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DRAFT

The Enactment of the Policy Initiative for Critical Thinking in Singapore Schools.

Charlene Tan

Abstract

This article examines the enactment of the policy initiative to promote critical thinking in Singapore schools from the perspectives of educators in Singapore. It is argued that teachers in Singapore are not passive recipients or mere implementers of top-down policy decisions. Rather, they enact the policy initiative by making sense of, negotiating, influencing and capitalising on their unique conditions to achieve their goals and juggle multiple demands. Three research findings are discussed in this article. First, the teachers mediate the policy process through their interpretations of critical thinking and cognisance of the socio-cultural challenges they face. Secondly, they recontextualise the policy initiative by adopting a skills-focused conception of critical thinking in the form of the infusion cum discipline-specific approach. Thirdly, they apply correlative thinking by combining didactic teaching with active student participation in their dual desire to foster critical thinking and prepare their students for the high-stakes exam. This study extends the existing research on policy enactment by identifying and illustrating manifestations of active appropriation in an Asian context.

Keywords: correlative thinking, critical thinking, policy enactment, infusion approach, Singapore, teachers

Introduction

An essential component of policy analysis is an understanding of how local conditions shape policy implementation (Taylor et al. 1997) and second-order values mediate policy (Bell and Stevenson 2006). Given that policy is not just a product but also a process (Bowe, Ball, and Gold 1992), it is important to examine, among other considerations, how teachers' efforts interact with available resources as well as contextual and structural factors in particular situations (Biesta and Tedder 2007). The attention is not just on how teachers (re)act in their environment but more importantly, how they act *by means of* their environment (ibid.). A key question is how teachers enact national policies by interpreting, negotiating, influencing and capitalising on their unique conditions to achieve their goals and juggle multiple demands.

This article examines the enactment of the policy initiative to promote critical thinking in schools from the perspectives of educators in Singapore. Although there is an impressive body of literature on the formulation, processes and outcomes of education policy in Singapore (e.g. Sharpe and Gopinathan 2002; Tan and Ng 2008; Choy and Tan 2011; Deng, Gopinathan, and Lee 2013; Hogan 2014; Lee, Lee, and Low, 2014; Lee and Hung 2016), relatively limited research has been devoted to the topic of policy enactment by teachers. Given that the governance style of Singapore government has been described as strong,

developmentalist and interventionist (Hussin 2004; Gopinathan 2007, Koh 2007), the dearth of works on policy enactment rather than simply implementation (a distinction I shall return to later) in Singapore may give the impression that educators in the country are passive recipients or mere implementers of top-down policy decisions. To be sure, some publications have highlighted the challenges and struggles faced by school leaders and teachers in Singapore (e.g. Ho 2001; Tan and Ng, 2008; Tan 2012). However, they tend to, consciously or unconsciously, portray teachers as *reacting* to circumstances rather than *acting* by means of their local environments to achieve strategic goals. This article therefore aims to fill the gap by exploring how teachers in Singapore interpret and recontextualise policy messages and measures within the school contexts. The first part of this article expounds on the concept of policy enactment that serves as the theoretical framework for this study. This is followed by an introduction to the education system and the policy initiative to promote critical thinking in Singapore. The next part of the paper focuses on the research study in terms of its method, findings and implications.

The Concept of Policy Enactment

The study draws upon the extant research on policy enactment (Spillane 1999; Coburn 2005; Braun et al. 2010; Ball et al. 2011a, b; Braun et al. 2011; Ball, Maguire, and Braun 2012; Grimaldi 2012; Singh et al. 2013, 2014; Hardy 2014; Gowlett 2015; Maguire et al. 2015). Policy *enactment* differs from policy *implementation* in that the former goes beyond a simplistic “top down” or “bottom up” process of making policy work’ (Ball, Maguire, and Braun 2012, 6). Research that is limited to policy implementation does not adequately explain how and why teachers and other educational stakeholders grapple with and carry out conflicting policies simultaneously (Maguire et al. 2015). What is overlooked are social agency and social intentionality where actors engage in activities such as ‘making meaning, being influential, contesting, constructing responses, dealing with contradictions, attempting representations of policy’ (Ball 1993, 14). Policy enactment refers to how policies are interpreted and translated by various policy actors in a local environment (Braun et al. 2010). Highlighting the reality that putting policies into practice is context- and place-specific, Braun et al. (2011) assert that policy enactment ‘involves creative processes of interpretation and recontextualisation – that is, the translation through reading, writing and talking of text into action and the abstractions of policy ideas into contextualised practices’ (549). This process of policy enactments involves multiple and often competing social, cultural and emotional construction and interpretation by different actors (Maguire et al. 2015). It follows that policy process is fundamentally a ‘value-laden state activity’ (Fitz et al., 2006, 34) where ‘actors are often simultaneously positioned within overlapping, intertwining, conflicting and contradictory moral frameworks, and often their work in a specific agency is pressured by the conflicting demands of different stakeholders’ (Singh et al. 2013, 470).

