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Abstract

Drawing on MacIntyre's notion of rationality, this article examines the conceptions and practices of critical thinking in Chinese schools. Focussing on the perceptions of school leaders in Shanghai, this study reports that they interpreted critical thinking primarily as personal inquiry and problem solving. They drew attention to the promotion of critical thinking under the current education reform and highlighted ongoing challenges arising from the high-stakes assessments and prevailing socio-cultural values. This paper shows that definitions and applications of critical thinking in Chinese schools are rooted in and shaped by socially embodied and historically contingent traditions. Cultural influences are manifested in an exam-oriented system, an emphasis on didactic teaching, the centrality of textbooks, a non-confrontational view of critical thinking, and a hierarchical relationship between the teacher and students. The example of Shanghai foregrounds the existence and legitimacy of diverse approaches to and expressions of critical thinking across contexts.

Introduction

The premium placed on equipping learners with 21st century skills has made the teaching and learning of critical thinking in schools a necessity in many parts of the world. Given that critical thinking as an educational ideal originates from Anglo-American traditions, scholarship and experiences, the extant research on critical thinking is primarily based on the Anglophone contexts (e.g. see Burbules, 1985; Ennis, 1998; Gellner, 1992; Grosser & Lombard, 2008; McGuire, 2007; Ryan & Louie, 2007; Tian & Low, 2011; Turner, 2006). What is insufficiently examined are the definitions and applications of critical thinking in non-Western contexts. Such an exploration is important as "critical thinking may have different connotations within the contexts of various nations" (Howe, 2004, p. 508).

China offers an interesting case study on the advancement of critical thinking in schools as critical thinking is one of the desired outcomes of its 'New Curriculum Reform' (*xin kegai*) (Tan, 2016). The Ministry of Education in China states that the current reform seeks to replace "passive learning, rote-memorisation, and mechanical training" with "the promotion of students' active participation, willingness to inquire, diligence in hands-on activities, abilities in collecting and processing information, obtaining new knowledge, analysing and solving problems, and interaction and cooperation" (MOE, 2001, p. 1). Chinese scholars have observed that critical thinking takes centre stage in China's curriculum reform to empower students with innovative, independent and practical problem-solving abilities (e.g. see Cai, 2010; Guo, 2011; Liu,

2011; Tan, 2016, 2019; Zhang & Yuan, 2015). Schools across China have accordingly introduced critical thinking in their schools, either as a standalone course or by infusing it into the existing curriculum (Zhai, 2015).

Given that China is the largest education system in the world, the schooling developments across the country are expectedly diverse and uneven. Wide disparities in educational standards and outcomes exist, especially between the schools in the rural and urban areas as well as between the eastern and western regions. It is therefore difficult to generalise the fostering and practice of critical thinking across schools in China. This article focuses on the propagation of critical thinking in Chinese schools from the perspectives of school leaders in Shanghai. To understand the policy initiative to promote critical thinking in schools, it is pertinent to examine how the school leaders conceive the term 'critical thinking' and enact it in their schools. Research has shown that the beliefs and actions of school leaders have a direct impact on school effectiveness, teachers' commitment and education reforms (Barnett & McCormick, 2004; Bryk, 2010; Femke, Sleegers, Leithwood & Jantzi, 2003; Hallinger & Heck, 1998). The positive influence of the school leaders on teachers will shape the latter's receptiveness to educational changes, selection of educational materials, choice of teaching methods and further professional development (Feucht & Bendixen, 2010). With respect to critical thinking, researchers have noted that the teachers' beliefs influence their approaches to and success in promoting critical thinking to their students (Nugent, 1990; Howe, 2004; Walthew, 2004; Dike et al., 2006; Moore, 2013). For instance, an absolutist teacher may suppress the development of critical thinking in the learners by adopting a transmission teaching approach whereas an evaluativist teacher may welcome critical thinking through encouraging students to construct knowledge and justify their knowledge commitments (Feucht & Bendixen, 2010).

