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Culturally appropriate face strategies in cooperative learning with insight from cultural neuroscience

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ABSTRACT

Face, understood as public image, exerts critical influence on interpersonal communication. Incorporating insight from cultural neuroscience, a number of potential mismatches with regard to facework are revealed when methodologies originated from the West are applied in a different context. This paper examines culturally appropriate face strategies in cooperative learning among Vietnamese learners. Our results show that discussion outcomes increase when self-face and other-face are confirmed and group-face is mildly confronted in form of intergroup competition. The paper indicates that educational methods underpinned by fundamental psychological assumptions based on Western values should be adjusted to be culturally appropriate for contexts in which it is applied.

KEYWORDS

Cooperative learning; Asian learners; Confucian heritage learners; face; facework; cultural neuroscience; culturally appropriate pedagogy; neo-colonialism

Introduction

One of the most important purposes of comparative education as a discipline is to highlight the relationship between education and society in order to assist in the development of educational institutions and practices. By pointing out the similarities and differences between differing cultures, we can distinguish the fundamental elements of educational stability and change, and facilitate practical reform and planned development of the school system.

Interest in the selective borrowing of educational practices first occurred during the nineteenth century when after the French and the Industrial Revolutions, reformers saw the need to share ideas and practices available in other countries. Such a trajectory of development is much more complex outside the West, partly due to a historical legacy of power differentials. The Imperialist and Missionary movements sought to apply educational systems from one land to another; the recipients were predominantly colonial countries. Until today, *neo-colonialism* subtly maintains Western influence in their former territories (Muleke 2010). Globalising forces, in part promulgated by multilateral aid agencies (Tabulawa 2003), help to shape and influence the host educational system in ways aligned to Western orthodoxies by offering financial incentives and inducements that served to perpetuate Western ideologies and practices (Resnik 2006). The vast

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majority of education systems that are examined by scholars have their origins in the colonial era. For some societies, the postcolonial legacy has resulted in educational systems that, 'remain elitist, lack relevance to local realities and are often at variance with indigenous knowledge systems, values and beliefs' (Crossley and Tikly 2004, 149).

Under the pressure to modernise, many developing countries are rapidly reforming their education systems. Kwek (2003) claims that intellectuals in post-colonial countries often fail to recognise that their colonised mindsets will situate them in the shadow of the West, letting their vision of educational development and standards of knowledge production be deeply rooted in, and informed by, colonial thought (Wallerstein 1997). Enthusiastic application of Western-based models may fall prey to false universalism, the belief that a practice that originated from elsewhere can be 'cloned' with similar results, as pointed out critically in a series of research reports by Phuong-Mai et al. (2005, 2009), Nguyen et al. (2009), Nguyen-Phuong-Mai et al. (2012), Pham (2011), and Pham and Renshaw (2015).

This paper takes this issue to a practical level. It focuses on a particular educational method – cooperative learning (CL) – a Western learning approach that is seen as an important component of pedagogic reform in various Asian educational systems. It demonstrates how subtle processes that operate within a given learning technique may seem similar across cultures but, in reality, are affected by fundamental cultural differences that can lead to a gap in learning outcomes. In essence, this discrepancy reflects mismatch in how the Western creators of CL and Asian students perceive *face* – generally understood as 'public image'. While most comparative education studies utilise analytical, descriptive, or theoretical methods, I have conducted experiments that demonstrate this point. The hypothesis is supported at the micro level of learning tasks, not at the broader macro level of educational policies. In an experiment carried out with Vietnamese students, evidence suggested that a CL approach that gives 'face concern' a culturally due weight is more likely to enhance productive learning process than a CL approach based wholly on Western models. With this finding, the paper argues that a culturally appropriate approach should be considered to avoid the risk of 'educational cloning'. Best practices are contextual, and as they travel, they need to transform into a new hybrid that combines both the force to change and the will to adjust.

Another contribution that this paper hopes to bring out is the effort to incorporate insight from the newly emerged discipline of neuroscience. The use of a multidisciplinary approach, it is argued, leads to a better understanding of interpersonal and intergroup relations in a given cultural context. Brain imaging studies have recently been employed to investigate the concept of morality and its related self-conscious emotions such as guilt, shame, embarrassment and pride (Lewis 2010). The dynamic of self and other in connection with collectivistic values evidenced in different neural pathways has gained momentum lately, indicating useful insight into the understanding of face concern during individual and collective interaction of CL. The paper also has the potential to extend its application to other educational environments, given that face is culturally significant in many cultures with collectivistic values.

The paper will begin with a literature review of facework, followed by a critical analysis of potential mismatches when Western-based practices are applied in different cultural context. Hypotheses will be tested by means of experimental research with discussion and indication for further studies.

Before we move on, there are two important notes on the terms used in this paper. First of all, 'Western' and 'Asian' appear frequently, and both terms generally cover broad, complex, and diverse civilisations. However, in this paper, 'Western' mainly refers to: (1) the US as a major player in educational research; (2) former colonial powers such as the UK and France, and (3) influential economies that can exert significant impact on international aids programmes. Asian' refers to a small group of countries where participants of cross-cultural studies often come from: Japan, Vietnam, Taiwan, China, Singapore, and Korea.

Secondly, 'collectivist' and 'individualist' are two terms that often go in tandem with 'Asian' and 'Western', respectively. While this is a board assumption, it does help to give newly emerged disciplines such as cultural neuroscience some orientation. However, brain plasticity enables us to adapt, challenge, and change our values. This means 'collectivist' and 'individualist' only reflect a snapshot of the participants' values at the time of study.

Facework

Among cultural concepts, face has been one of the most heavily discussed notions in pragmatic and sociological research. It stands for the prestige and the reputation achieved through getting on in life, being successful and ostentatious (Hu 1944), social esteem accorded by others (Yang 1945), or a positive social value that a person effectively claims for him/herself by the line others assume he/she has taken during a particular contact (Goffman 1967). Although face is claimed to be a universal concept (Brown and Levinson 1987), it is argued that face has different degrees of impact and is especially pervasive and powerful in Asian collectivistic cultures (Leung and Chan 2003; Kim and Yang 2011).

The concept of the self has long taken a central role in many disciplines because of its relevance to cognitive, motivational, affective, and behavioural processes (Leary 2007). In general, the self is discussed in term of individual self, relational self, and collective self (Greenwald and Pratkanis 1984; Breckler and Greenwald 1986; Brewer and Gardner 1996; Spencer-Oatey 2007; Sedikides, Gaertner, and O'Mara 2011). While the individual self reflects personal traits (e.g. 'I am ambitious'), the relational self refers to a relationship between the self and the others (e.g. 'I am a daughter'), and the collective self connects the self with a group (e.g. 'I am Asian').

The concept of self-construal has been directly linked to facework. Oetzel et al. (2000) described facework as the communicative strategies one uses to enact self-face and to uphold, support, or challenge another person's face. Similarly, Cupach and Metts (1994) connected face with self-construal by defining face as the conception of self that each person displays in particular interactions with others. Self-construal has extensively been used by Ting-Toomey et al. (Ting-Toomey et al. 2000; Ting-Toomey, Oetzel, and Yee-Jung 2001) to construct the well-cited face negotiation theory (Ting-Toomey 1988; Ting-Toomey and Kurogi 1998).

However, while self-construal has been categorised into three-tiers of self, other, and group, facework theories mostly emphasise self-face and other-face. The concept of group-face is rarely discussed in the discourse of facework theories. In stark contrast to the abundance of face research in organisational behaviour, negotiations and conflict

resolutions (Vilkki 2006), little work exists that directly addresses the issue of face in educational contexts which involve approaches borrowed from, or inspired by, Western practices. Taking into account the context of CL as both interpersonal and intergroup setting, this raises the possibility of incorporating the self-construal framework to analyse self-face, other-face, and group-face concern.

