Culture's Consequences on Student Motivation: Capturing Cross-Cultural Universality and Variability Through Personal Investment Theory

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Culture influences basic motivational processes; however, Western theories of achievement motivation seem to have neglected the role of culture. They are inadequate when trying to explain student motivation and engagement across a wide range of cultural groups because they may not have the conceptual tools needed to handle culturally relevant information. Personal investment (PI) theory is proposed as a viable alternative that could be used across diverse cultural contexts. It designates three components of meaning: sense of self, perceived goals, and facilitating conditions as central to understanding investment in the educational enterprise. Moreover, it is an integrative framework that can shed light on both etic (culturally universal) and emic (culturally specific) dimensions of student motivation. Studies utilizing PI theory are reviewed revealing interesting etic and emic findings. Implications for cross-cultural research in educational psychology are discussed.

To set the stage for recognizing the importance of understanding cross-cultural similarities and differences in student motivation, consider these cultural paradoxes:

- Anglo-American children became more motivated in the task (solving anagrams/word puzzles) when they were allowed to make a personal choice. In contrast, Asian children became most motivated when trusted others such as authority figures and peers made the choice for them (Iyenggar & Lepper, 1999).
- Chinese students who do their schoolwork in order to please their parents and teachers are more likely to be motivated in school. In contrast, Western students who strive for social approval are more likely to engage in self-handicapping and exhibit other maladaptive outcomes (Cheng & Lam, 2013).

- The pursuit of avoidant types of goals was found to be a negative predictor of well-being for peoples from the United States (individualist culture) but not for South Koreans and Russians (collectivist culture; Elliot, Chirkov, Kim, & Sheldon, 2001).
- Western theorists of achievement motivation argue that the higher the self-concept or belief in one's abilities, the higher the academic achievement (Schunk & Pajares, 2009). East Asian students usually have lower ability beliefs than Western students but have considerably higher academic performance (Stevenson, Lee, Chen, & Lummis, 1990). In contrast, Western students who have a higher opinion of their abilities usually do worse in international comparative achievement tests when compared to Asian students (Kaiser, Leung, Romberg, & Yaschenko, 2002).

These findings do not make much sense when one applies Western theories of achievement motivation indiscriminately to non-Western settings. Thus, it is important to have a theoretical framework that can be used to understand cross-cultural similarities and differences in students'

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motivational dynamics. The aim of this article is to present personal investment (PI) theory as an integrative theoretical framework that can be used to understand the role culture plays in student motivation and learning.[1]

Going back to the examples earlier, self-determination theory (Deci & Ryan, 2000) posits that personal choice is the main facilitator of intrinsic motivation and engagement. However, it seems that this is not true for Asian students who become motivated when trusted others make the choice for them. In the second example, proponents of goal theory would argue that the pursuit of social approval goals is not healthy because it reflects an extrinsic motivational orientation (Nicholls, Patashnick, & Nolen, 1985). Their argument may hold for Western students but not for Chinese students, for whom social approval goals lead to positive educational outcomes (Tao & Hong, 2014; Yu & Yang, 1994). In the third example, approach-avoidance theories of motivation (Elliot, 2005) would conclude that avoidant goals (focused on avoiding the loss of something) are maladaptive, whereas approach goals (focused on the attainment of something) are more adaptive. This seems to be valid for the American students but not for the collectivist South Koreans and Russians, who did not exhibit the negative consequences associated with the pursuit of avoidance goals. In the fourth example, self-efficacy researchers (Bandura, 1997) would predict that East Asian students would have lower academic performance given their lower self-efficacy ratings. However, this is clearly not the case, with East Asian students scoring very high in international educational tests despite their lower levels of self-efficacy.

Taken together, these examples highlight the limitations of Western theories of achievement motivation when applied indiscriminately to non-Western settings. Culture plays an important role in how basic psychological processes operate in various contexts (see Henrich, Heine, & Norenzayan, 2010; Kitayama, 2002). An influential article by Henrich et al. (2010) published in *Nature* argued that most of the psychological database is built on studies from WEIRD (Western, educated, industrialized, rich democratic) societies. This is also true of motivation research in educational psychology (Pajares, 2007). Thus, it is essential to reexamine how our theories hold up to cross-cultural scrutiny. Most of the existing studies on student motivation have utilized WEIRD samples, typically North American students. Moreover, in the few studies that examined non-WEIRD cultures, most of these studies have used (or imposed) Western-derived theories with little consideration for cross-cultural nuances. Given these trends, we are still unaware of the many ways in which culture influences student motivation (Pintrich, 2003). We believe that PI theory is eminently suited to address this challenge.