Using MacIntyre's exposition of rationality as a conceptual tool, this study explores the conceptions and practices of critical thinking as interpreted by the school leaders in Shanghai. The first part of the article introduces the theoretical lens for this study, followed by a brief introduction to the topic of critical thinking, and a discussion of the research study in terms of its method, findings and implications.

MacIntyre's Notion of Rationality

In understanding and researching critical thinking, it is important to approach reason not as a faculty which can stand aside from a tradition. Rather, as maintained by Mitchell (1997), the yardsticks for reasoning make sense only within a tradition. Concurring with Mitchell are Smeyers and Marshall (1995) who introduce the concept of 'individual-in-the-community' that positions reason as originating from and dependent on a specific tradition. A individual's worldview is inevitably conditioned by a shared social environment that includes components of public rationality (Bonnett & Cuypers, 2003; also see MacIntyre, 1981, 1988; Taylor, 1991). In the specific context of schooling, all forms of teaching and learning presuppose an acceptance rather than rejection of authority and trust in one's teachers (Neiman, 1995).

A useful conceptual tool to help us analyse the diverse interpretations and application of critical thinking is MacIntyre's notion of rationality. Moore (2013), in his review of literature, points out that rationality is closely associated with and often taken to be synonymously with critical thinking. MacIntyre's ideas are pertinent to our discussion of critical thinking as he has conceptualised rationality broadly to encompass critical thinking and foregrounded the historical and socio-cultural factors that

undergird and shape all human thinking, conduct and relationships. MacIntyre (1998) advocates "a conception of rational inquiry as embodied in a tradition" (p. 7) (all subsequent references and citations are taken from this book unless otherwise stated). He contends that the observance of the laws of logic is a necessary but not sufficient condition for rationality. This is because the nature and exercise of rationality extend beyond basic argumentative rules to issues such as the modes of inquiry, justifications of beliefs, courses of action and the basis for human conduct. Answers to and debates surrounding these issues presuppose and are shaped by "socially embodied, historically contingent traditions" (p. 350). As argued by MacIntyre, "To offer one kind of reason, to appeal to one set of background beliefs, will already to be to have assumed the standpoint of one particular tradition" (pp. 351-352). Rationality, in other words, is always dependent on a tradition. MacIntyre elaborates:

> [T]here is no other way to engage in the formulation, elaboration, rational justification, and criticism of accounts of practical rationality and justice expect from within some one particular tradition in conversation, cooperation, and conflict with those who inhabit the same tradition. There is no standing ground, no place for inquiry, no way to engage in the practices of advancing, evaluating, accepting, and rejecting reasoned argument apart from that which is provided by some particular tradition or other (p. 350).

Following MacIntyre, it is more accurate to refer to 'rationalities' rather than 'rationality', given "the diversity of traditions of inquiry, with histories" (p. 9).

Rationality as embodied in a tradition comprises two salient features. First, rationality is the "articulation of an historically developed and developing set of social institutions and forms of activity, that is, as the voice of a tradition" (p. 345). Rationality, to put it simply, is "a concept with a history" (p. 9). Embedded in a tradition, rationality has its set of authoritative texts and expresses itself through a particular kind of hierarchy. Secondly, the rationality of a tradition has its own standards of rational justification, background beliefs and presuppositions. MacIntyre posits, "Those who construct theories within such a tradition of inquiry and justification often provide those theories with a structure in terms of which certain theses have the status of first principles; other claims within such a theory will be justified by derivation from these first principles" (p. 8). The standards of rationality emerge from and are part of history in the sense that they "are vindicated by the way in which they transcend the limitations of and provide remedies for the defects of their predecessors within the history of that same tradition" (p. 7). Rather than essentialised, static and impervious to criticism, the definitions and standards of rationality are subject to challenge and change.

Overall, MacIntyre's approach to rationality shows up a historical and socio-cultural approach to critical thinking as a practice. Such an orientation implies an attitude of "engaged fallibilistic pluralism" that requires "resolving that however much we are committed to our own styles of thinking, we are willing to listen to others without denying or suppressing the otherness of the others" (Bernstein, 1992, p. 336, cited in Garrison & Neiman, 2003, p. 22). Adopting the principle of fallibilistic pluralism enables individuals to formulate and justify their own views, question one another's views and work collaboratively to (re)shape their own traditions as well as those of other communities. Having outlined the general relationship between rationality and tradition, the next segment focuses on the concept of critical thinking.