Self-face and other-face concern

Self-face among Asians

The first characteristic of face in Asian context is 'moral' (Hu 1944; Ho 1976, 868; Jia 1997–1998). According to Hu (1944), face is a 'public censure' or a communal check against any deviation from, or violation against, the well-rounded norms or traditions of the homogeneous community. The fear of losing face keeps up the consciousness of moral boundaries, maintaining moral values and expressing the force of social sanctions (Hu 1944, 50). A loss of face means a risk of being both condemned and ostracised by the community. In an educational context, face motivates teachers and students to maintain a constant awareness of historically and traditionally accepted standards of their social dignity.

For Asian students, one of the most important virtues is modesty, considered as 'a foundation of all virtues' (Massoudi 2002, 5). A wide range of proverbs illustrate this ethic: 'Only the dead fish opens its mouth' (Japanese); 'Move your tongue seven times before speaking out' (Vietnamese); 'The gentlemen agree with each other without being an echo, the small men echo without being in agreement' (Confucius). Although similar forms of these proverbs can be found in many other cultures, they play a far more critical role in conveying the ethical and moral lessons expected to be learnt in the context of Asia since humbleness and modesty are perceived as morally essential in life.

Asian students are often practise self-effacement and self-criticism, as they believe teachers and peers will value these attributes positively. In fact, as Kitayama et al. (1997, cited in Mau 2000) argue, 'holding a self-critical attitude vis-à-vis socially shared standards of excellence may be a symbolic act of affirming one's belongingness to the social unit' (1247). It is well-known that Asian teachers and parents seldom seek to encourage students with positive appraisals but often with high expectation and criticism (Pong and Chow 2002; Hofstede and Hofstede 2005, 135; Woodrow 2007, 94). Wasting other students' time by expressing independent judgments is often perceived as bragging and reflective of an egotistical and selfish personality (Kennedy 2002, 431; Jackson 2002; Liu 2002 [cited in Woodrow 2006]).

The connection between self-face and other-face among collectivistic asians

Since self-concept is socially constructed, it is unsurprising that significant cultural differences can be found. Findings from behavioural studies suggest that social interactions in Western cultures lead to a sense of self that is an autonomous, bounded entity, separate from others, whereas Asian cultures promote a sense of self that is typically seen as interdependent and overlapping with others (Markus and Kitayama 1991, 2010). Neuroscience has shown that the brain activity engaged during self-reflection differs between those who have grown up in collectivistic and individualistic cultures. For example, Ma et al. (2014)

reported that in comparison with people who embrace collectivistic values, those with individualistic values exhibited greater neural activity in the ventro-medial prefrontal cortex (vmPFC) – a brain region associated with personal mental attribute of selfhood (Moran, Heatherton, and Kelley 2009; Ma and Han 2011). In the same vein, vmPFC is also activated when collectivists think about close others such as their mother, suggesting that the thought of 'self' and the thought of 'mother' are regulated in the same region of the brain – a situation that is not observed among individualists (Zhu et al. 2007; Wang et al. 2012; Wuyun et al. 2014). Now let's consider a reverse condition. When people think about the self from the point of view of others (e.g. 'Does my teacher think that I am lazy?'), the *dorsal* region of the PFC exhibits prominent activation (Dargembeau et al. 2007). In a series of studies (Han et al. 2008, 2010), religious collectivists from East Asia show activation in the dorsal region (i.e. otherness) when they think about the self rather than in the ventral region of the mPFC which is supposed to be linked with selfhood. The authors suggested that religious people try to take on the perceived perspective of God, or Buddha, and draw a judgement on the self, thus reinforcing the idea that perspective taking is common among collectivists (Leung and Cohen 2007; Wu and Keysar 2007). In sum, findings from neuroscience tend to suggest that for collectivists, the construal self is fluid, contextual, and defined in large part by its relations to others.

Due to the strong relationship between self and other, the 'moral' characteristic of self-face is directly connected with the 'relational' aspect of virtues. Face is key to the promotion of a harmonious human relationship (Jia 1997–1998). 'Other-face' orientations such as face-giving, face-honouring, other-face non-impositional approach and other-face approval-enhancing approach, etc. are major components of the collectivist culture (Ting-Toomey and Kurogi 1998). The Asian notion of face thus emphasises a harmonious human relationship in which each member is expected to protect the face of others by seeking harmony and by communicating to their partners that they are held in high esteem.

The self-other connection of face concern among Asians is manifested in the way Asian students perceive their 'social' mistakes. Since making a mistake in a social setting means a loss of face (Jia 2001), learning from mistakes is not easily perceived as having a positive connotation. In the Chinese language, the word for making a mistake (*chuo)* and the word for being bad (*hua)* are often used alternatively. To a certain extent, a mistake is a violation of morality. It is often the result of ill-conceived thought, ill-conceived speech and ill-conceived action. Jackson (2002) reports that Chinese students are afraid of making mistakes in their discussion and this fear adds to their reticence. Similarly, Japanese have a stronger self-critical focus arising from an enhanced need for positive self-regard (Heine et al. 1999).

From this perspective, the 'moral' and 'relational' aspects of self and other-face concern are directly connected with guilt and shame. Shame is triggered in the presence of other people, while guilt can arise and persist *without* others. By measuring associated brain activity with functional magnetic resonance imaging (fMRI), researchers have demonstrated some overlapping activity for both conditions in the medial prefrontal cortex and the visual cortex (Takahashi et al. 2004) as well as complex processes across other brain regions (see, for example, Finger et al. 2006; Moll et al. 2007; Pulcu et al. 2014). However, due to the cultural differences between collectivism and individualism, the intensity may vary with additional neural activity in different regions of the brain. For example, according to Michl et al. (2014), when guilt was experienced, German

participants showed additional activity in the left precentral gyrus – a network that is involved in affective and mnestic processing. In contrast, Japanese participants experienced guilt with an increase in the medial frontal gyrus – a region relevant for perspective taking. This result is critical, since it can lead to a hypothesis that for the Japanese, guilt – psychologically perceived as a feeling that can arise and persist *without* others – actually has a neural activity based on specific social standard in relation *with* others.

In sum, neural studies generally support findings from behavioural studies that suggest that, among collectivists from Asia, the self and the other are dynamically connected, and that when people think about the self, the brain region associated with the other can be activated, and vice versa. In line with Schneiter's (2016) notion of face as a person's social connection, this means one's public image is defined by social existence and expectation, while at the same time, the relational representation of the self can replace the individual self in navigating cognitive and behavioural attitudes. For students whose learning is organised in CL settings, this differentiation may result in significant impact as they constantly navigate their public image in the dynamic context of how they and others perceive themselves.

Group face concern

Unlike self-face and other-face, group-face attracts far less research attention (Nguyen-Phuong-Mai et al. 2014). In most studies, group-face is understood as a broader form of other-face, which is placed in juxtaposition with self-face concern along the individualism-collectivism spectrum. Relational self-face concern and collective self-face concern are often interchangeable, despite the fact that the 'other' in relational self-construal can be an individual (e.g. 'I am a wife', which indicates the relational other is her partner), and the 'other' in collective self-construal has to be a group (e.g. 'I am Asian', which indicates the collective other is an ethnicity). This mismatch between the concept of self in self-construal (three-tier category: individual, relational and collective) and the concept of self in facework (two-tier category: self and other) is a curious matter. At the same time, it does provide an opportunity for exploration with regard to the impact of group face at the collective level of self-construal.

