreciate the fundamental distinctiveness of topics against each other (multi-structural) and then are able to synthesise their understanding of the different topics so as to achieve a holistic understanding of the intricate connections between all of the topics in relation to each other.

Can we claim that students in Singapore are prompted by our assessment practices to achieve holistic understanding of different topics in relation to each other? Frequently, the compartmentalization of different topics into different questions avoids the needs for students to make connections of their knowledge. The increasingly modularization of syllabi does not help either, creating artificial modularizations of knowledge with accompanying assessment practices isolated within artificial modularised boundaries. A relational, holistic understanding of relevant concepts is indeed a tall order and a high ideal to strive for in assessment practice.

Yet, the relational level is not the most advanced level of learning in the SOLO taxonomy. Returning to the metaphor of a house, the extended abstract level may be likened to a person extending his understanding of a house beyond what it is constituted of (relational) to what the house becomes part of (extended abstract).

Likewise, it is argued that students who understand the relational connections amongst a set of concepts at one level (relational) can deepen their understanding of those concepts when appreciating its context at an advanced level (extended abstract). An understanding of the
relationships between the various environmental issues at a basic level is relational, but would be extended abstract when appreciated against the larger context of the solar system.

The SOLO taxonomy presents two challenges for teaching, learning and assessment. Firstly, by emphasising relational understandings of connections between relevant knowledge, it emphasizes that knowledge is not isolated and always in need of being linked to a larger body of relevance. The challenge is for teachers to consider the logical connections their students should be making in their topical knowledge. Such a goal involves curriculum re-design as well as changes to assessment practice.

Secondly, the notion of extended abstract understanding argues that knowledge, even in a relational level, needs to be situated against a broader context so that it has meaning beyond its constitutional components. This challenges teachers to constantly present what the larger context of each topic would be to their students.

**CONCLUSION - CAN TLLM BE REINTERPRETED?**

If we accept the assumption that TLLM encourages the interpretation and challenge of knowledge constructions, interpretations and boundaries, then perhaps the TLLM initiative itself can be interpreted by its key stakeholders – teachers and students. What are the available interpretations of TLLM for teachers and students and what are their implications? The following options are suggested:

**TLLM as a Concession?**

Firstly, TLLM may be understood as a concession for teacher/student autonomy. TLLM claims to revamp state-wide pedagogy. But if its pedagogical agenda is still subservient to high stakes assessment pressures, then it perhaps is effective only in offering teachers and students a token amount of autonomy to teach and learn in radically new ways, but only if such learning conforms to what is tested in examinations.
So whilst TLLM exhorts teachers to teach less in order that students may learn more, what students actually learn is still dependent on what they are assessed on, and not how much less they are taught. In this context, teachers and students enjoy limited autonomy in TLLM. Alternative assessment may be one way of alleviating the stifling effects of high stakes examination sin Singapore on TLLM but such assessment alternatives are in turn constrained by pressures of certification and selection.

**TLLM Constructs what is tested?**

Secondly, TLLM may be seen as an important initiative to provide significant summative opportunities for developing formative assessment practices and extending the ambit of student learning beyond prescribed national examinations. In short, TLLM is not constrained by what is eventually tested, but instead expands what is tested to accommodate what has been learnt. Hence, students learn more in TLLM and the nature and extent of such enhanced learning optimizes their performance in national examinations. It is also assumed that national high stakes examinations have the capacity to recognize such new forms and expressions of learning. This requires radical rethinking of the purposes, practices and policies of national examinations in Singapore by all stakeholders.

**TLLM as a Radical Challenge?**

Finally, TLLM may perhaps simply be a spanner in the works. It serves as a radical challenge to the Singapore education system. Introduced as an initiative, it is intended to serve as the norm for teaching and learning, that student learning in Singapore should be typically student led/driven and that teaching and assessment should be congruent and support student autonomy accordingly. Consequently, formative purposes of assessment are emphasized and in time to come the national examinations are predominantly designed and implemented with
a strong emphasis on formative assessment. Going one step further, TLLM may push the boundaries of teaching and learning to an extent that cannot be accommodated by any form of examinations and tests. This implies that alternatives to high stakes examinations and tests may have to be found in order to keep pace with enhanced learning in TLLM. Perhaps, this would see the popular hope expressed in TLLM that it prepares students for the tests of life, instead of a life of tests. If this interpretation were to be accepted, then perhaps Teach Less, Learn More would require a change in its acronym.
References