Introduction to Critical Thinking

There is currently a lack of a consensus on the definition of critical thinking. Mason (2007) proposes that critical thinking refers to "the skills of critical reasoning; a critical attitude; a moral orientation; knowledge of the concepts of critical reasoning; and knowledge of a particular discipline" (p. 344). Moore (2013), however, adds seven definitional strands to the concept of critical thinking: as judgement; as skepticism; as a simple originality; as sensitive readings; as rationality; as an activist engagement with knowledge; and as self-reflexivity. From their literature review, Dike, Kochan, Reed and Ross (2006) report that critical thinking is often interpreted as one of the following: reflection of thought-provoking ideas and concepts; active generation of hypotheses about those ideas and concepts with a focus on personal relevance; and collection of essential information to verify or falsify the hypotheses. Despite the divergent interpretations of critical thinking, what is clear is that the translation of critical thinking into practice is dependent on specific socio-cultural contexts (Tan, 2017a). The nature and demonstration of critical thinking in schools are influenced not just by the learning contents and the mass media but also the history, socialisation and educational system in a learning site (Atkinson, 1997).

The extant literature has shown that students in Asia are relatively weak in critical thinking when compared with their peers in Anglophone countries (e.g. Atkinson, 2007; McBride, Xiang, Wittenburg, & Shen, 2002; Tiwari, Avery & Lai, 2003; Tan, 2017a, b; Turner, 2006). A main reason for the Asians' reluctance in articulating critical views publicly is their "[r]espect for tradition, the practice of propriety and the reverence with which authority figures are regarded" (Kim, 2003, p. 78). Consistent with the existing research on critical thinking in the Asian contexts, the cultural worldviews predispose the Chinese to resist any definition of critical thinking that demands that one step out of one's inherited mental models to create new knowledge. It is therefore difficult for the majority of Chinese learners and educators to champion 'reflective literacy' (Hasan, 2003) that goes beyond the learning and reproduction of texts to "interrogate the wording and the meaning of the utterance— why these words, what might they achieve, to whose loss and to whose benefit" (p. 447, also see Hasan, 2011).

Framed by MacIntyre's exposition of rationality, the next section reports on a study that explores the conceptions and application of critical thinking in Chinese schools. It should be clarified that what is discussed here is *a* rather than *the* Chinese tradition through the lens of a group of school leaders. Evidently, there is a plurality of traditions in China due to the heterogeneity and evolution of Chinese cultures across time and space.

The Study

The research findings from this study are based on data collected from an open-ended questionnaire with 16 school leaders from Shanghai. Shanghai is a pioneer in curricular and pedagogical reforms in mainland China (Shanghai Municipal Government, 2010). Higher-order thinking skills such as critical inquiry, problem solving and innovation are given prominence in Shanghai's continuous drive to improve its school system by borrowing new educational philosophies and pedagogies from elsewhere (for details, see Tan, 2012, 2013, 2019).

The sample was drawn from a class of students who were enrolled in a course on educational policy making and implementation. There were a total of 16 school principals and vice-principals and all agreed to participate in the research study. The sample consisted of 11 school principals and 5 vice-principals, with a total of 9 male and 7 female. Eight respondents have between 10 and 20 years of working experience while the other 8 have between 20 and 30 years of working experience. Although the sample size was small, the sample provided useful and crucial data on the topic as the 16 school leaders represent 16 primary, junior secondary and high schools from different districts in Shanghai. Furthermore, the fact that all have more than 10 years of working experience means that they have first-hand knowledge of Shanghai's second curricular reform since its inception in 1998. The questionnaire asked the respondents the following three research questions:

(1) What do you understand by critical thinking?
(2) Is critical thinking promoted in your schools, and if so, please give examples.
(3) What are some challenges faced by your schools in promoting critical thinking?