The concept of group face

In their study, Kim and Nam (1998) cited two examples of face. The first concerns an article in which the author remarked that more lives could have been saved at the crash site of the Japan Airlines Flight 123 in August 1985 if efforts had been made to avoid the embarrassment of the Japanese authorities. In the second example, the author argued that China sought to be a founding member of the World Trade Organization in order to save face even though it was widely predicted that liberalising trade would do more harm than good to China's economy. Both examples involve the face of a group: a government and a nation.

Research on facework often makes no distinction between individual face and collective social image. While the definition of face is usually centred around an individual's concept of face, interestingly but incongruently, researchers often cite examples and reach conclusions that also involve the face of a collective, as showed in the two examples

above. The 'collective' characteristic of face had been embedded in many face studies until a multidisciplinary study of Spencer-Oatey (2007) connected it with identity theories. Based on Brewer and Gardner's (1996) three-level perspective on self-representation, Spencer-Oatey proposes that it is useful to analyse face not only at individual level (self-face and other-face concern), but also at collective level (group-face concern) since human beings can attribute face to a community to which they belong, i.e. *our* face instead of *my* face or *your* face.

The consequences of group-face

The salience of facework at the between-group level directly links to the literature on intergroup relations. Nguyen-Phuong-Mai et al. (2014) argued that group-face potentially led to the following consequences: (1) Ingroup-face favouritism; (2) Outgroup-face deterioration; (3) Group-face is more salient than within-group face; and (4) Group-face leads to superior productivity.

The indication that group-face is related to *ingroup face favouritism* and *outgroup face deterioration* is based on a study of Dru (2002) who remarks that both fundamental intergroup behaviour theories – Real Conflict Theory (Campbell 1958; Sherif 1967) and Social Identity Theory (Tajfel and Turner 1979) – hypothesise a positive relationship between social identification and ethnocentrism in threatening environments, e.g. intergroup competition for scarce resources.

Studies in Real Conflict Theory suggest that intergroup competition promotes mutual negative group identity, images, attitudes, and behaviours (for extended list of references see Echebarria-Echabe and Guede 2003, 765). In those contexts that present a zero-sum structure, the social image of attitude and behaviours towards other groups become negative, while the social image of attitude and behaviours towards ingroup members becomes positive. Similarly, Social Identity Theory posits that the process of developing positive ingroup identification by making comparative evaluations between groups causes ingroup favouritism and outgroup discrimination.

The reason why we favour our ingroup over outgroups is that group membership is vital to our survival. Our ancestors spent thousands of years in close-knit communities, where the group was their source of help, comfort and survival, protecting them against human and non-human enemies. By contrast, outgroup members can represent 'threat.' Naturally, we have evolved to build a strong affection for our ingroup and our culture. It becomes the centre of everything, a yardstick that all other groups/cultures are measured and judged by (Nguyen-Phuong-Mai 2017, 101). Our pride and sense of superiority leads to a tendency to look down on and distrust outgroup members as we start forming certain prejudices towards others (Hein et al. 2010). In a nutshell, we can love our ingroup so much that we may end up experiencing animosity towards other outgroups.

Because we naturally feel safer among our ingroup, contact with outgroups consequently triggers the nervous system to go into an automated fight-or-flight mode. The brain has evolved to protect us against any possible danger as it constantly gauges whether people are 'friends' or 'foes' through trivial traits such as skin colour. The amygdala – our emotion detection device (Phelps and Ledoux 2005; Olsson, Nearing, and Phelps 2007) – receives information and immediately and subconsciously categorises individuals

into ingroup and outgroup. This happens rapidly, to the extent that a minimal exposure of as little as 100 milliseconds is sufficient to draw a judgment about a stranger's face (Willis and Todorov 2006). For example, the amygdala becomes more active when we see someone who looks racially different from us, indicating a potential threat (Hart et al. 2000; Kubota, Banaji, and Phelps 2012). Not only do we experience a fear-detector alert, evolution has also prepared us to feel less empathy towards outsiders. Watching people in pain, we tend to have more sympathy for those in our ingroup rather than outsiders (Meyer et al. 2013), even when they are just supporters of a rival team (Hein et al. 2010). These studies thus support social theories on intergroup relation and facework, as they provide neural and evolutionary evidence of our tendency to favour our own ingroup and enhance our ingroup's positive image.

The third consequence of group face is that it is likely to be more *salient* than self-face and other-face. A rich line of intergroup research has shown that the level of competition is significantly higher between groups than within groups – a phenomenon termed the 'interindividual-intergroup discontinuity effect' (Wildschut et al. 2003). This suggests that in a competitive environment, group-face is more readily triggered and provoked than self-face and other-face.

The fourth characteristic of between-group face is *superior productivity*. It appears that between-group competition exerts significant influence on group output by enhancing productivity and within-group cooperation (Nalbantian and Schotter 1997; Bornstein, Gneezy, and Nagel 2002; Gunnthorsdottir and Rapoport 2006; Tan and Bolle 2007). Such a phenomenon is considered to have deep evolutionary roots. Both Darwin and the co-discoverer of natural selection Wallace (1864, cited in Melotti 1985) stressed group selection. Darwin further pointed out that competition between groups had to be combined with within group cooperation. The link between ingroup cooperation and outgroup competition fosters the growth of creative intelligence and group behaviours (McGregor 1987; Melotti 1985; Bowles 2006; Bowles and Gintis 2013), to the extent that Keeley (1997) has famously remarked that 'warfare is ultimately not a denial of the human capacity for cooperation, but merely the most destructive expression of it' (158).

Group-face concern among collectivistic asians

The phenomenon of group-face dynamics has recently gained additional insight from evolutionary biology which points us to the historical context of early human migration. Pathogens – infectious agents such as bacteria and fungi that cause disease – are more prevalent in warm and moist climates, including East Asia. In order to cope with the constant risk of infection, human groups who migrated to these regions in ancient times slowly developed a cultural strategy to deal with high pathogen loads: a group-oriented mindset that conforms to collective rules regarding sanitation, food preparation, etc. Over a period of time, those who followed the cultural rules of group conformity had a higher chance of survival. Group-mindset culture became an established and strategic means to cope with pathogens. In their study, Chiao and Blizinsky (2009) pointed out the link between (a) the prevalence of pathogens in the environment, (b) the shorter variant serotonin carriers (s5-HTTLPR) which are connected with depression (Caspi et al. 2003), and (c) the need to develop a culture of group-mindset. Those who followed the cultural rules of group conformity had a higher chance of survival. Simultaneously,

those with short alleles (i.e. higher chance of depression) fit better into the group-mindset culture, so their gene became dominant to support this value. This is a classic example of gene-culture co-evolution theory (Richerson and Boyd 2006) which posits that genes are crucial mechanisms for turning useful cultural values into genetic traits, and vice versa.

Due to the group mindset, group-face is arguably more salient than self and other-face. Jia (2001) presented a case study where a Chinese manager chose to sacrifice her face by kneeling down in front of everyone to offer a cup of tea to a customer who threatened to punish the company with his political power. Another example can be drawn from Vietnamese language where face is always accompanied by another word addressing 'individual face' (*thể diện cá nhân),* and many other group-faces such as 'family's face' (*thể diện gia đình*), 'company's face' (*thể diện cơ quan*), or 'national face' (*thể diện quốc gia)*.