In the subsequent sections of the article, we first present a brief working definition of culture together with the epistemological stance we take toward it. Next, we discuss the PI theory's major theoretical assumptions and its favored methodological approach. A taxonomy of cross-cultural differences that researchers can encounter is presented. Comparisons are drawn with other contemporary approaches to motivation to indicate how PI theory can address some of the shortcomings of mainstream motivation frameworks. A possible rapprochement of PI theory with other motivational frameworks is elucidated. Suggestions on how PI theory research can reflect recent advances in contemporary motivation research are advanced. In closing, directions for future research and implications of PI theory for educational practice are explored.

CULTURE

Culture has been defined in many ways. It sometimes refers to material culture (e.g., dress, tools, machines) and sometimes to subjective culture (Triandis, 2002). Subjective culture has been defined as the "how and why we behave in certain ways, how we perceive reality, what we believe to be true, what we build and create, and what we accept as good and desirable" (Westby, 1993, p. 9). It refers to the set of values, beliefs, and traditions that influence the behaviors of a social group and as it pertains to a society's characteristic way of perceiving and interacting with the social environment.

Triandis (2002) emphasized the importance of looking at both emic (culture-specific) and etic (universal) aspects when studying subjective culture. He argued that when comparing cultures, it helps to look at etic constructs, but when describing one culture in-depth one needs to use emic constructs. He offered the following analogy:

> If we compare apples and oranges we can use etic elements like weight, size, thickness of skin, price, and the like. But obviously one does not learn much about the fruit with this kind of information. One needs to learn about apple flavor and orange flavor, apple texture and orange texture and the like. These are emic qualities. So when we compare fruits we can do it with etic qualities, e.g. say that apples are more expensive than oranges today, but when we want to do a good job of describing the fruit we also need to use emic qualities. (p. 5)

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[1]This article builds on an earlier publication by Zusho and Clayton (2011), where they argued for the need to culturalize achievement goal research. Their article focused on the metatheoretical and epistemological stances (universalism, relativism, and absolutism) that educational researchers have toward culture and they discussed how these stances could play out in achievement goal research. They also suggested the intriguing possibility that PI theory might be particularly suited to examining student motivation across diverse cultures. However, their treatment of PI theory was necessarily brief and focused only on its implications for achievement goal theory. Having been freed of the need to lay the philosophical/epistemological groundwork for why a universalist approach is most germane to motivational science (as this has already been well articulated by their article), we were able to focus on putting forth a clearer articulation of PI theory and how it can be used for understanding cross-cultural data.

This highlights the importance of both etic and emic dimensions in studying motivation across cultures. We also acknowledge that we are adopting a universalist approach to the study of culture, which Zusho and Clayton (2011) argued is the most appropriate way of looking at culture from a motivational science perspective. They argued that there are three basic metatheoretical approaches to culture: absolutist, relativist, and universalist. In brief, the absolutist approach argues that psychological processes are universal and culture-free with individual differences largely attributable to the person or basic biological processes. In contrast, the relativist approach argues that psychological processes should be studied in their local context and that behavior should be understood and interpreted "not in terms of imported categories and foreign theories, but in terms of indigenous and local frames of reference and culturally derived categories" (Sinha, 1997, p. 132). In between these two extremes, a middle ground can be found in terms of universalism, which posits that there are certain basic psychological processes that are universal but also emphasizes the importance of culture and context. Such an approach acknowledges "at the same time psychological invariances and cross-cultural differences as realities" (Poortinga, 1997, p. 372).

Framed in terms of these three approaches to culture, it is evident that most of the research conducted using contemporary motivational theories have tended to adopt an absolutist view which assumes that most of the relationships among different variables are culturally invariant (Zusho & Clayton, 2011). In contrast, indigenous psychologists who adopt a relativist view argue for the uniqueness of psychological processes (Enriquez, 1993). They reject the possibility of attaining universal knowledge and instead focus on understanding each culture in its own terms.

