



## Exploring cultural differences in critical thinking: Is it about my thinking style or the language I speak?

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### ABSTRACT

Critical thinking is deemed as an ideal in academic settings, but cultural differences in critical thinking performance between Asian and Western students have been reported in the international education literature. We examined explanations for the observed differences in critical thinking between Asian and New Zealand (NZ) European students, and tested hypotheses derived from research in international education and cultural psychology. The results showed that NZ European students performed better on two objective measures of critical thinking skills than Asian students. English proficiency, but not dialectical thinking style, could at least partially if not fully explain these differences. This finding holds with both self-report (Study 1) and objectively measured (Study 2a) English proficiency. The results also indicated that Asian students tended to rely more on dialectical thinking to solve critical thinking problems than their Western counterparts. In a follow-up data analysis, students' critical thinking was found to predict their academic performance after controlling for the effects of English proficiency and general intellectual ability, but the relationship does not vary as a function of students' cultural backgrounds or cultural adoption (Study 2b). Altogether, these findings contribute to our understanding of the influence of culture on critical thinking in international education.

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### 1. Introduction

Cultivation of critical thinking has been considered an important goal of tertiary education, especially in today's learning environment where students are exposed to tremendous amount of information which requires effective cognitive strategies to process. Despite the apparent consensus of the importance of critical thinking (Pithers & Soden, 2000), the influence of culture on critical thinking and its instruction is not clear (ten Dam & Volman, 2004). In particular, there are debates about whether Asian students show lower level of critical thinking in comparison to their Western counterparts, and consequently whether critical thinking instruction can be applied to students of diverse cultural backgrounds (e.g., Atkinson, 1997; Ennis, 1998; Kumaravadivelu, 2003). The present research seeks to empirically address whether there is a difference in critical thinking between Asian and Western students, and examines the possible explanations and impact if such a difference exists.

#### 1.1. Do Asian students think less critically?

The current trend of tertiary education involves an increasing number of Asian students studying at a Western English-speaking institution (OECD, 2009). With regard to the development of critical thinking in such a context, concern about whether Asian students tend to think less critically in contrast to their Western counterparts has gained much attention (Atkinson, 1997; Kumaravadivelu, 2003).

Research showed that academic staffs experienced in teaching international students are dissatisfied with the international students' poor critical thinking and analytical skills (Robertson, Line, Jones, & Thomas, 2000). Academics often express that Asian students do not naturally take part in critical thinking because they do not overtly participate in classroom discussions (cf. Paton, 2005). Lee and Carrasquillo (2006) found that college professors perceived their Korean students as having "difficulty in openly expressing critical thinking" (p. 451). The perceptions of Asian students being less overt or less expressive in classrooms are often interpreted as lack of critical thinking, especially when Western academic standards of critical thinking involving overt argumentation and debate are applied (Durkin, 2008).

The claim that Asian students think less critically has been based predominantly on the observations by teaching professionals of English-second-language (ESL) learners. Nevertheless, there is currently little empirical research directly examining differences in critical thinking between Asian students and their Western counterparts.

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## 1.2. Critical thinking – a multi-dimensional construct

At this point, the term *critical thinking* requires clarification. In the international education literature, the term is mostly used to refer to a set of behaviors which is assumed to truly reflect critical thinking skills (e.g., Atkinson, 1997). These behaviors often include overt questioning or debating of ideas in a classroom setting (Durkin, 2008). Teaching professionals observe these behaviors and infer whether the students *show* critical thinking. These observations then lead the educators to conclude whether the students *have* critical thinking or if they *are* critical thinkers.

However, besides behavioral expressions, critical thinking, as a form of thinking, involves important cognitive skills and dispositions. A critical thinker is willing, persistent, flexible, open-minded and confident in using certain cognitive skills when it is necessary and appropriate (Ennis, 1987; Facione, 1990; Halpern, 1998, 2003). Pascarella and Terenzini (2005) summarized various definitions of critical thinking in the literature and suggested that college-level critical thinking skills include identifying assumptions behind an argument, recognizing important relationships, making correct references from data, drawing conclusions from the information or data provided, interpreting the merit of a conclusion based on available information, evaluating the credibility of a statement and its source, and making self-corrections. The ultimate goal of critical thinking is to make decisions or solve problems in different situations with the appropriate use of these critical thinking skills (Ennis, 1987; Halpern, 1998). The term *critical thinking*, as theorized by Ennis (1987) and Halpern (1998), represents a set of cognitive skills and dispositions which are conducive to decision making and problem solving in different situations.