In an educational context, the group-mindset exerts a strong influence in how Asian students conceptualise their individual self in terms of their collective ingroup. It has been frequently noted that Asian students study hard largely for the sake of their families. It has been estimated that 27% of examination stress is due to parental aspirations (Pong and Chow 2002). Asian parents have high expectations of their children's success (Cao, Bishop and Forgasz 2006; Francis and Archer 2005). While failing in an exam for students from some cultures may indicate personal failure, loss of self-esteem, or loss of self-pride on an individual attribution basis, for many Asian students, this has more to do with collective face concern such as bringing shame to their family. Viewed by other cultural groups as a 'model ethnic minority' that has a reputation for high academic achievement (Cheryan and Bodenhausen 2000; Ho 2003), failure also means damaging the positive image of their ingroup in front of other outgroups, quoting one student in Lee's (1994, cited in Wong and Halgin 2006):

> … When you get bad grades, people look at you really strange because you are sort of distorting the way they see Asians. It makes you feel really awkward if you don't fit the stereotype. (43)

In extreme cases, when an individual fails to maintain group face (often a family), the act of committing suicide may be considered as a last resort in regaining face and dignity (Ho 1976, 883; Pong and Chow 2002). Face is restored, because the redemption has been paid voluntarily with the highest price possible; a person's own life.

Potential mismatch between western models of CL and face-concern among asian learners

CL emerged in the 1970s with evidence that students obtained higher level of productivity from working together (Brown, Fenrick, and Klemme 1971; Gartner, Kohler, and Riessman 1971). Since then, CL has been widely recognised as a successful pedagogical practice across different key learning areas and subject domains in many Western educational contexts. Among the most prominent CL models, the framework of Johnson and Johnson (1994) has received much interest. This posits that CL will succeed if learning is structured on the basis of the following five principles: (1) Positive interdependence; (2) Individual accountability; (3) Face-to-face interaction; (4) Interpersonal and small group skills; and

(5) Group processing (Felder and Brent 2007). In this section, some of these principles will be placed in juxtaposition with the nature of facework and face concern among Asian learners to reveal a number of mismatches when Western-based educational methodologies are applied in non-Western contexts.

Positive goal interdependence

A state of positive goal independence is a key component in achieving successful group work (Johnson and Johnson 1994). Team members need to understand that they are required not only to complete their part of the task but also to ensure that others do likewise. The motivation to work with others is based on the motivation to fulfil personal goals, as students must understand that they cannot succeed unless others do. The psychological state of positive goal interdependence is that the collective goal is a means to achieve an end (i.e. a personal goal). To a certain extent, this reflects the individualistic mentality of the cultural background from which CL originates.

In contrast with Western based CL, a general conclusion from cross-cultural comparison is that for collectivists, achievement is socially oriented. Yu and Yang (1994) argued that, in Taiwan, what appears to be a purely personal striving of achievement is in fact anchored in the expectation of significant others and one's sense of social obligation and duty to others. While European American children are motivated to perform a task they have chosen, Asian Americans are more motivated by a choice made by their mother (Iyengar and Lepper 1999). Similarly, Western students show a strong justification effect when a choice is perceived as private and personal, whereas Asian students show such an effect only when a choice is perceived as public (Kitayama et al. 2004).

Although studies that connect group learning and neuroscience are still rare, we can draw upon research in neuroeconomics which shows that cooperative behaviour leads to greater activation in regions of the brain associated with reward-based learning (Decety et al. 2004). Cooperative peer-interaction recruits the mesolimbic dopamine reward system, creating a sense of fulfilment (Sakaiya et al. 2013; Pfeiffer et al. 2014). Clark and Dumas (2015) mapped out more extensively the neural basis of peer-learning and how work in small group settings can boost the intrinsic motivation to learn. However, when the impact of culture is factored in, using feedback related negativity (FRN), researchers reported that Chinese participants reported no significant difference between the choices they made for themselves and those made by their mothers (Zhu, Guan, and Li 2015). In a similar gambling simulation, Varnum et al. (2014) found an increase of reward activity in the bilateral ventral striatum when Chinese participants were winning money for a friend during a gambling game. Another study of Kitayama and Park (2014) assessed electro-cortical responses of European American and Asians as they tried to earn as many reward points as possible either for the self or for the same-sex friend. The results show that self-centric effects such as cognitive control geared to reduce errors were observed among the Western subjects in the 'self' condition but not in the 'friend' condition. In contrast, this self-centric effect was not observed among Asians, suggesting that 'your' reward is the same as 'my' reward. In sum, matching the notion of other-face giving with the principle of open challenging in CL reveals a potential need to reconcile the individualistic nature of Western educational methods and the social mores of the Asian contexts where self-face and other-face overlap to a certain extent.

Face-to-face promotive interaction

CL in principle, as a Western approach was seen as a means to encourage individualistic learners to work together. It involves a great deal of active communication including oral explanation, checking for understanding, discussing concepts, challenging ideas and learning from mistakes. The inherent notion of this learning structure is that constructive diversity operates as a core value. The communicative features of individualistic cultures provide a basis for Western-based researchers to construct CL methods that emphasise face-to-face promotive interaction (Johnson and Johnson 1994, 58) – a demand that students provide each other with feedback, challenge each other's conclusions and reasoning, advocate the exertion of effort, influence each other's efforts, strive for mutual benefit, and maintain a moderate level of arousal. Differences of opinion are seen as providing valuable opportunities for productive discussion. Since emotion can be openly exhibited and detached from objective and rational decision making, disagreement and conflict can be made explicit without giving offence or hurting personal feelings.

While essential, this feature of the CL method is likely to put Asian students in a problematic situation unless the environment is supportive and constructive. By demanding that each learner proactively proves that he/she is involved, there can be a clash between face attributes traditionally perceived by Asian students as positive (humble, modest, well-thought and well-said) and face attributes that CL perceives as positive (verbally expressing, articulating and challenging). If lacking a framework to secure self-face and other-face, students will need to solve the dilemma of 'opening their mouth' but at the same time not being a 'dead fish'; of 'having a voice' but at the same time not being 'empty inside'; of 'echoing' but at the same time remaining a 'gentlemen'; and of 'speaking out' but at the same time using words that have been well thought out. In fact, while individualists may feel a need to talk out loud in order to work things out, forcing collectivists to talk may actually *impair* their performance (Kim 2002). While conflict management has been shown in the West to contribute to team effectiveness (Jehn and Mannix 2001; Lovelace, Shapiro, and Weingart 2001), its value does not extend in equal measure to Asia (Leung 1997). Asian educational contexts typically favour an environment where harmony is supreme, expression is subdued and explicit differences of opinion are to be avoided. Confrontations and conflicts are to be avoided at all cost. Given this sensitivity, the expression of one's own forthright views in a challenging fashion may lead to others losing face (Jackson 2002; Kennedy 2002).

Taken together, a possible mismatch between learning structure and social expectation, with regard to face strategies, may present Asian learners with a psychological conflict between self-face and other-face expression. Culture affects how people experience, express, recognise and regulate their emotions (Mesquita and Leu 2007) and neural studies have shown that East Asians prefer to experience low arousal (Tsai 2007) and are more likely to suppress their emotions (Butler, Lee, and Gross 2007). According to Murata et al. (2012), emotion suppression is an effective strategy for dampening or reducing emotional experience during regulation. This finding is supported by a study of Ohira et al. (2006) in which Japanese participants did not show increased activation in the insula or amygdala during emotion suppression. The result, of course, does not mean collectivists are unaffected by the intensity of group's interaction, but rather it

provides a hypothesis that emotion suppression can interfere with interpersonal communication process, especially when learners have to constantly navigate and negotiate between different priorities of face. In a study by Ishii et al. (2010), the magnitude of negativity in electrophysiological response was correlated to the degree of interdependence, suggesting that collectivists are more sensitive to emotional context. Similarly, Kobayashi et al. (2007) noted in their fMRI study that Japanese participants relied more on emotional mentalising than American. In sum, the ability to understand and represent the psychological state of others (Theory of Mind) is influenced by culture. It is critical to be reminded here that expressing the self for Asian students not only involves reflection on personal perspectives, but also deeply connects with the perspective taking of others. In a conflict situation, they may have to choose to restrain and crack down on their feelings in culturally expected attempts to either show a humble self-face or to maintain a harmonious relationship with other-face.