The respondents were given about one month to complete the questionnaire and their answers in Mandarin ranged from one to two pages per respondent. The methodology of qualitative research through an open-ended questionnaire was chosen as this approach provided relevant and rich data on the respondents' own constructions of critical thinking that reflect the historical embeddedness and social situatedness of human thought. The respondents' answers would reveal how their interpretations, standards and practices of rationality emerged from and were part of history, as well as evolved in response to curricular changes pertaining to critical thinking.

Consent was obtained from all the respondents and the questionnaire was completed anonymously. The data were chronologically coded using the process of inductive analysis. Thematic codes were progressively developed in the light of the research questions on how the educators interpret the concept and practice of critical thinking in their schools. Categories used in analysis were subsequently obtained from the iterative coding by generating and testing the new pattern codes (Walliman, 2005). Following Miles and Huberman (1994), data coding was carried out in the following stages: open coding where each statement relevant to the research question was assigned a code; axial coding where further codes were developed upon re-reading the data; identification and organisation of patterns and relationships in the codes; and selective coding where the raw data was read for cases that confirmed or contradicted the analysis. Data from the questionnaires cited in this paper are identified by the serial number assigned to each respondent. For example, 'SH1' stands for 'Shanghai Respondent 1'.

Findings and Discussion

This section discusses these findings in relation to the relevant body of literature. Following the three research questions, this segment is divided into three sub-headings: conceptions of critical thinking, perceptions on the promotion of critical thinking ; and perceptions on the challenges in promoting critical thinking

Conceptions of critical thinking

On the definitions of critical thinking, the school leaders interpreted critical thinking from two main angles: (1) as personal inquiry and (2) as problem solving. First, the respondents defined critical thinking as a form of personal inquiry where students did not learn by rote but demonstrated an ability to think for themselves. A typical comment is as follows:

> I think critical thinking refers to not passively accepting an issue but to have one's own independent thinking and judgement. It means not simply repeating what others have said or what one has learnt but to have one's own understanding and comprehension. (SH10)

What was underscored by the respondents was not just the outcome but also the process of inquiry. This process, as the respondents pointed out, presupposed systematic and logical thinking, self-reflection, self-correction, observation, analysis and evaluation of phenomena. An emphasis on the learner's reasoning process and drawing one's own conclusion did not mean that direct instruction is redundant. Instead, the respondents saw didactic approaches and student-centred methods as compatible and equally important, as articulated by a respondent:

> Critical thinking can be understood as the construction of the student's own views and thought after reflecting and verifying the knowledge transmitted by the teacher. (SH2)

Besides viewing critical thinking as a form of personal inquiry, the respondents also regarded critical thinking as problem solving where the learner applied one's knowledge to address problems innovatively. A representative view is as follows:

> Critical thinking is the essence of innovative thinking that indicates the level of a person's thinking ability. Critical thinking is exhibited through the people's cognition, emotions and actions when solving problems. (SH13)

Rather than holding critical thinking as distinct from innovative thinking, the respondents saw the two as closely related and mutually reinforcing. A respondent stressed that "the heart of critical thinking is a spirit of innovation and application ability" (SH17) while another commented that critical thinking "is the ability that is necessary for innovation" (SH19).

MacIntyre's notion of rationality as embodied in a tradition is useful to shed light on the sense-making, practices and constraints of critical thinking in Chinese schools. The school leaders' perceptions of critical thinking reveal that their views and assumptions of rationality stem from and are moulded by "socially embodied, historically contingent traditions" (MacIntyre, 1988, p. 350). Their conceptions of critical thinking as personal inquiry and problem solving are aligned with the prevailing Chinese traditions. An objectivist view of knowledge is historically held in China that presents knowledge as existing in an objective world and external reality (Zhong, 2007; Wu, 2007; Jin, 2007; Cai and Jin, 2010). The students' responsibility is to learn and apply rather than challenge the 'objective knowledge' found in nature, discovered by experts and presented in the textbooks (Tan, 2017c). MacIntyre's notion of tradition as dependent on local histories and worldviews helps to explain a paradoxical development in the Chinese classrooms: the accent on independent thought and critique under the curricular reform has not resulted in the production of new knowledge by the

student. Instead, the push for critical thinking is framed as and reinforces reproduction of knowledge and checking for understanding by the teacher.