PI theory provides a middle ground between these extremes by acknowledging both universality (etic) and variability (emic) across cultures. Unlike the absolutist view in which culture has a limited role, PI theory assumes that cultural influences are substantial. To make this more concrete, we use an example from achievement goal theory, which posits a distinction between mastery and performance goals. Although this example is an oversimplification, we proffer it for the sake of clear exposition.

An achievement goal researcher who subscribes to an absolutist view would argue that performance avoidance goals are maladaptive and that mastery approach goals are the most adaptive type of goal across all cultures. On the other hand, a relativist researcher would posit that the mastery versus performance distinction is utterly irrelevant and would instead try to explore indigenous constructs that are thought to be better able to capture achievement motivation in the particular culture in which he or she is working (e.g., Tao & Hong, 2014; Yu & Yang, 1994). A compromise between these two extremes is offered by universalist researchers. They will acknowledge that there seems to be good evidence to support the adaptiveness of mastery approach goals and the maladaptiveness of performance avoidance across different cultures, but they would also be attentive to the possibility that the relationship between goals and outcomes would not always be the same and could be moderated by culture. For example, some studies have found that the negative outcomes associated with performance avoidance goals are attenuated in some cultures, given that avoidance goals are more normative in collectivist cultures (Dekker & Fischer, 2008). Moreover, universalist researchers would also be cognizant of the possibility that mastery and performance may not always be the best way to "carve up" students' goals and that more culturally relevant goals may also exist (see Bernardo, Salanga, & Aguas, 2008; Liem, Nair, Bernardo, & Prasetya, 2008, for examples).

PI THEORY: THEORETICAL ASSUMPTIONS

PI theory, from its inception, has been developed as a cross-culturally relevant model of achievement motivation. It focuses on how persons choose to invest their energy, talent, and time in particular tasks and becomes particularly helpful in studying motivation in cross-cultural settings. It does not assume that people from a given culture will choose to invest their effort in the same set of activities. Neither does it assume that they invest their effort for the same reasons (Maehr & Braskamp, 1986; Maehr & McInerney, 2004; McInerney & Liem, 2009).

PI theory rests on the assumption that whether persons will invest themselves in particular activities or domains (e.g., academics, sports, work) depends on the interaction among three facets of meaning: sense of self (who am I?), perceived goals (what do I want to achieve?), and facilitating conditions (what is the environment like?). These three facets of meaning can be conceived of as etic shells, and the content of each of these shells can be fleshed out within each particular culture. This synergistic combination of an etic shell with emic contents fleshed out in each particular culture enables PI theory to include both cross-cultural similarities and differences within its purview.

First, *sense of self* refers to the more or less organized collections of perceptions, beliefs, and feelings related to who one is. Sense of self is closely related to identity-relevant processes. It is presumed to be composed of a number of subcomponents. Previous research on PI theory has mostly focused on academic self-concept (how competent one feels about oneself in the academic domain), sense of purpose (one's sense of identification with education and the recognition of education as an important aspect of one's life), and self-reliance (one's identity as a self-reliant individual within the academic setting; e.g., King, Ganotice, & McInerney, 2012; McInerney, 2003, 2008). Decades of research on self-efficacy (Bandura, 1997) and self-concept

theory (Marsh & Seaton, 2013) has provided ample evidence for the power of self-related constructs in directing and energizing achievement-related behaviour.

Second, *perceived goals of behavior* refer to various reasons/purposes that people espouse for undertaking certain activities (Maehr, 1989). Among perceived goals explored in previous PI research are task/mastery goals (such as wanting to increase one's understanding relative to self-set standards), ego/performance goals (wanting to do better than others), social solidarity goals (wanting to enhance a sense of belongingness and help others), and extrinsic reward goals (wanting to get praise or reward of some kind; King, Ganotice, & Watkins, 2012a; McInerney & Liem, 2009) Each of these components may be subdivided into two facets.[2]

PI researchers have usually used the Inventory of School Motivation (ISM; McInerney & Ali, 2006) to measure these eight types of goals that bear conceptual similarities to the goals investigated within achievement goal theory. Task goals bear a similarity to mastery goals, whereas ego goals bear a similarity to performance goals. Achievement goal theorists have not typically investigated social solidarity and extrinsic reward goals.