Understandably, this conflict of values may contribute to the way Western educators often characterise Asian students as reticent learners who are unwilling to commit themselves publicly, reluctant to give their opinions, anxious to question and criticise, and hesitant to participate (Liu and Littlewood 1997; Flowerdew 1998 ; Jackson 2002; Tani 2005). In a comparative study by Woodrow and Sham (2001, 390), when asked 'How do you feel when the teacher asks you to discuss any subject in a group?', over 76% of the British-Chinese pupil respondents used the words 'embarrassed', 'nervous' (33%) or 'feeling ill' (8.7%). Asian students are likely to adopt indirect communication strategies such as: 'avoidance'; bypassing the topic of conflict by being 'obliging'; reflecting a greater concern for the other's interest than one's own (Kirkbride, Tang, and Westwood 1991; Jehn and Weldon 1992; Tse, Francis, and Walls 1994); or mediation (Wall and Blum 1991; Ting-Toomey et al. 2000). 'Mediation' involves reflecting the act of face giving to the mediator, e.g. the group leader or the teacher – those who hold a critical role in the learning process in Asian cultural context. This aspect is discussed in the next section.

Group skills and group processing

The last two principles of Johnson and Johnson's CL model indicate critical aspects of successful cooperation. In general, learners should be taught essential group skills in managing interpersonal interaction such as listening to others, sharing ideas and resources, taking turns and engaging in democratic decision making. In addition, group processing involves members discussing the work's result, to evaluate and reflect on the common goals. These are critical components of cooperation, regardless of cultural context. However, as a product of the individualistic West, this CL model neglects two fundamental features of educational setting in Asia, namely: leadership and between-group competition.

Leadership

Naturally, hierarchy is essential for any organisation, be it a biological system or a man-made system such as a machine. The main reason for hierarchy is the cost of connections (Mengistu et al. 2016), which is expensive because connections have to be designed, built and maintained. Hierarchy came into existence to reduce the number of connections you

need to make and keep. In human societies, this is also the starting point for the division of labour, which permits the best deployment of human resources (Pratto, Sidanius, and Levin 2006). For this reason, hierarchy has evolved to become an element of culture – a survival strategy for human beings, since hierarchical groups ultimately outlived egalitarian groups (Sosis 2000).

However, while it is universally true that putting any two persons in a room, in the end we will have a senior and a junior, this tendency is higher among collectivist Asians. Gene–culture coevolution theory offers an explanation for the differing levels of hierarchy acceptance in a similar way as it does for the group mindset. During early human migration, in some parts of the world, the prevalence of pathogens in the environment posed a risk for our ancestors. Under this influence and the presence of the shorter variant of serotonin carriers (s5-HTTLPR), we have evolved with the need to develop a culture of group-mindset and hierarchical dominance. This is especially true in environments with a high level of territorial and resource threats (Fischer 2013). Those who followed the cultural rules of group conformity and accepted hierarchical structures had a higher chance of survival. Simultaneously, those with s5-HTTLPR fit better into the group mindset and hierarchical culture, so their gene became dominant to support these values.

Hierarchy has not been a key element in most mainstream CL theories. In Kagan's (1993) approach, each student is assigned a specific role to fulfil, a view that strongly reflects a participative leadership style more typically found in Western cultures. However, Asian class structure is strongly hierarchical (Nguyen et al. 2009; Phuong-Mai et al. 2009) and a leader contributes to the functioning of the group (Melles 2004). According to Ting-Toomey and Kurogi (1998) Asians tend to practise face-giving to the senior member in the hierarchical group structure, and this person can then potentially mediate face conflicts within the group (195–196). Appointing a formal leader may be seen as a strategy to help monitoring within-group face when conflict occurs; other group members may be willing to make concessions in the name of honouring the high-status mediator's face (and thus saving their own face). A good leader can be expected to keep within-group face confirmed just well enough so that group members feel safe and sufficiently secure to express their opinions. At the same time, the leader is supposed to encourage some within-group face dissonance; however, just sufficient to trigger the motivation to work harder in order to (re)confirm face.

It has been argued that a propensity for hierarchical group functioning has been embedded in the neural pathway of Asian people. Liew et al. (2011) reported that Chinese participants respond faster to their supervisor's face than to their own, whereas European Americans did not show this 'boss effect'. Culture also influences how the concept of leader may hold vastly different meanings in different contexts. Freeman et al. (2009) demonstrated that Americans show neural activity in reward-related brain regions in response to signals of dominance, while Japanese participants show neural activity in the same reward-related brain regions in response to signals of subordination. These mesolimbic regions are typically activated by rewarding and motivationally significant stimuli, and in responding to such stimuli they help to coordinate learning and behaviour. This finding suggests that the presence of an authority-subordinate dynamic triggers reward-related responses that may help contribute to high-level social behaviours.

Between-group competition

Intergroup relation theories often assume a link between superior productivity and the presence a competitive environment (Nalbantian and Schotter 1997; Bornstein, Gneezy, and Nagel 2002; Gunnthorsdottir and Rapoport 2006; Tan and Bolle 2007). With regard to CL, the notion of group-face is virtually absent, arguably due to the individualistic nature of CL as conceived by Western educators who are more ready to see interpersonal confrontation *within* a group rather than inter-group confrontation *between* groups. Thus, although CL has been widely researched, it has been mostly analysed from a within-group setting. Longstanding authorities on CL such as Johnson and Johnson (1999) and Slavin (1995) have focused on within-group structures and strategies, leaving a remarkable research void concerning the effect of between-group settings. In a worldwide meta-analysis review of CL (Johnson, Johnson, and Stanne 2000), not only were a mere number of four studies conducted in Asia, there was a lack of evidence as to how between-group competition was manifested in the learning process. With similar reasoning as employed in the discussion of self-face and other-face, between-group competition will involve group-face in a culturally different way in Western and Asian educational contexts, given that group-face. This paper subsequently takes up the challenge to explore this impact by means of experiments.

Taken together, the literature from a variety of disciplinary fields suggests that self-face, other-face, and group-face regulate group interaction in different ways across different cultural contexts. There exists a need to explore potential mismatch between these Western educational methods and the social mores of learners in collectivist societies.

Methodology

Participants and tasks

The experiments were conducted in two upper secondary schools in Vietnam. 181 students aged between 16 and 18 participated in the project. They were randomly split into two experimental settings: The Exp-1 (23 small groups) utilised CL with culturally appropriate facework strategies, and the Exp-2 (23 small groups) embraced Western-based CL principles taken from Johnson and Johnson (1994). Each group consisted of 3–4 group members. Students in both settings conducted four 45-minute-discussion tasks on diverse topics. One example of the topics is: 'It is said that in this age of information, ignorance is a choice. Please discuss this saying and compare it with the traditional Vietnamese proverb 'No one can succeed without a teacher' (*Không thâ`y đô´ mày làm nên*).