It can be observed that the school leaders do not subscribe to forms of critical thinking that question the received knowledge or authoritative sources. Instead, the pivot is on the student's active construction of the knowledge that has *already* been transmitted by the teacher and learnt from the textbooks. The school curriculum in China has traditionally been comprised of distinct and discrete disciplines, each with their well-demarcated and standardised syllabuses and knowledge systems. Consequently, the disciplines are taught to students as 'objective' truths with clear-cut answers. Another observation is that the respondents' definitions of critical thinking do not involve or imply confrontational approaches or anti-establishment ideas that are more commonly found in Anglophone settings. Instead, the school leaders are more concerned with practical ways of applying knowledge and addressing real-life problems. Any question or challenge to the authority and teaching of the teacher is largely avoided and regarded as incompatible with Chinese traditions. There is therefore a limit to how 'critical' the students can be in terms of expressing their opinions in class. Students, although encouraged to speak up during lessons, are generally expected to be attentive, respectful and disciplined – attributes of a 'good student in China (Tan, 2015). Concomitantly, the ideal learning environment in China is one that is saturated with respect, orderliness, discipline, conformity and social interdependence (Huang & Leung, 2004).

The research finding on the dominant conception of critical thinking held by the school leaders affirms the existing research that shows the fundamental differences between East Asian and Anglo-American conceptions of critical thinking. As noted in this study, the Chinese generally prefer thinking, discourse and actions that stress harmony (rather than opposition), the community (rather than the individual), moral cultivation (rather than mere cognitive development) and a balance between tradition and modernity (rather than a repudiation of tradition) (Atkinson, 1997; Howe, 2004; Li, 2004; Turner, 2006; McGuire, 2007).

Perceptions on the promotion of critical thinking

As for the advancement of critical thinking in Shanghai schools, the respondents noted that critical thinking was fostered under the current education reform through changes in the curriculum and pedagogy. They pointed out that the current reform aspires to prepare Shanghai students for the demands of a knowledge economy (Shanghai Municipal Education Commission, n.d., 1998, 2010). Shanghai schools are tasked to devise and implement curricular contents that are geared towards "increased student participation, real-life experience, capacity in communications and teamwork, and ability to acquire new knowledge and to analyse and solve problems" (Ministry of Education 2001, as cited in OECD, 2010, p. 90). A school leader gave details to the new courses and teaching methods enacted in schools:

> Schools in China promote critical thinking. For the foundational courses, students will investigate and debate on certain issues through small group cooperative learning. Such methods are even more common for research courses and expanded courses. (SH11).

The above quote mentions three types of courses offered to students in Shanghai: foundational, expanded and inquiry/research courses. Briefly, foundational courses are

composed of standardised and compulsory subjects from which exam subjects are drawn (Shanghai Municipal Education Commission, 2004). Expanded courses are non-examined programmes, modules and activities that are tailored to the students' diverse interests and learning abilities as well as society's needs. They include interest activities such as chess and calligraphy, and social practice such as visiting a factory and interning in a company. Inquiry/research courses offer opportunities for students to conduct research under the guidance of the teacher. Examples are interdisciplinary topics such as social etiquette and disciplinary topics such as the application of mathematical reasoning to lottery. That only selected subjects from the foundational courses are tested in high-stakes exams has a direct impact on the curricular decisions undertaken by the schools. The cultivation of the students' critical faculties is more evident in the expanded and inquiry/research courses than in the foundational courses as the first two types of courses are not restricted by the demands of exam requirements and pursuit of high test-scores. An example of an inquiry/research course introduced in a primary school is 'Children's Experiment Corner for Science and Technology' (*ertong keji shiyan jiao*) where students utilised the knowledge and skills learnt to complete scientific experiments (SH15).