The concepts of critical thinking and intelligence appear similar and are indeed closely related, but critical thinking is more often accepted as teachable and improvable with appropriate instruction (Nickerson, Perkins, & Smith, 1985; Halpern, 2007). Nickerson et al.'s (1985) view of thinking skills as *good strategies* helps to distinguish between critical thinking and intelligence. Their idea was that thinking skills are a consequence of education, while intelligence relates more to the “raw power” of an individual's mental equipment: “raw power is one thing and the skilled use of it (is) something else” (p. 44). Because it is more probable to teach skills rather than the supposedly unchangeable raw mental power, critical thinking has drawn much attention in psychology and education (e.g., Halpern, 1998; Pithers & Soden, 2000; ten Dam & Volman, 2004).

## 1.3. Focus of the present research

The debate in the international education literature has mainly been focused on the behavioral expression of critical thinking (e.g., Atkinson, 1997; Kumaravadivelu, 2003). Nevertheless, observation of classroom behaviors is susceptible to the influence of different cultural rules and assumptions underlying behaviors such as talking (Kim, 2002) or debating and questioning authorities (Tweed & Lehman, 2002). Here we focus on critical thinking as a skill because (a) the cultivation of critical thinking skills is a principal goal of university education (Pithers & Soden, 2000), and (b) these skills can be objectively measured.

## 1.4. Cultural differences in critical thinking

To examine if Asian students really think less critically compared with their Western counterparts, one of the best ways is to test and compare the critical thinking skills between these two groups of students. Nevertheless, as ten Dam and Volman (2004) observed, empirical research which addresses the role of culture in relation to critical thinking is currently limited. To the best of our knowledge, there is no published study involving direct comparison of critical thinking

skills between Asian and Western students in an international education setting. To fill this gap in the literature, the present study directly tests whether there are objective differences in critical thinking skills between Asian and Western students who are studying at a Western institution.

Based on the assumption that the observations made by university teaching professionals (e.g., Lee & Carrasquillo, 2006; Robertson et al., 2000) reflect a kernel of truth, we hypothesize that Western students would perform better than Asian students in an objective measure of critical thinking (Hypothesis 1).

## 1.5. Dialectical thinking

The literature on dialectical thinking proposed one causal mechanism to explain why critical thinking performances may be lower among Asian students compared to Western students (Nisbett, Peng, Choi, & Norenzayan, 2001; Peng & Nisbett, 1999). According to this paradigm, the Asian way of information processing can be summarized by three principles: 1) reality is dynamic and changeable; 2) opposing propositions may exist in the same object or event; and 3) everything in life and nature is related (Nisbett et al., 2001). Asians, compared with Westerners, tend to perceive more changes, are more tolerant to contradictions, and perceive things as more interrelated. These three characteristics involved in the Asian way of thinking are suggested to be incongruent with the formal logical tradition of thinking which is dominant in Western cultures (Peng & Nisbett, 1999).

These cultural thinking styles have been shown to have important influence on certain psychological and behavioral differences between Asian and Westerners. In a seminal study, Norenzayan, Smith, Kim, and Nisbett (2002) found that Westerners were more likely to use formal logical rules in reasoning, whereas East Asians used more intuitive and experience-based reasoning when there was a conflict between intuitive and formal reasoning strategies. In one of their experiments, European American and Korean students were presented with a set of arguments and asked to evaluate whether or not a conclusion followed logically from the premises for each argument. When faced with a conclusion that logically follows the arguments but is intuitively unbelievable, Korean students tended to make more mistakes in judging the conclusion as invalid than the American students, indicating that they relied more on their own experience but less on formal logical rules in deductive reasoning than their American counterparts. Norenzayan et al. (2002) speculated that the pedagogical emphasis on critical thinking in Western classrooms compared with the experience-based approach in Asian classrooms may be one of the reasons of the different modes of thinking in the two cultural systems. Therefore, these laboratory experiments suggested that dialectical thinking and critical thinking are linked, but in an opposite direction. A preference for dialectical thinking may prompt Asians students to seek a “middle-way” between apparent contradictions more than their Western counterparts (Peng & Nisbett, 1999, 2000) and to choose intuitive reasoning over formal reasoning (Norenzayan et al., 2002), which then may explain the noted difference on critical thinking performance between Asian and Western students. Therefore, we expect that dialectical thinking style mediates the differences in critical thinking skills between Asian and Western students (Hypothesis 2).

This hypothesis is based on the assumption that dialectical thinking is applicable to both Western and Asian students. Based on the different historical developments of philosophical thoughts in the East and the West, dialectical thinking is suggested to be more typical of Asian cultures compared to Western contexts, where analytical thinking styles are more typical (Nisbett et al., 2001). Individuals within each of these cultural contexts differ in terms of their propensity to engage in each of these thinking styles. In other words, dialectical thinking is treated as an individual difference variable that shows variability across cultural

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