Among the contexts for policy enactment are the professional settings that comprise the ‘values, teacher commitments and experiences, and “policy management” in schools’ (Braun et al. 2011, 588). Policy enactment highlights the role of educators not just as subjects but also as *agents* of policy enactment processes (Ball et al. 2011a, 2012). Educators particularly schoolteachers exercise agency by negotiating varied and rival policy discourses, navigating performance regimes and mitigating negative effects (Singh et al. 2014). Rather than merely accepting the official policy narratives, teachers constantly (re)interpret, adapt and/or transform new policy ideas through ‘the lens of their preexisting knowledge and practices’ (Coburn 2005, 477). Teachers, in short, are the ‘key agents’ and ‘final policy

brokers' whose motivation and ability to change classroom practice have a direct impact on policy enactment (Spillane, 1999). Not only do teachers (re)imagine education policies, they also actively adopt selective aspects of the policy to achieve their own goals. Calling this approach 'the logic of active appropriation', Hardy (2014) reports that teachers in the Australian state of Queensland capitalise on the performative demands of the National Assessment Programme for Literacy and Numeracy (NAPLAN) to fulfill their desire to improve student learning. Hardy's conclusion is corroborated by Gowlett's (2015) study of a principal of a secondary school in Australia. The principal rejects a 'binarised lens of following the norms versus breaking free of the norms' by simultaneously prescribing a particular practice and encouraging a critical engagement with data. The non-binary perspective of the Australian educators is a form of 'correlative thinking' that is contrasted with causal thinking. According to Hall and Ames (1995), causal thinking sees items as discrete and binary based on an 'either-or' logic. Such thinking interprets events, policies and human actions as necessarily logical, rational, definite and linear, following a cause-and-effect pattern and assumptions. Correlative thinking, on the other hand, is premised on a 'both' logic by underlining the similarities, complementarity, and inter-connectedness between items. Rather than opposition and contentiousness, correlative thinking seeks to accommodate and harmonise differences in desires, attitudes, and actions. Policy enactment often relies on correlative thinking where an actor goes beyond simplistic causal thinking to deal with complex and paradoxical changes, processes, contingencies, developments and problem-situations that occur simultaneously.

Coburn (2005) identifies three factors that influence the teachers' enactments of policy within their professional contexts: prior knowledge, the social context within which they work, and the nature of their connections to the policy message. Accordingly, prior knowledge refers to the totality of beliefs, assumptions, interests, and experiences that shape the behaviour of individuals at work. Also underscoring the multiplicity of worldviews from teachers and other policy workers are Ball and colleagues (2011a) who maintain that the plural interpretations and translations of policy are moderated by existing values and interests that are "personal and institutional, by context, and by necessity" (635). The second factor is the social context that encompasses the patterns of social interaction with colleagues, the conditions for learning in the school, and local workplace norms that shape the range of appropriate responses and structure priorities (Coburn 2005). Finally, the nature of the nature of teachers' connections to policy messages is expressed through their degrees of depth, pervasiveness, specificity, and voluntariness (*ibid.*). The agency exercised by teachers has generated what Ball et al. (2011a) call the 'paradox of enactment' where the relations between teachers and those infused with power are both disciplinary (through various official regulatory measures) and creative (through the teachers' policy enactment).