Experimental design

In the previous sections, it has been pointed out that for those in collectivist societies, (1) self-face promotes modesty and humbleness, (2) other-face is dynamically connected or overlapped with self-face to preserve harmony, and (3) group-face is more salient and more likely to result in superior productivity. For this reason, in Exp-1, a series of facework strategies were applied to secure self-face and other-face, while group-face was enhanced through mild confrontation by means of competition. In contrast, in Exp-2 (following Western-based CL), the experimental design emphasised individual accountability,

direct face-to-face interaction without the formal role of team leaders, and intergroup competition. It was hypothesised that Vietnamese students would benefit from a more culturally appropriate facework setting (Exp-1) and this would lead to better learning outcomes. The following section describes the experimental procedure in detail:

Implicit individual contribution vs. explicit individual contribution

Indications from behavioural (e.g. Ting-Toomey and Kurogi 1998; Jia 2001) and neural studies (e.g. Zhu et al. 2007; Wang et al. 2012; Wuyun et al. 2014) suggest that for collectivist Asians, self-face is fluid, contextual, and defined in large part by its relations to other-face. Both neuroimaging (e.g. Varnum et al. 2014) and behavioural studies (e.g. Iyengar and Lepper 1999) also suggest that in such cultures, people tend to recognise little difference between winning for themselves and for close others such as families or friends. Following this reasoning, in Exp-1, individual contribution was not publically exposed. All opinions were noted down without distinguishing the amount that each group member produced. It was predicted that these face strategies would lessen the chance of face confrontation and align more with the overlapping of self-face and other-face. In comparison, for Exp-2, all opinions were noted down separately as instructed from 'Round Table' (Kagan 1993) where each member, clockwise, has to show his/her contribution.

Built-in conflict vs. direct discussion

In Exp-1, a protagonist-antagonist controversy was purposely embedded in each discussion topic, creating a situation in which group members were positioned to hold different perspectives: 'For' and 'Against'; 'Negative effect' and 'Positive effect'. Students would give their opinions in a persuasive and convincing way to support their assigned roles. It was predicted that with this strategy, the chance of face confrontation caused by opposing views would decrease because students are 'programmed' to be involved in a built-in conflict, and are expected to give counter-arguments, i.e. opinions reflecting their *assigned roles* and not their *personal* thinking. Further, arguments and counter-arguments were recorded in written form. According to Tani (2005), one strategy successfully used to encourage Asian students to participate in discussion is utilising written communication. Students have more time to prepare, and within-group face is confirmed since the questions are submitted anonymously in written form.

In Exp-2, students were also expected to give different perspectives. However, members were not assigned to different positions, i.e. opinions reflected their *personal* thinking. Personal contributions and arguments were publically exposed, meaning that self-face and other-face were more likely to risk face confrontation.

Former leader vs. egalitarian group processing

Findings from both behavioural (e.g. Ting-Toomey and Kurogi 1998; Melles 2004; Nguyen et al. 2009; Phuong-Mai et al. 2009) and neural studies (e.g. Freeman et al. 2009; Liew et al. 2011) have suggested that hierarchical structure tends to fit more with the social and facework preferences of those from collectivist societies. Hence, in Exp-1, a formal leader was appointed by group members. This role is meant to monitor face in communication and conflict, to maintain harmony, and to make sure that self and other-face operate in a secure and safe environment.

In Exp-2, no formal leader was appointed. Following the model of Kagan (1993), each member was assigned a role to fulfil: recorder, checker, cheer leader, and quiet captain/ reporter. The 'recorder' was responsible for noting down arguments in the logbook; the 'cheer leader' gave an evaluation at the end of the task; the 'checker' established agreement before the task was submitted; the 'quiet captain/ reporter' watched out for time, and communicated with the teacher and the class.

Between-group assessment vs. non-between-group assessment

Findings from intergroup relation studies suggest that a competitive setting will be more likely to boost productivity. However, to avoid the risk of heightened ingroup favouritism and outgroup deterioration, competition should be kept in check.

At the end of each task in Exp-1, all groups were asked to exchange results with their neighbours, and assessment was conducted at between-group level. Two groups were recognised: the one with the highest score (ability-based) and the one that made the biggest difference in score compared with their own previous records (effort-based). This strategy was designed to create a milder type of between-group confrontation by making students aware of their achievement. The competition was moderated by constructive between-group assessment and effort recognition.

In Exp-2, all groups assessed their tasks by themselves and the teacher did the final check. The scores were not reported and no information was given about the performance of other groups.

Table 1 gives an overview of the treatments.

Data gathering

The first data source was the discussion outcomes. This information was taken directly from the students' logbooks in which tasks were described, procedures were recorded, and opinions were written down. The number of arguments each group had as a whole (Exp-1), or each member had produced (Exp-2), after the completion of each discussion task was calculated.

The questionnaire utilised a Likert-scale design with five points ranging from '1 – totally disagree' to '5 – totally agree'. The first scale was labelled 'self-face and other-face', measuring *the extent to which each individual has expressed their own voice*. An example of the items is: 'You have expressed fully your point of view'. The second scale was labelled 'group-face', measuring *the extent to which between-group context exerts a positive impact upon the learning motivation of each individual*. An example of the items is: 'You felt motivated to learn because you want your team to appear as a good team'. In the

Table 1. Overview of the treatments in two experiment settings.

	Exp-1 (culturally appropriate)	Exp-2 (Western-based CL)
Self-face/ Other-face	*Confirmation*	*Confrontation*
	Implicit individual contribution	Explicit individual contribution
	Built-in conflict	Direct discussion
	Formal leader	Egalitarian group processing
Group-face	*(Milder) Confrontation*	*Confirmation*
	Between-group assessment	No between-group assessment

first round of experiments, the questionnaires were pilot-tested and, as a consequence, some items on the scales were revised and adjusted to achieve higher construct validity and to improve reliability. The findings reported in this paper are from the questionnaire that was applied in the last round of the experiment, a version with Cronbach alpha of .77 and .80 for the two settings respectively.

Observation was conducted for all groups at time intervals. Every 3-5 minutes, one group was observed closely and all related conversation was noted on the observation form. This was divided in three domains: self-face, other-face and group-face. Each domain had two categories of face confirmation and face confrontation.

Results

Overall result

With regard to the discussion outcomes, the experimental hypothesis was supported. The two experimental settings differed significantly from each other in the accumulated number of written arguments each group achieved after the completion of the tasks (Table 2).

With regard to data from questionnaires, two experimental settings significantly differed from each other on the combined dependent variable, $F(2, 34) = 11.54$, $p < .0005$; Wilks' Lambda = .59; partial $\eta^2 = .40$. This means that 40% of the variance in the new combined dependent variables was accounted for by the factor 'setting'.

Self-face and other-face

Questionnaire: Using a Bonferroni adjusted alpha level of .02, the data showed that the two settings differed in terms of the extent to which the students reported to have fully expressed their views within their group, $F(1, 35) = 11.0$, $p < .005$, partial $\eta^2 = .24$. Students in the Exp-1 setting reported being more comfortable and more motivated in fully expressing their point of view ($M_1 = 4.2$) than those in Exp-2 ($M_2 = 3.6$). Twenty-four per cent of the variance in the variable 'self and other-face' was accounted for by the difference in setting.

Observation: The observation notes produced the following coding units: (1) Criticising; (2) Confronting; (3) Encouraging; and (4) Challenging. In Exp-1, 15 statements of all four categories were recorded with none linked to personal threat. Only one statement expressed hesitation about writing down arguments ('This is not a very way nice to say don't you think?'). Students engaged so enthusiastically with one another in the Exp-1 setting that Teacher No3 commented that it was good that there were no other classes around, otherwise ' … this voice of knowledge would have been mistaken as turbulence and a loss of control'.