It is useful to note that the perceived goals of behavior in PI theory are much broader than mastery and performance goals typically studied by achievement goal theorists. PI theory makes no claims that the goals in Table 1 capture all the types of goals that are relevant in achievement settings. As mentioned earlier, the generation of emic content in PI theory is emphasized, thus different types of cultures may have unique goals that are only relevant or salient in that particular culture.

Third, *facilitating conditions* refer to the social-contextual environment in which a person operates that makes certain actions more available and appropriate in contrast to other alternatives. Facilitating conditions would include various sociocultural norms and other environmental factors. Extant PI research has focused on parental support, teacher support, peer support, and negative peer influence as subcomponents of facilitating conditions (Ganotice, Bernardo, & King, 2013).

Within PI theory these three components of meaning–sense of self, perceived goals of behavior, and facilitating

conditions–are considered to be etic, forming a shell in which the actual content of the construct is determined through local emic examples. For example, goals are recognized as constructs that energize achievement-related behavior universally. It can be said that both Anglo-Americans and East Asians are motivated by goals. However, the types of goals that motivate them might be different. East Asians may be more motivated by socially oriented goals, whereas Westerners may be more motivated by task-related goals (Bernardo, 2008; Chang & Wong, 2008; Cheng & Lam, 2013; King & McInerney, 2012; King, McInerney, & Watkins, 2012b, 2013; King & Watkins, 2012a, 2012b; Urdan & Maehr, 1995; Yu & Yang, 1994). The same is true for the other facets of meaning. These three components of meaning are dynamically constructed in context to determine and shape the decisions of the students to invest in the academic enterprise or not.

PI THEORY: METHODOLOGICAL APPROACH

Berry's (1969, 1989) iterative cross-cultural approach has been used extensively by PI theorists. This iterative approach can be summarized into the following steps:

1. Start with an imposed etic.
2. Scrutinize conceptions and methods for culture appropriateness in an emic phase.
3. Derived etics can be identified insofar as the search for universals lead to similarities.
4. Emic explorations within cultural settings should allow for the identification of what is culture-specific in psychological functioning.

The imposed etic stage is also called the "transport and test" method of studying cultural universals (Berry, Poortinga, Segall, & Dasen, 2002). This involves researchers translating their Western instruments into the local language and then using these instruments in the local culture to test whether the assumptions of a particular model are supported in this new context. Most of what counts as cross-cultural research conducted by mainstream motivational theorists is confined to this imposed etic approach (e.g., Jang, Reeve, Ryan, & Kim, 2009; Vansteenkiste, Zhou, Lens, & Soenens, 2005; Nagengast et al., 2011). Using this approach, many mainstream motivational theorists have found many cross-cultural similarities.

"But is it really so surprising to find commonality where one looks for it? After all, it is one thing to look at other cultures and try to understand them on their own terms, it is quite another to develop a list and then check off similarities" (Christoper & Hickinbottom, 2008, p. 578). This criticism raised by Christopher and Hickinbottom (2008) exposes the weakness of relying exclusively on the imposed etic approach. It is not our contention that the imposed etic

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[2]The goal construct has been a notoriously ill-defined term in psychology with Elliot and Fryer (2008) claiming that "researchers and theorists commonly neglect to offer a definition of goal, even as they use it extensively in their work" (p. 235). To offer a more precise conceptual definition of goal, they claimed that a goal has the following characteristics: (a) it is focused on an object, (b) it is used to guide or direct behavior, (c) it is focused on the future, (d) it is internally represented, and (e) it is something that the organism is committed to approach or avoid. The perceived goals of behavior dimension in PI theory also shares these characteristics, which makes PI goals conceptually and empirically distinct from the various sense of self components, which pertain more to identity-relevant processes.

TABLE 1
Classification of Perceived Goals of Behavior in PI Theory

Goal	Facet	Definitions
Mastery goal	Task	Interest in the task and wanting to improve understanding.
	Effort	Willingness to expend effort to improve schoolwork.
Performance goal	Competitiveness	Striving to do better than others.
	Power/Status	Striving to win and have a higher social status than others.
Social goals	Affiliation	Wanting to enhance a sense of belonging.
	Social concern	Wanting to help others.
Extrinsic goals	Recognition/Praise	Wanting to earn a prize or praise.
	Token	Studying in order to make money and attain material rewards

approach is necessarily inferior compared to the other approaches. The imposed etic approach is an important research strategy in its own right. In fact, many studies carried out by the authors have also used the imposed etic approach (e.g., King, Ganotice, & Watkins, 2012a, 2012b; King & Watkins, 2012b; McInerney, Roche, McInerney, & Marsh, 1997; Watkins, McInerney, & Boholst, 2003; Watkins, McInerney, & Lee, 2002). However, relying exclusively on this approach can prove to be a Procrustean bed for motivational psychologists whose horizons are unnecessarily constricted by constructs and models derived from Western theorizing.