The Education System and Policy Initiative for Critical Thinking in Singapore

It is helpful, at the outset, to give a brief introduction to the education system in Singapore with a particular focus on primary education. The majority of the schools from the primary to pre-university levels are state schools (known locally as 'national schools') under the Ministry of Education (MOE) in Singapore. Under the Compulsory Education Act, all children above the age of six years must be enrolled in a national primary school, unless exemptions have been granted due to special circumstances. The primary school curriculum is comprised of content-based subject disciplines, knowledge skills and life skills, with students typically taking seven content-based subject disciplines (English, Mathematics,

Mother Tongue, Science, Social Studies, Art, and Music) (for details, see MOE 2016a). Primary school students sit for a terminal examination known as the Primary School Leaving Examination (PSLE) that tests their knowledge of four subjects: English language, Mother Tongue Language (Chinese, Malay or an approved Indian language), Mathematics, and Science.

The PSLE is a high-stakes exam as the aggregate score obtained by a student determines which academic stream (Express, Normal (Academic) or Normal (Technical)) and secondary school the student is eligible for. The desire to qualify for top-performing secondary schools has resulted in many families channelling considerable time and resources to help their children perform well at the PSLE. The priority placed on acing the PSLE has driven many parents to turn to private tuition to give their children an edge over their peers. A recent survey reports that nearly eight in 10 parents with children in primary school pay for private tuition; the latest Household Expenditure Survey shows that families spent S\$1.1 billion a year on tuition (Tan, 2014; Davie, 2015a, b).

The majority of primary school teachers in Singapore are not subject specialists, i.e., they teach not one but three subjects (English, Mathematics and Science) to the same group of students. This means that most primary school teachers teach self-contained classes like the elementary teachers in the United States. The teachers' working context in Singapore has traditionally been assessment-driven where exam techniques such as drill-and-practice are prevalent in the classroom (Cheah 1998; Hogan 2014; Teh 2014; Chiam et.al. 2014). The commitment of the teachers to their students' academic performance and cognitive development, coupled with heavy educational investment by MOE and the strong support from the parents, has arguably contributed to Singapore students' impressive performance in international large-scale assessments such as Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Literacy Study (PIRLS), and Programme for International Student Assessment (PISA) (IEA 2011; TIMSS and PIRLS International Study Centre 2016; OECD 2015). However, a drawback is a tendency for teachers to "over-teach and provide explicit training to predict or arrive at one correct answer, as students prepare exams such as the Primary School Leaving Examinations" (Chiam et al. 2014, 20-21). Tony Wagner from Harvard University avers, in an interview with the local press, that the "challenge for Singapore is to realise that the current testing and grading system is not going to develop young innovators; it's only going to develop good test-takers" (En, 2015). The effect of being study-smart but comparatively weak in critical thinking is felt in the workplace. Low and Vadaketh (2014) observe that the average Singaporean worker is unable or reluctant to disagree with one's superiors or critique potential flaws in established corporate processes.

Although the promotion of critical thinking is not new in Singapore schools (for details, see Chua and Leong 1998; Author; Chang et al. 2007), it has received renewed interest in recent years. Announcing the vision, 'Every Student, A Thinking Student', the Senior Minister of State of MOE states that "every student, (not just top students or the ones with the best grades, but every student) at every level, (not just at Upper Primary or Upper Secondary, but at every level), will be developed in their thinking skills and dispositions" (MOE 2013a, para 7). A 'Framework for 21st Century Competencies and Student Outcomes' has been conceptualised by the MOE that lists critical thinking as a core competence (MOE 2016b). The desired outcome is "a confident person who has a strong sense of right and wrong, is adaptable and resilient, knows himself [sic], is discerning in judgment, *thinks independently and critically*, and communicates effectively" (ibid., para 7, italics added). To support the goal to nurture critical thinkers, the then Education Minister announced that the content knowledge of school subjects would be reduced so that more curriculum time could be channelled to the learning and application of thinking skills (Ng 2015).

A noteworthy feature of the current policy initiative to cultivate critical thinking in students is the identification of a specific approach for critical thinking. The former Director-General of Education states that the MOE has not planned any specific ‘thinking skills subjects’ because it prefers a ‘total-curriculum approach’ (MOE 2014). The Senior Minister of State of MOE elaborates on this approach:

[G]ood thinking should be deliberately developed *within the context of subject disciplines and the total curriculum*. This means that we need to teach students how to think critically and inventively in different subject disciplines. We need to model and guide students through the thinking process, using questioning so as to make the thinking explicit and visible in the learning. We should also provide feedback throughout the learning process so that students are able to improve their thinking skills. This *infusion of thinking in the curriculum* will encourage students to engage with concepts in their learning, moving beyond simply receiving content (MOE 2013a, para 14, italics added).