In the Exp-2 setting, students were less likely to 'criticise', 'confront', 'encourage' and 'challenge' others in expressing opinions. Some students looked rather nervous whilst

Table 2. Mean score of discussion outcomes.

Exp-1	Exp-2	SD	*t*	df	Effect-size (d)	*p*
32.7	19.3	9.62/4.99	5.9	33.0	1.83	<.0005

waiting for their turn in the 'Round table' task. Some released somewhat withheld breath after completing their contribution. Some whispered 'sorry' when it was their turn and they still had nothing to say. When individual contributions were revealed at the end of the task, the author observed that low achievers hesitated to report their contribution. They looked down, bit their lips, scratched their heads, or smiled rather shamefully. One student smiled timidly while she criticised herself: 'I am the last of the group *again*'.

For students in the Exp-2 setting, low achievers had a hard time coping with feelings of shame when their individual achievements were revealed at the end of each task and they were found to be a poor contributor to the group effort. These students were constantly at risk from having their face confronted. Low group achievement could be linked directly to low contribution from low achievers. This meant that low achievers had to guard against face threats from all three directions: self-face, other-face and group-face.

Group face

Questionnaire: Using a Bonferroni adjusted alpha level of .02, the data showed that the two settings differed in the extent to which the students perceived the between-group context to have influenced their learning motivation, $M_1 = 4.7$, $M_2 = 3.8$, $F(1, 35) = 15.7$, $p < .0005$, partial $\eta^2 = .31$. In other words, a mild form of group-face confrontation with intergroup competition appeared to act as a powerful source of learning motivation. 31% of the variance in the variable 'group face' was accounted for by the difference in setting.

Observation: Both Real Conflict Theory and Social Identity Theory are concerned with negative behaviours caused by intergroup competition. In the Exp-1 setting, it was observed that confrontation was rather high. Some students even employed inappropriate language by using words such as: 'revenge', 'our enemy', and 'friends or foe'. The teacher had to correct them and suggested the use of 'pay-off' and 'our opponent' instead. She also stressed that the class was not a battle but a 'healthy competition' which required fair-play and learning from mistakes, just as in the Olympics.

In the Exp-1 setting, between-group assessment after each task required that the grade should be given by the competitor. To secure fairness, each group rapidly felt the need to scrutinise where it had made mistakes, what they should have done and what they had learnt from their errors. This reflection was carried on spontaneously without direct instruction from the teacher.

In the Exp-2 setting, the absence of between-group confrontation delivered less overt enthusiasm, and the competitive spirit was far lower. It is important to note that motivation to learn for the sake of the group was rather high ($M_2 = 3.8$) despite the fact that between-group assessment was not formally reported. Some students tried to spy on the work processes of their neighbouring group. When the assessment was completed, they overtly, or more indirectly, sought the grades of other groups for the purpose of comparison.

Discussion and suggestions for future studies

Face confirmation

In line with previous studies of face strategies, face confirmation proved to be critical for these Vietnamese students. For students from the Exp-1 setting, their debates might take

the form of a conflict where everybody had a different point of view, but it was a conflict caused by nobody (embedded conflict) so nobody was to be blamed: in other words, this was a conflict involving positivity towards others. Attributes such as difference, contrast, dissimilarity and diversity did not offer potential threat of disrespect and turbulence but, instead, were valuable in helping to generate higher group productivity. It could be argued that the presence of team leader also played a role in warding off potential face threats.

In contrast, the sensitive topic being discussed without face confirmation tended to create face violation. While there was only one statement of hesitation in Exp-1, 13 such statements were recorded in the Exp-2, showing how students had to wrestle with their decisions and weigh up the potentially negative consequences. Some of the examples are: 'Maybe we shouldn't take this in!', 'Have you really noted it down? Ok! Then *you* will present it, not me!', 'Quit that one! Too sensitive!', 'What if teacher […] knows about?', 'Keep your voice down, aren't you afraid that our teacher will hear it?' etc. The sensitive nature of the topics placed each individual on the defensive when dealing with threats to self-face (i.e. they are expected to be respectful towards teachers), and other-face (i.e. they want to be seen by others as being respectful towards teachers). Consequently, the flow of ideas had to be thought through with great care before they could be voiced. This finding resonates with neural studies that suggest that collectivistic Asians are highly sensitive to emotional context (Kobayashi, Glover, and Temple 2007; Ishii, Kobayashi, and Kitayama 2010). They tend to prefer to experience low arousal (Mesquita and Leu 2007) and an harmonious working environment that consequently leads to the tendency to suppress emotion (Ohira et al. 2006; Butler, Lee, and Gross 2007).

However, this finding should not be seen as indicating that collectivistic Asians cannot discuss conflict openly in group situations. Provided that appropriate face strategies are applied (e.g. built-in conflict), such learners are generally comfortable with challenging each other and exchanging opposing views. In a series of studies, Tjosvold et al. (2004, 2012), Tjosvold and Su (2007) concluded that when self and other-face are confirmed, direct confrontation could induce open-mindedness, prompting Chinese (Chen et al. 2011) and Indian (Bhatnagar and Tjosvold 2012) participants to ask more questions and explore different views. The present finding, with Vietnamese participants, together with other related studies, suggests that the role of constructive controversy deserves more attention when dealing with conflict resolution and group dynamics. Controversy occurs when people express opposing opinions that at least temporarily obstruct the resolution of the issue. While conflict of ideas can result in social threats, *constructive* controversy is the open-minded discussion of opposing perspectives for mutual benefit. Designed to accommodate mutually acceptable solutions, decision-makers in constructive controversy are able to doubt the adequacy of their own positions and incorporate opposing opinions into their own reasoning.

The notion of using constructive strategies in order to secure self and other-face has some support from neuroscience. Any stimulus entering our central nervous system is immediately relayed in two directions towards the cerebral cortex, our rational brain, and the amygdala, our emotion detection device. What is interesting is that despite being activated simultaneously, the amygdala 'decides' whether we like the object or not before the cortex has managed to 'figure out' what the object actually is

(Amodio 2014). In situations where self-face and other-face are threatened, the amygdala triggers an automated fight-or-flight reaction. But given more time, and provided that there is a safe environment, the amygdala operates with the cerebral cortex to enable the processing of finer, richer and deeper information (Wood and Petriglieri 2005). It is hard to overemphasise the condition of psychological safety (Willis 2007) for this to happen as it is the key differentiator for thriving teams in which members will not be embarrassed, rejected or punished for speaking up with ideas, questions, concerns or mistakes. Research shows that simply naming feelings can activate the ventrolateral prefrontal cortex instead of the amygdala, and thus reduce negative emotional impact (Lieberman 2007). Face strategies such as built-in conflict and constructive controversy put a label on the nature and purpose of discussion as a *designated* exchange of argument for mutual benefit. A framework that creates a safe environment for opposing points of view enables participants to foster communication between the emotional and the rational brain. This notion is strongly emphasised by Cozolino (2013) in a timely publication *The Social Neuroscience of Education,* in which the author argues that a safe environment transmits messages to students' brains that activate receptiveness to new information. This insight raises a critical question when culture is factored into the equation of learning productivity. If a safe environment is essential for learning to happen, what would be the impact among those who are culturally raised to be particularly sensitive to conflicts in social interaction?