There is a need to complement the imposed etic approach with the emic approach, which involves in-depth studies within various cultures. In the emic phase of research, psychologists attempt to understand the cultures in their own terms. Instead of relying exclusively on Western-derived questionnaires and models, they conduct interviews, archival analysis, and ethnographic studies relying on key cultural informants. Li's (2002) cultural model of learning for the Chinese is an example of knowledge generated through the use of the emic approach. Through prototype analysis, she was able to identify the meaning of learning for the Chinese, which is very much different from the meaning of learning for Americans. For example, she found that learning was interpreted more as a cognitive and cerebral activity for Americans, whereas for the Chinese learning had moral and societal dimensions.

In the third stage of research called the derived etics stage, researchers try to identify the common psychological factors relevant to a certain phenomenon across cultures. In this stage, the goal is to search for "true" universals and not just "imposed" universals. To achieve this, pan-cultural studies are needed. Studies involving only one or at most two

cultures are not enough to identify derived etics. These pan-cultural studies should serve as the gold standard for identifying possible candidates that can be considered as derived etics, which refer to psychological findings that have been found to be valid across a wide range of cultures. Even after identifying derived etics, continued emic explorations are encouraged to identify what is specific to a certain culture.

Using three examples, we illustrate how PI theorists have tried to incorporate this iterative approach in their research and how their studies have helped us gain more understanding about the cross-cultural aspects of student motivation.

Example 1

The early research of McInerney broadly followed this iterative approach as he investigated student motivation among indigenous Australian and Anglo-Australian communities. He carried out interviews with Aboriginal communities (emic approach) while developing the ISM items (McInerney & Sinclair, 1991, 1992; etic approach). He used the ISM and tested it among Indigenous Australian students (imposed etic stage). After establishing the validity of the psychological instrument he was using, he then moved to the emic phase and conducted more in-depth qualitative investigations to ascertain the primary issues relating to the motivation of students at school. These qualitative studies included personal interviews and group discussions, open-ended surveys, and content analysis of academic writings (Brickman, McInerney, & Martin, 2009; McInerney, 1991, 1995; McInerney & Sinclair, 1991, 1992; McInerney & Swisher, 1995).

McInerney then developed a series of questions derived from the qualitative research but reflecting key components of the theoretical models, which would allow both etic and emic dimensions to emerge. This was followed by establishing the face validity of the items for measuring specific constructs among the participant groups before proceeding to data collection. The data were then subjected to exploratory factor analyses (principal components analyses) to derive scales reflecting the key components under investigation. Later, he compared the results of his study among Indigenous Australians to other cultural groups such as Anglo-Australians, Asians, and Lebanese. Using the iterative approach, McInerney derived scales that were broadly similar across cultural groups, therefore etic (e.g., task, effort, competition), but that included items that specifically defined the constructs for each particular group, the emic dimension. Indeed, at the time it was difficult to get papers emanating from this research published because a common editorial comment was "but the scales are not entirely consistent across the groups," which missed the central point of the emic investigations being reported. Statistical comparisons across groups were completed through an examination of the salience and different patterns of relationships between predictor and outcome variables.

Example 2

King, McInerney, and Yeung (2012; see also King, 2012) conducted a study among Filipino students to identify the types of goals that drive student engagement and achievement. Using the imposed etic approach, King (2012) translated a well-validated measure of mastery and performance achievement goals–that is, the Achievement Goal Questionnaire–Revised by Elliot and Murayama (2008)–into the Filipino language and tested how it was related to other theoretically related variables. Using CFA techniques, he found the translated questionnaires to have good psychometric properties in the local context. Moreover, he also found that mastery and performance goals both predicted engagement and achievement.