The approach privileged by the MOE is the *infusion cum discipline-specific* method that aims to permeate critical thinking into the curricular content and across the curriculum rather than confining it to a particular ‘critical thinking’ subject or programme. This method is aligned with the ‘Teaching for Thinking’ (TfT) approach where critical thinking skills and dispositions are taught indirectly through injecting them into various contents (Swartz and Perkins 1990; Swartz, Kiser, and Reagan 1999). TfT is often contrasted with ‘Teaching of Thinking’ (ToT) where critical thinking frameworks, techniques and strategies are taught in a direct and explicit manner (Ruggiero 1988). Proponents of TfT believe that a single, stand-alone course is insufficient to bring about the complete skills-set and dispositions associated with the fully-fledged critical thinker (Robinson 2011).

Corresponding to the TfT versus ToT debate is the question of whether critical thinking is better taught through a discipline-specific or generic approach (Davies 2006, 2013). Specificists (supporters of the discipline-specific approach) such as McPeck (1981, 1992) contend that thinking is “always thinking about something, and that something can never be ‘everything in general’ but must be something in particular” (4). Generalists (supporters of the generic approach), however, disagree, arguing instead that critical thinking abilities and dispositions can be and should be taught independently of the subject-matter (Ennis 1987, 1992). That the infusion cum discipline-specific approach is recommended for Singapore schools is further seen in the primary school syllabi where critical thinking is embedded in the teaching of specific disciplinary knowledge. For instance, the Primary English syllabus 2010 states that teachers should “teach pupils to think critically and reflect on what they read and/or view” (MOE 2010). The Primary Science syllabus highlights “the development of reasoning and analytical skills” as providing a strong foundation in scientific knowledge and methodologies (MOE 2013b). Critical thinking is developed under “thinking skills and heuristics” in the mathematics framework for Primary Mathematics syllabus (MOE 2012).

Overall, the policy initiative to promote critical thinking in Singapore reflects an international trend towards fostering ‘21st century skills’ in students (Voogt and Roblin 2012). National governments and organisations across the globe have conceptualised and implemented different frameworks for 21st-century education such as *Common Core State Standards* by the National Governors Association Center for Best Practices & Council of Chief State School Officers, *General capabilities in the Australian Curriculum* by the Australian Curriculum, Assessment and Reporting Authority, *21st Century Skills and Competences for New Millennium Learners in OECD Countries* by the Organisation for

Economic Co-operation and Development (OECD), and *Key Competences for Lifelong Learning* by European Parliament and the Council of the European Union. A key similarity among the frameworks is an emphasis on skills or competencies that are multidisciplinary, multimodal and transferable so as to empower individuals to solve ill-structured real-life problems in a digital age.

The Study

Method

The study was guided by this research question: How do primary school teachers in Singapore enact the policy initiative for critical thinking in schools? The research data for this study were obtained from 44 individual reflective essays written by participants who were enrolled in an elective undergraduate-level course on critical thinking in Singapore. Comprising 16 males and 28 females, all the participants were qualified teachers and had previously taught English, Mathematics and Science in various national schools in Singapore. 19 of them have taught for five years or less, 16 have taught for between six and 10 years, and 9 have taught for more than 10 years. The course which lasted eight weeks introduced participants to various concepts, interpretations, models, frameworks and practices of critical thinking through films, small group discussion, case studies and micro-teaching.

The participants were asked to write an individual reflective essay on their perspectives on and experiences of promoting critical thinking in schools. No conceptual models of and teaching approaches to critical thinking was prescribed to the participants throughout the course as the purpose was to encourage them to freely express their views on critical thinking in general and the policy initiative for critical thinking in particular. To pre-empt the possibility of the participants being influenced by the expectations of the course instructor, the participants were informed of and their consent sought for this research project only after they had completed the course and obtained their respective course grades. The process of content analysis follows the guidelines given by Berg (2009): identify the research question, determine analytical categories, select the data sources and coding based on analytical categories, determine the criteria of selection for sorting data chunks into the analytic categories, sort the data into the various categories, and identify dominant patterns and themes in the overall framing. The patterns were considered in light of previous research and existing theory as well as guided by the research question set out for this study (Berg, 2009).