Supporting the curricular revamp are pedagogical changes. A key thrust of the reform is to transform the students' learning style from rote learning to active engagement (Shanghai Municipal Education Commission, 2004). Many schools in Shanghai have rolled out new teaching models or frameworks that serve to reduce teacher talk and motivate students' independent thinking. A respondent linked critical thinking to "a change from didactic teaching to student-centred pedagogies" in Shanghai classrooms (SH5). The respondents commented that critical thinking was welcome in Shanghai as part of the curriculum reform that centred on innovation. As articulated by another respondent, "critical thinking is an important thinking style for the acquisition of an innovative spirit and ability, so schools support the development of the students' critical thinking" (SH7). A number of respondents in the study gave specific instances of critical thinking pedagogies in their own schools. An oft-cited example given by the respondents is setting aside time for students to generate questions in class. A school leader observed that "almost all the lesson designs for all the school subjects include a component for students to raise questions" (SH10). Cooperative learning strategies are also popular through group work and debates such as the debate motion of whether it is good for secondary school students to wear school uniforms.

The infusion of critical thinking into the teaching and learning processes in Shanghai exemplifies MacIntyre's thesis on the developing nature of social institutions and forms of activity. Decades of schooling reforms in Shanghai have resulted in the evolution of the curricular and pedagogical practices in Shanghai. The changing and integrative feature of tradition explains why the furtherance of critical thinking in schools has not led to the jettisoning of traditional forms of activity such as didacticism (Cai, 2010; Cai & Jin, 2010; Guo, 2011). Instead, both teacher-centred and student-centred methods exist simultaneously in the Chinese classrooms (Tan, 2016a). Li (2012) reports that teachers in China still rely on the transmission approach even after they employ engaged learning methods such as using scenarios in classroom teaching to guide students' exploration and learning.

Perceptions on the challenges in promoting critical thinking

But the endorsement of cultivating critical thinking in students does not mean that such an endeavour is without hindrances in Shanghai. The respondents called attention to two dominant challenges: (1) the high-stakes assessments and (2) prevailing socio-cultural values. First, an oft-cited challenge is the existing assessment system. A respondent commented that "as long as the exam system remains, we cannot eliminate the utilitarian function of exam orientation" (SH6). Another school leader added:

> The exam assessment system has lagged behind [the curricular reform on critical thinking]. The pressure of *gaokao* is immense. The screening function and need for stability and fairness [in the exam system] cannot be reconciled and are in conflict with [the promotion of critical thinking]. (SH17)

Currently Shanghai students sit for two terminal exams: *zhongkao* (junior secondary school entrance exam) at the end of junior secondary level, and *gaokao* (national college entrance exam) at the end of senior secondary level. Exemptions are given to a very small number of students. For example, students who are Olympiad winners in particular subjects are eligible for enrolment to elite senior secondary schools and high-status universities without having to sit for the *zhongkao* and *gaokao* under the "direct allocation" (*baosong*) scheme (Zhang & Bray, 2017). Besides the public exams, students in Shanghai also sit for periodic district-wide assessments for selected subjects. Students are primarily appraised using pen-and-paper and summative assessment format and assigned test scores. The educational paradigm in Shanghai, in short, is still test-driven where standard answers derived from textbooks are required in formal assessments. Despite the gradual inclusion of open-ended questions in high-stakes exams in recent years, most of the exam questions are still closed-ended with prescribed answers. Given the high-stakes nature of the *zhongkao* and *gaokao*, it is difficult for the school leaders to champion critical thinking at the expense of exam preparation. The wash-back effect of high-stakes exam means that the propagation of critical thinking in schools is largely limited to the expanded/research/inquiry courses that are not examined in the terminal exams.