Many researchers would have stopped at this stage and concluded that the major tenets of achievement goal theory are supported in this new cultural context. However, for PI researchers the research process does not stop here. He then used the emic approach and conducted an in-depth qualitative study using open-ended questionnaires. He found that there were several types of goals generated by the students that were not captured by the mastery-performance dichotomy. The most relevant among these goals was what he called the social obligation goal, which entails wanting to achieve in school in order to repay one's obligation to the family (see also Tao & Hong, 2014). The following excerpt from the semiautobiographical novel by renowned Filipino author Carlos Bulosan (1946) fleshes out this sense of social obligation beautifully. The story describes the sacrifices of the Bulosan family to send Bulosan's brother Macario to school. He wrote,

> My father and mother were willing to sacrifice anything and everything to put my brother Macario through high school. . . . My father sold one hectare of our land and gave the money to my brother Macario. Then we worked even harder on the farm. . . . My mother also worked harder, going around the villages with a large earthen jar of salted fish and a bamboo tube of salt. (Chapter 2)

After graduation, Macario is expected to work to buy back the family land and help the family improve their socioeconomic well-being.

The situation just described is typical of many Filipino families. Merely testing achievement goals in the Philippine context would have failed to uncover this emic social obligation goal. King (2012) then constructed an instrument to measure social obligation and tested it among a large number of Filipino high school students. In addition to measuring mastery approach, performance approach, mastery avoidance, and performance avoidance goals, he measured social obligation goals. Focusing only on the imposed etic achievement goals, King found results largely in line with achievement goal theory. That is, mastery approach goals were positive predictors of engagement and achievement,

whereas the avoidance forms of goals were not. However, when he added social obligation into the hierarchical regression equation, the variance accounted for increased, and social obligation was the strongest predictor of engagement and achievement. The effect of social obligation was causally dominant (Budescu, 1993) in the Philippines over those of mastery and performance goals. The integration of both the etic and emic approaches allowed the researcher to gain a more comprehensive understanding of the goals that direct and energize achievement-related behavior in the Philippine context.

Example 3

Watkins, McInerney, Lee, Akande, and Regmi (2002) wanted to examine how perceived goals and sense of self components are related to deep learning strategies among a wide range of cultures such as Hong Kong, Malawi, South Africa, and Zambia. Their study exemplified the derived etics stage; to identify universal psychological factors, they administered the translated and adapted questionnaires (ISM and Sense of Self) to students in these cultures and conducted a multiple regression analysis.

Both achievement goals and sense of self were able to predict a significant amount of variance in the outcome of interest, providing broad support to the etic aspect of these components of meaning in PI theory as universal determinants of achievement motivation. Note that mastery goals were positive predictors of deep learning strategies in all the cultures examined, which seemed to corroborate the strong evidence in the literature for the positive impact of mastery goals (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). Sense of purpose and teacher support were also positively associated with deep learning strategies across the four cultural groups. This study suggests that mastery goals, sense of purpose, and teacher support may be possible candidates for being considered as derived etics. However, aside from these commonalities, the researchers also found that some of the predictors were significant in certain cultures and not in other cultures, thus providing emic information.

To summarize, most mainstream theories confine themselves to the imposed etic approach. Although important, the imposed etic approach is unable to discover rich emic information and runs the danger of assuming itself to have pan-cultural validity, whereas it is in fact limited only to the psychology of a particular people. Educational psychologists would surely bristle if some maverick scholar suggested that their journals be renamed the *Journal of Educational Psychology for the American Peoples* or *Contemporary Educational Psychology of North America and Western Europe*! This is because implicit in most researchers' minds is that their research findings have pan-human validity. However, by confining themselves to the imposed etic approach, psychologists cannot be entirely

TABLE 2
Taxonomy of Possible Cross-Cultural Differences

Cross-Cultural Differences	Definition	Methodological Approach
Differential meanings	The meaning ascribed to a construct or a psychological phenomenon may be different across cultures.	Semantic differential technique Prototype analysis In-depth qualitative interviews
Differential factor structure	The factor structure of a construct may be different across cultures.	Exploratory factor analysis Confirmatory factor analysis Exploratory structural equation model
Differential salience	Some psychological factors may be more relevant or more salient in one culture versus another.	Mean-level differences through t tests, analysis of variance, or latent mean differences Regression analysis Comparison of effect sizes
Differential nomological networks	The relationships among the constructs may vary across cultures.	Pan-cultural studies Moderator analysis

sure whether their findings are really generalizable across a wide range of peoples, and they will never uncover unique emic information. We argue that the use of the iterative approach which attempts to complement etic and emic approaches is a must to build the edifice of a truly universal motivational psychology.