Findings and Discussion

Using the categories and themes derived from the essays, the following three findings are identified and discussed: Teacher mediation of the policy process; the preference for a skills-focused conception of critical thinking; and the utilisation of correlative thinking.

Teacher mediation of the policy process

The first research finding is that the educators in the study mediated the policy process through their understanding of critical thinking and cognisance of the socio-cultural challenges they faced. First, they viewed critical thinking as relevant and important to their students and supported the policy initiative to promote it in schools. In this sense, they adhered to MOE's policy initiative and objective to foster critical thinking to students. But the teachers' support for critical thinking stemmed not so much from their obligation to conform to MOE's directive but more from their intimate knowledge of the weak critical

thinking abilities of their own students. An example is the quote below:

In the recent OECD [Organisation for Economic Co-operation and Development] ranking of schools, Singapore came out as the top performer internationally (Goy 2015). This result is something that I believe all teachers in Singapore should be proud of. However, what needs to be highlighted are also areas in our education system that require improvement. ... What I am talking about is how Singapore pupils have often been criticised for being simply book-smart and lacking in creativity and critical thinking.

Secondly, the educators mediated the policy initiative by foregrounding the socio-cultural realities and the challenges they were confronted with in their attempt to develop critical thinking in their students. A major challenge often cited was the prevailing school and societal culture on exam preparation and test scores. Below is a representative view:

In fact, Singaporean students have a famous catchphrase, “Is this coming out for the exams?” It is a refrain that encapsulates how students see education as preparing for examinations instead of as a platform for critical thinking.

A participant noted that any move by the school to shift from “test-like teaching” towards pedagogies and activities that advocate critical thinking would create “panic among parents” who were concerned that such a change would undermine their children’s performance in the PSLE. One of the effects of high-stakes exams is that teachers are reluctant to experiment with and champion any critical thinking strategies, resources and programmes that are not directly related to the exams.

But the educators’ realisation of the challenge posed by an exam-driven culture did not dampen their enthusiasm to develop critical thinking in their students. Many articulated their firm belief that the promotion of critical thinking was an integral part of the school mission and their calling as teachers. They made reference to the digital and globalised world that their students lived in that necessitated the latter to master critical literacy and knowledge management. As expressed by a participant:

[I]n this world of multiliteracies clamouring for their attention, I believe teaching them to think critically is one of the more crucial skills I would like to impart to them. I see it as a vital tool pupils need to have to unlock the knowledge they have at their fingertips.

It can be observed that the educators’ interpretation of the policy initiative to promote critical thinking is dependent on their own knowledge (existing values, beliefs, assumptions, interests, and experiences), the social context within which they work, and the nature of their connection to the policy message (Coburn 2005). The process of policy enactment for the Singapore educators involves their own social, cultural and emotional constructions and interpretations of ‘critical thinking’ and what they think is the best for their students (Maguire et al. 2015). The educators’ personal conviction on nurturing critical thinkers and their awareness of an exam-oriented environment is compatible with the policy initiative, motivating them to support the reform message that students needed to go beyond being exam-smart by becoming critical thinkers. In short, the educators’ own ‘values, teacher commitments and experiences’ (Braun et al. 2011, 588) mediate and influence their responses to the policy initiative for critical thinking.

The preference for a skills-focused conception of critical thinking

The second research finding is the educators' preference for a skills-focused conception of critical thinking in their translation of the policy initiative. Such a conception underlines one's capacity to reason logically and cohesively through the acquisition of techniques such as evaluating categories and determining the validity of knowledge claims (Vandermensbrugghe 2004). What was less favoured by the educators was an 'emancipation-focused' conception that emphasises one's ability to question and challenge existing knowledge and the social order (ibid.). In other words, the educators valued critical thinking primarily for its practical usefulness and effectiveness in the schooling and work contexts. The finding is consistent with research that shows that critical thinking in Singapore is predominantly instrumentalist and cognitive-based (Deng 2001; Lim 2013). The participants in this study preferred the infusion cum discipline-specific approach not out of mere policy compliance, but because of its perceived logical compatibility with their socio-cultural environment. Their lived experiences in an exam-oriented environment directly influenced their translation of policy ideas into contextualised practices through specific classroom pedagogies (Braun et al. 2011). The educators' recontextualisation of policy message was particularly influenced by time constraints which were often cited as a main reason why the direct and explicit method of 'Teaching of Teaching' (ToT) was not feasible. As explained by a participant:

It is a well-known fact that teachers in Singapore have many struggles and one of these is the need to complete syllabus and prepare pupils for their examinations. In such a situation where we are faced with tight constraints of time, teaching sometimes gets reduced to a mundane chore of simply delivering the curriculum. And very often, the teaching of anything out of the ordinary or "out of syllabus" becomes relegated to second place or [is] sometimes just thrown out altogether.