To bring the matter one step further, we can also question the static view of culture and challenge the idea that Asians in collectivist societies are destined to always be under the spell of collectivist values. Studies with fMRI tell us that collectivists suppress emotion, show more empathy towards close others, and are more likely to interchange self-face and other-face. However, we should also recognise the brain's plasticity, how it physically rewires itself according to the demands of the environment (Maguire et al. 2000). Our brain is so flexible that we are capable of representing multiple cultures in our mind (Hong et al. 2000) and switching between values simultaneously, depending on the given priming culture (Chiao et al. 2010; Wang et al. 2013). Consequently, people may be very self-centred when primed with 'I' and 'me,' yet think more collectively when primed with 'we' and 'our'. The selfhood loci vMPFC in the brain can be active in both priming variances (Ng et al. 2010). People primed with individualistic values showed enhanced evaluation of *general* self, e.g. 'I'm honest,' whereas those primed with collectivistic values showed enhanced processing of *contextual* self, e.g. '*When talking to my mother*, I am honest' (Chiao et al. 2009). Many other neural studies also support this remarkable ability to adapt one's sense of self to the immediate cultural context (e.g. Peng and Knowles 2003; Sui and Han 2007; Harada, Li, and Chiao 2010; Obhi, Hogeveen, and Pascual-Leone 2011; Sui et al. 2012). Some scholars go further by arguing that the 'self' doesn't exist (Puett and Gross-Loh 2016). Findings from these studies suggest that collectivists (or, indeed, those from other societies) are not permanently constrained by their cultural values. On the contrary, the malleable brain can, to a certain extent, allow them to react either in a self- or other-oriented way, depending on the priming environment. This opens up a wider realm of knowledge to explore, such as to what extent face should be confirmed and confronted, what kind of priming cues teachers can design to 'switch' the brain, and what would be the impact of priming if repeatedly applied over the long term, etc.

Face confrontation

In the Exp-1 setting, mild competition, spurred by the use of intergroup assessment, triggered group-face confrontation. The drive to protect group-face became more powerful in an environment where group's status was threatened, resulting in greater self-reported learning motivation. To use Nalbantian and Schotter's (1997) words, it indeed seems that 'a little competition goes a long, long way' (315)

Findings from this experiment suggest that we should question the notion that face is a public issue that constantly demands protection. Research in face strategies has been dominated by the idea that face is individual (self and other-face) and should always be protected (face confirmation). As argued by Nguyen-Phuong-Mai et al. (2014), some literature from China has pointed in the opposite direction, that face confrontation can be used as a valid strategy. For example, Li-Zongwu (1917 [1989], cited in Jia 2001) encouraged people to be thick-faced and black-hearted so the ruling class can't exploit their fear of face loss. Similarly, Lin (1935) suggested that people should confront face in exchange for righteousness and law, as 'when face is lost at the law courts, then we will have justice. And when face is lost in the ministries, […] then we will have a true republic (195)'. In the same vein, Mao Tse-tung wanted people to 'be iron-faced and be feelingless' – a strategy used to become sufficiently cruel and heartless enough to identify, criticise, and mutilate class enemy (Jia 2001, 72). In his book, Yang (1992)'s biting criticism of being Chinese was intended to expose and confront group-face and, by so doing, to encourage every citizen to become aware of their weaknesses and to become a better person. Another example concerns how Chinese negotiators employ 'mobile warfare' where they variously harassed, destabilised, exhausted, and squashed their opposing partner (Faure 1998, 2000), using a 'face-derogation' strategy employing humiliation and shaming in order to weaken an opponent's resolve.

In an educational context, the importance of group-face helps to explain the competitive nature of the traditional Asian classroom, a phenomenon which has puzzled researchers as it does not fit comfortably with the collaborative notion of Asian collectivism. Students in traditional Asian classrooms rarely work in groups. Study is organised individually with each student measuring him/herself against others, rather than against him/herself (Pong and Chow 2002), while mechanisms of educational selection and job assignment placed classmates in direct face-to-face competition with one another (Shirk 1982, 161). However, it appears that this self and other-face confrontation is often combined with a strong group-face confrontation by means of inter-class and inter-school competition. Hardened by the examination-driven nature of the education system and high parental expectation, in Vietnam for example, 'the best class of the week' is often announced during the weekly flag saluting ceremony, and schools with the highest scores of graduating students typically gain a tremendous reputation.

While the literature on CL is abundant, little research has been conducted on the effect of intergroup competition setting. While some studies point to the benefits of using a setting without intergroup competition (e.g. Yu 2001; Ibraheem 2011), in general, a mild level of intergroup competition may result in increased coordination level and learning outcome (Bornstein and Erev 1994; Bornstein, Gneezy, and Nagel 2002; Roncarati, Brassey, and Bridges 2006; De Dreu, Dussel, and Ten Velden 2015; Chen and Chiu 2016). However, fierce rivalry can undermines creativity (Baer et al. 2010). For this reason,

using group face confrontation as a strategy should be exercised with great care to avoid mutual groups' negative images and attitudes. Dividing a class into different teams can result in ingroup favouritism and a deterioration of goodwill towards members of an outgroup. Zhu, Guan, and Li (2015) showed that for Chinese children in a competitive setting, ingroup favouritism happens easily and early, even among participants of 2.5–3.5 years old. A comparative study across 18 societies concluded that ingroup favouritism is culturally dependent and can increase in collectivist contexts where group members are strongly embedded in their ingroups (Fischer and Derham 2016).

Conclusion

This study contributes to research in several ways. Firstly, it supports claims that educational practices should be understood within a given cultural context. Comparative education offers an excellent means to showcase how the transfer of so-called 'best practices' does not, and should not, travel in a vacuum. Specifically, it casts a healthy academic scepticism on the assumption that methodologies originated from the West can be universally applied. Using the fundamental principle of CL, the paper reveals the potential for mismatch when a Western-based educational practice is conducted in an Asian educational context. Findings suggest that a culturally appropriate form of CL will be more likely to result in better learning outcomes. This study resonates with the call to avoid overwriting cultural elements with broad strokes in the rush to modernise and hence, to perpetuate a legacy of neo-colonialism in which the direction of cultural flow is largely uni-directional, from the West 'to the Rest' (Rizvi 2004). We should not overlook the inherent credibility in authentic and indigenous cultural practice. Rather, we should embrace this heritage and work towards a culturally appropriate pedagogy that is based on the unique characteristics of the learners and their unique context.

Secondly, in this paper, beside self-face and other-face, group-face has proved to be a critical aspect that has been largely ignored in the literature. At the collective level, group-face can be challenged, albeit mildly, in a way that brings to the fore a new element of facework: face confrontation. Rather than seeing face as a cultural currency that should be saved, given, and protected, as suggested in many previous studies, group-face at the collective level can be challenged to the extent that it may provoke the need to protect ingroup-face and in so doing, result in higher productivity. By means of its various components, facework is a powerful driver of human behaviour, that can be used to prevent conflict and build harmony in interpersonal and intergroup interactions (Kim and Nam 1998). In contrast with a fiercely competitive, dull, or over-sensitive learning environment, balance between face confirmation and confrontation appears to lead to optimal learning outcomes Further research is needed to explore the dynamics of this balance, in various instructional and cultural contexts.

Finally, the paper has incorporated insights from cultural neuroscience suggesting that this newly emerging discipline can make a meaningful contribution to comparative education. In essence, cultural neuroscience may help comparativists to explore the black box between what people report (perception) and what they really think (neural activities). If conducted at this micro level, neuroscience can be revolutionary in opening new realms of comparative studies. With the concept of the multicultural mind being more and more supported by neuroscience, we should help learners 'create a 'neural dialogue' between

their emotions and their cognitive processing' (Stone-McCown 2005). Perhaps such knowledge can help leaners to grow and learn in environments where the cultural elements are neither undermined, nor seen as permanent barriers that forever define learners in a cultural straightjackets of predetermined values.

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