Coupled with the assessment constraint are traditional socio-cultural values that pose a challenge to the development of critical thinking in the classrooms. The respondents pointed out that many teachers still relied on didactic approaches and transmission of textbook knowledge. A respondent noted:

> Critical thinking is relatively less common for core school subjects, especially humanities, Chinese language and English language. In these subjects the teachers mainly utilise the transmission approach. (SH15)

Another described the traditional teaching approach in Shanghai as "indoctrinatory education" that reinforced knowledge transmission (SH3). Teachers privilege direct instruction and knowledge transfer when teaching the school subjects because these disciplines are tested in semester tests and terminal examinations where standard answers are expected from students. To ensure that their students give the 'correct answers' in these assessments, the teachers prefer to provide students with all the information they need rather than let them speculate and draw their own conclusions which may be incorrect. Time constraint is also another factor to explain the teachers' reliance on the transmission approach: such a method is deemed to be the most efficient and least time-consuming way to pass on the essential knowledge to students within a crowded curriculum. Ironically, the mandated introduction of expanded and

inquiry/research courses in the curriculum means that students now have less time to master the exam subjects, thereby making the adoption of efficient, tried-and-tested exam techniques more needful than ever.

The challenges identified by the school leaders – an exam-oriented culture and traditional norms for teaching and learning – reflect "an historically developed and developing set of social institutions and forms of activity" (MacIntyre, 1988, p. 345). In terms of social institutions, it is a significant point that the *gaokao* is a legacy of the civil service examination (*keju*) (606–1905) that has defined the educational system in China for centuries. Test-driven forms of activity were created and perpetuated to enable generations of Chinese to prepare for and ace the civil service examination. Scholars have noted the traditional influences of the civil service examination on Chinese conceptions of education (Biggs, 1996; Lee, 1996; Scollon, 1999; Hu, 2002; Kim, 2009; Tan, 2016b). The typical Chinese classroom inherited from its imperial past is one that underlines knowledge reproduction, textbook learning and transmission approaches. Educators in Shanghai are governed by Chinese worldviews and assumptions of a 'good' teacher and a 'good' student. Accordingly, a good teacher is a content expert who skillfully imparts one's knowledge to students and maintains an orderly and quiet classroom. A good student, on the other hand, is one who holds the teacher and textbooks in high regard and receives the transmitted knowledge with dedication and humility. Chiu (2009) posits that students socialised into Chinese traditions "value diligent study, social harmony, reverence for teachers' authority, and avoidance of conflict in a face-to-face classroom environment (p. 43).

A related point that indicates the governance of tradition in China is that critical thinking in the schools takes place within the confines of authoritative texts – whether classics in ancient China or school textbooks today – and a hierarchy of a traditional teacher-centred relationship. Historically, the focus on learning the classics, coupled with the view of teachers as scholars who excel in the civil service exams, has led to teachers being regarded as exemplars and custodians of 'the truth' (Tan, 2017c). The curricular reform to foster critical thinking in Shanghai schools is therefore confronted with challenges that illustrate rationality as embodied in a tradition and "a concept with a history" (MacIntyre, 1998, p. 9).

Implications

Three major implications arising from this study are discussed here. The first implication is an acknowledgement of the existence and legitimacy of diverse conceptions and practices of critical thinking due to different historical and socio-cultural traditions. Given that rationality stems from the junctions of time and place between cultures, the Chinese conceptions of critical thinking do not escape dialogue and mutual critique with other cultures. The Chinese school leaders' interpretations of critical thinking as personal inquiry and problem solving are nested within and shaped by the on-going curriculum reform. The reform is premised on 'globalised' competencies such as critical, creative and problem-solving capabilities – competencies which are borrowed and adapted from Anglophone societies (Tan, 2016a). However, the foreign educational theories and practices are not accepted wholesale by the school leaders but modified to suit the local exam-oriented culture. Hence the school leaders' construal of critical thinking is not acontextual but dependent on external systems, factors and conditions. Definitions of rationality, it follows, are not static or monolithic but the products of the intersections of time and place between cultures. In the case of

China, its conceptions and practices of critical thinking have evolved over time, demonstrating a synthesis of the Confucian emphasis on harmony and hierarchy, Deweyan stress on practical problem-solving and modern educational ideas such as constructivism and postmodernism (Tan, 2016a). Returning to Smeyers and Marshall's (1995) notion of 'individual-in-the-community', a Chinese understanding of critical thinking sees the individual as embedded in a community and situated within particular socio-cultural practices.