A crowded curriculum means that it is difficult for teachers to set aside sufficient curriculum time to teach critical thinking as a stand-alone subject to students. A participant in the study pointed out that Singapore teachers typically spent at least three afternoons in a week on various mandatory programmes and meetings in schools. Most teachers are therefore too bogged down with a host of duties and commitments to design 'critical thinking' lessons that are tailored for their students.

The infusion cum discipline-specific approach was therefore preferred by the teachers who perceived it as a workable strategy that did not occupy extra curriculum time. A participant noted:

One way to counter this problem [time constraints] is by integrating the teaching of critical thinking skills into the various subjects taught in school. This integrations must occur seamlessly and naturally. Hence a natural fit must be attained to ensure that students are able to cultivate critical thinking skills while learning the standard curricula for the various subjects.

Examples of such infusion cum discipline-specific strategies mentioned in the study include getting students to examine the reasons for the success or failure of a Science experiment, and critically evaluate written texts to understand the characters, plot and intent of the author in an English lesson. That the PSLE assesses the students on their critical thinking abilities further incentivises the infusion of critical thinking into the various disciplines. A case in point is the mathematics paper that includes exam questions on 'thinking skills and

heuristics'. This type of questions are MP3-level questions that comprise around 15% of the total marks (MP stands for Mathematical Process).

The teachers' propensity towards a skills-focused conception of critical thinking was also motivated by the social context within which they work (Coburn 2005), described by the participants in the study as a performative working environment. Such a disciplinary culture measures the productivity or output of individuals through their performances, and employing judgement, comparisons and displays as means of incentive, control, attrition and change (Ball 2003). A dilemma faced by the teachers in the study was how to reconcile the cultivation of critical thinking in students that may not always result in measurable outputs *and* the delivery of 'hard evidence' such as high-test scores. A participant commented as follows:

School leaders tend to refer to tests scores due to performativity. Heads of Departments are constantly reminded to 'monitor' the teachers by ways of tests scores. ... Critical thinking activities ... are usually reduced or omitted because these cognitive activities are time consuming and frequently do not have visible products or measures to verify that they have been done.

A solution for the teachers to resolve their dilemma was to adopt the infusion cum discipline-specific approach as it allowed them to direct the critical thinking efforts and competencies of the students to exam performance and academic achievement. This approach has the advantage of enabling the teachers to meet the requirements of performativity in the form of high test scores as well as fulfil their desire to nurture critical thinkers in the students. The teachers' pragmatic and deliberate response to the demands of performativity illustrates the 'paradox of enactment' (Ball et al. 2011a): the relations between the teachers and those infused with power are simultaneously disciplinary (performative demands such as achieving high test scores) and creative (the teachers' educational concerns such as nurturing lifelong critical thinkers). Teachers in the study maneuvered around performance regimes and mitigated the effects of quantifiable outcomes (Singh et al. 2014) by relying on the infusion cum discipline-specific approach to achieve high test scores while advancing critical thinking in students at the same time. In so doing, they are the 'key agents' and 'final policy brokers' by changing classroom practices and impacting policy enactment (Spillane, 1999).

The utilisation of correlative thinking

The third research finding is that the educators in the study utilised the rationale, resources and practices of correlative thinking in their support of critical thinking for their students. As discussed earlier, correlative thinking is premised on a 'both' rather than 'either-or' logic that guided the educators to make sense of and negotiate the tensions and dilemmas that they experienced in an exam-oriented and efficiency-driven system. The application of the 'logic of active appropriation' (Hardy 2014) through correlative thinking by the teachers is manifested in two main ways.

First, the educators adopted correlative thinking in their endeavour to meet the twin demands of exam preparation and inculcation of critical thinking. They did not opt for causal thinking ('either-or' logic) as that they neither jettison critical thinking in favour of exam preparation nor give up content transmission and exam techniques for the sake of nurturing critical thinkers. Instead, they turned to correlative thinking to harmonise their short-term goal of helping their students to do well in the high-stakes exam with their long-term goal of empowering their students to thrive in the modern world. A participant explained why the attainment of high test scores could only reap short-term benefit for the students:

While such strategy [drilling and testing] may bring glory to the school and the students who would proceed to attain good results in the various assessments, it is mainly a short term benefit. In the long run, we are depriving our students of the much needed exposure to solving various problems by using critical thinking skills and reasoning which would come in extremely handy in solving real life issues when they enter the work force in the future.

The second way in which the educators employed correlative thinking was their combination of didactic teaching with active student participation. On the one hand, the educators valued didactic teaching for its efficacy, as represented in the quote below:

[T]eachers frequently teach didactically as this is viewed as the most efficient way of covering content. This will free up time for teachers to check through the books and files to ensure that pupils' corrections are done before they are handed in.

Within a time-pressured environment, the educators reasoned that a teacher-centred approach was the most pragmatic and efficient way to cover the syllabus. But they were not contented to simply teach didactically nor did they regard such an approach as incompatible with methods that encouraged class participation and enhanced the students' critical thinking. A strategy cited by the participants in the study was critical questioning led by the teacher. A participant explained:

As teachers, we should respectfully challenge the pupil's viewpoint in order to elicit a deeper and a more reflective response. This can be done by not responding to pupils in an authoritative manner that kills the discussion. In fact, the objective in mind should be to keep the discussion moving and not letting the pupils assume that the teacher always has the final word on a subject matter.

Another method to infuse critical thinking into the teaching of content subject as part of exam preparation is the 'Questioning the Author' (QtA) strategy. A participant who has implemented this strategy in the teaching of English language noted the positive student outcome:

Those of us on board the research found that that the strategy drove students towards asking 'harder' questions which probed them to think deeper as they wrestle with the ideas to construct meaning with what they are reading. We also saw improvements in the quality of their answers to questions that required students to support their answers. In fact, the teachers observed that even in their everyday interaction, the students have become more perceptive and discerning – challenging the claims in what they read, see or hear.

Rather than adopting "a binarised lens of following the norms versus breaking free of the norms" (Gowlett 2013, 169), the teachers in the case study embraced both options using correlative thinking. Their prior knowledge, the social context within which they work, and the nature of their connections to the policy message (Coburn, 2005) collectively influence their enactments of the policy initiative for critical thinking within their professional context.

The utilisation of correlative thinking by the teachers may explain a paradox concerning the educational system in Singapore. On the one hand, Singapore stands out for its impressive performance in large-scale international assessments such as TIMMS, PIRLS and PISA. Singapore's achievement in PISA implies that its schools, far from relying on rote

learning, have succeeded in developing critical thinking and problem-solving capacities in their students (Vasagar 2014). On the other hand, however, the teaching approaches in Singapore have been described by researchers as didactic, text-based and exam-centric. For instance, Hogan (2014) claims that teaching in Singapore is “teacher-dominated” where teachers “rely heavily on textbooks, worksheets, worked examples and lots of drill and practice” (para 6). A way to resolve this paradox is to recognise the significance of correlative thinking employed by Singapore teachers. The application of correlative thinking enables them to synthesise direct instruction, content mastery and exam preparation with pedagogies and activities that champion active student participation and critical reflection. This study supports the finding of Lee and Hung (2016) that Singapore teachers possess the “adaptivity to toggle or hybridise twenty-first century pedagogies with teacher-centred approaches to deliver knowledge, develop dispositions, and maintain performances” (65).