The second implication that relates to the first is a need to go beyond reducing critical thinking to merely technical rationality and see it more broadly instead as a practice. It is apparent that the school leaders do not perceive critical thinking as "a means-ends instrumentality, a series of techniques that can move us from one space to another" (Peters, 2007, p. 352). Rather, their construal of critical thinking as personal inquiry and problem solving illustrates MacIntyre's (1981) notion of practice. In contrast to a technical and rational approach to critical thinking, MacIntyre (1981) conceptualises rationality as "any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realised in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity" (p. 187). Embodied in and circumscribed by Chinese traditions, the practices of critical thinking in Shanghai schools bring with them their own standards of rational justification, background beliefs and presuppositions. The example of the challenges confronting the exercise of critical thinking in Chinese schools exemplifies the centrality of "engaged fallibilistic pluralism" within a community that requires self-reflection, collaboration and the (re)construction of traditions. The awareness of the fallibilism of the knowledge possessed by oneself and one's community has the potential to help members of the community to be open to questions and critiques. To put it another way, critical thinking is a 'reasoned judgement' (Paul, 1987) where an issue can be understood from different frames of reference through dialogue with others. In concrete terms, critical thinking as practices requires the creation of socially established cooperative human activities that seek to further standards of excellence for that community. It implies that teachers teach critical thinking not as a battery of technical skills but as contextualised and dialogical approaches specific to the local and changing needs and cultures (Paul, 1981).

The third implication is a need for school leaders and teachers to provide the scaffolding, materials and activities for students to access and master 'intellectual resources' (Bailin, Case, Coombs & Daniels, 1999) such as operational knowledge of the standards of good thinking, techniques for thinking and habits of mind. The research findings show that the students in China were generally hesitant about from raising questions in class as they have been enculturated to hold the teachers' words and textbooks as the authoritative sources. To address this challenge, schools in China could consider enabling students to examine two types of bias: first level bias that focuses on the uneven application of existing standards, and second level bias that investigates the selection and repercussions of the standards themselves (Bailin, 1995). An exploration of the two types of bias does not need to take place in an adversarial classroom setting and can in fact be carried out harmoniously using culturally appropriate pedagogies such as cooperative learning strategies.

Conclusion

Drawing upon MacIntyre's concept of rationality as embodied in a tradition, this article has examined the conceptions and practices of critical thinking as perceived by the school leaders in Shanghai. This study reported that the school leaders interpreted critical thinking primarily as personal inquiry and problem solving. They also noted that critical thinking is propounded under the current education reform through changes in the curriculum and pedagogy. But the school leaders also highlighted the challenges of the formal assessment system and prevailing socio-cultural values. This study explains how the formulations of critical thinking in Shanghai are rooted in and determined by socially embodied and historically contingent traditions. The traditional influences are evident in an exam-oriented system that originates from the civil service examination, the faith in didactic teaching, the centrality of textbooks, a non-confrontational view of critical thinking, and a hierarchical relationship between the teacher and students. In sum, MacIntyre's core concepts of rationality and tradition provide the guiding lens for our examination of the curricular shifts and the unique ways that critical thinking is understood and applied within Chinese school systems. This study extends the existing literature on the diverse approaches to and expressions of critical thinking due to varying historical and socio-cultural conditions.

The limitations of this study are a relatively small sample size coupled with the absence of other data sources such as interview or artefacts. The study is also confined to Shanghai which is not representative of the curricular developments in other parts of China, particularly in the middle and western regions of China (Yao & Xu, 2014). In addition, the study only collected and analysed data from school leaders, thereby providing a largely top-down viewpoint on the curricular dynamics in Shanghai. This paper has also not discussed the actual implementation of education policy by the teachers and the receptions of other educational stakeholders such as students and parents to the promotion of critical thinking. Hence future research could focus on the interpretations and experiences of other policy actors such as teachers, parents and students on the policy reform for critical thinking in Shanghai and other regions in China.

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