Implications

Given that the existing research has largely focused on policy enactments in the Western contexts (e.g. see Spillane 1999; Coburn 2005; Braun et al. 2010; Ball et al. 2011a, b; Braun et al. 2011; Ball, Maguire, and Braun 2012; Grimaldi 2012; Gowlett 2013; Hardy 2014; Singh et al. 2014; Maguire et al. 2015), this study shifts the attention to policy enactments in an Asian context using Singapore as an illustrative case study. The research findings debunk the general perception of Singapore teachers as mere policy implementers by portraying them as agents who recognise and adequately deal with the issues, challenges and opportunities engendered by state policies. This study extends the existing research on policy enactment by identifying and illustrating correlative thinking as a manifestation of active appropriation in the processes of policy enactment. Like their counterparts across the globe, schoolteachers in Singapore face increased pressures from utilitarian priority and technical rationality that threaten to undermine educational concerns such as student learning (Hardy 2014). But rather than adopting an ‘either-or’ logic (Gowlett 2013, 169), the teachers in the case study desire to meet exam demands and instil critical thinking in their students using correlative thinking. Furthermore, the personal values of the teachers – what they think a ‘good’ school, teacher and student should be etc. – mediated the policy initiative on critical thinking. The teachers’ own ideals, definitions and perceptions of critical thinking and its associated policy initiative also accounted for their strategic choice of approaches and modes of thinking that helped them to bridge the contentious landscape. The decision arrived at by the Singapore teachers brings to the fore the complex and dynamic nature of policy-making where local conditions shape policy enactment and second-order values mediate policy. Their experience demonstrates how teachers are situated within a cross-section of competing theoretical ideas about what school is for, what learning looks like, how we measure quality learning and quality teaching, and what teaching should look like.

A major implication arising from this study is a call for policymakers, school leaders and other education actors to acknowledge the dominant role of teachers in the process of policy enactment. Given that the teachers as key agents of policy enactment could directly influence the contents and outcomes of policy initiatives, the education authorities, curriculum planners and school leaders should consult and collaborate closely with teachers to ensure coherence of policy goals, contents and processes. After all, the disciplinary relations between teachers and those infused with power is only one side of the coin: teachers are capable of creatively making sense of and translating policy ideas into contextualised practices in the ‘paradox of enactment’ (Ball, et al. 2011a). The co-existence of disciplinary and creative relations among education actors reminds us that policy, rather than top-down

and static, is a discourse that evolves and transforms through interactions with and meaning-making among diverse agents (Ball 1993). The prior knowledge of the teachers may aid or hinder the intended policy outcomes through the teachers' (re)interpretations and translations of the policy initiative in the classroom. In addition, teachers are presented with varied and competing policy discourses that require them to navigate around performance regimes and reduce these negative repercussions (Singh et al. 2014). The trend towards performativity is arguably more pronounced in an era of international assessment and inter-country comparison where governments increasingly turn to standardised testing as well as national audit and accountability programmes (Lingard and Sam, 2013; Ball et al. 2012). A social context that is underpinned and governed by a performative and audit culture has adverse effects on the patterns of social interaction among educators, the learning conditions in the school, and the workplace norms that determine responses and structure priorities (Coburn 2005). How compatible are the underlying philosophies and mechanics of performativity with the teachers' educational ideals, moral values, commitment and experiences? Rather than neglecting the teachers' preexisting knowledge, values, interests and practices, policymakers and other educational stakeholders should seek to understand and incorporate these into the process of policy enactment through constant dialogues and negotiation. For example, teachers need to be convinced of the desirability and necessity of new and existing policy initiatives, be it critical thinking, high-stakes testing or 21st century competencies. Teachers and other education workers could also deliberate on and respond to educational paradoxes and challenges, such as teacher-centredness versus student-centredness, (more) performative demands versus (more) educational concerns, and national priorities versus teachers' personal values and philosophies.

Conclusion

This article has examined the enactment of the policy initiative to promote critical thinking in schools from the perspectives of educators in Singapore. It was argued that teachers in Singapore are not passive recipients or mere implementers of top-down policy decisions. Rather, they enact the policy initiative by making sense of, negotiating, influencing and capitalising on their unique conditions to achieve their goals and juggle multiple demands. Given that policy enactments are inevitably moderated by existing values and interests that are both personal and institutional, policymakers need to support teachers in addressing the "overlapping, intertwining, conflicting and contradictory moral frameworks" within which teachers are positioned (Singh et al., 2013). Ultimately, educators play an influential role in policy enactment by interpreting, struggling over and ultimately re-shaping the policy initiative and outcomes (Ball, Maguire, and Braun 2012). Even as the teachers' socio-cultural context shapes their perspectives and guides their actions, the teachers also draw from their classroom experiences to actualise their visions of the good, in tandem with the policy and environmental demands on their work.

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