A POSSIBLE TAXONOMY FOR DOCUMENTING CROSS-CULTURAL SIMILARITIES AND DIFFERENCES

In the previous sections, we illustrated the theoretical assumptions and methodological strategies taken by PI theorists to uncover cross-cultural similarities and differences in student motivation. Next, we move on to examining in greater detail the various types of cross-cultural differences that PI theorists may uncover as they carry out their research in various cultural contexts. We offer a taxonomy of possible cross-cultural differences that could emerge as motivational scholars attempt to understand motivation in diverse cultural contexts (see Table 2).[3]

Differential Meanings

The first type of cross-cultural difference relates to how meanings are construed across different cultures. Although most mainstream researchers may unilaterally assume that abstract psychological constructs mean the same thing across all cultures and eschew the thick description favored by ethnographers, anthropologists, and indigenous psychological researchers, researchers using in-depth qualitative

methods have found that some of the most prominent and well-studied psychological constructs in mainstream psychology actually take on different shades of meaning in various cultures.

For example, cross-cultural differences in what IQ or intelligence means for different societies have emerged (Sternberg, 2004). In Africa, obedience is seen as a part of intelligence, but this is not the case in the West, which emphasizes the primacy of cognitive processes. S.-Y. Yang and Sternberg (1997) have also found that the Chinese conception of an intelligent person is different from the American conception. In Chinese societies, intelligence is not only associated with general cognitive ability as it is in the United States, but also it has interpersonal (good at understanding and empathizing with others) and intrapersonal (knows the meaning of his or her own life) aspects.

Li (2002) found that the meaning of something as common as "learning" also varies across cultures. She used prototype analysis in order to uncover what "learning" means in Chinese and American contexts. By collecting free associations of words and phrases related to learning among Chinese and Anglo-American participants and later subjecting them to cluster analysis, she found that there was little conceptual overlap in terms of how learning was construed in the two cultures. In the United States, elaborated conceptions of mental processes, internal learner characteristics, social contexts, and externally existing bodies of knowledge were found. However, in the Chinese context learning was more associated with "seeking knowledge," which was closely related to personal attitudes, purposes, and action plans for learning. Learning also had an inherently moral and societal dimension in the Chinese context. Li (2002) concluded, "Whereas Americans elaborate on learner's mental functioning and their related learning processes, the Chinese

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[3]We are especially thankful to the editor, Clark Chinn, for taking the initial steps at articulating this taxonomy of possible cross-cultural differences.

dwell on personal virtues, attitudes, and action principles in learning" (p. 264).

Tao and Hong (2014) proposed that academic achievement has different meanings in Western and Chinese cultures. They argued that in the West, academic achievement is largely seen as an individual endeavor, and emphasis is placed on students formulating their own goals and focusing on their own needs, interests, and preferences. In the Chinese cultural context, academic achievement is seen as a social endeavor. By achieving in school, a student can bring "wealth, power, fame, and honor to the family" (Tao & Hong, 2014, p. 111).

The favored methodology (imposed etic approach) of most motivation theorists (i.e., translate a Western instrument into the local language and then test it in different local populations) is ill-suited to uncover possible cross-cultural differences in how a construct is defined. Qualitative approaches such as case studies, prototype analysis, semantic differential techniques and interviews are better suited to understanding this type of cross-cultural difference.

Differential Factor Structures

Constructs may also exhibit different factor structures in various cultures. For example, although Construct A may be unidimensional in one culture, it may have a multidimensional or tripartite structure in another culture. Research in personality psychology has often documented this type of cross-cultural difference. For example, the five-factor model of personality (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism or [reverse] Emotional Stability) is strongly supported in Western societies (McCrae & Costa, 1997). However, in other cultures, a different number of factors emerge. Church, Katigbak, and Reyes (1998) found seven relevant personality factors among Filipino respondents instead of the usual five, and studies among a Hebrew population also found a seven-factor model (Saucier & Goldberg, 2001).

More pertinent to motivation, Bernardo (2008) employed exploratory factor analysis to test for the factor structure of socially oriented achievement motivation and found that this construct was composed of two distinct factors in the Philippine context (parents vs. teachers). However, in the Chinese context, socially oriented achievement motivation is unidimensional (Chang, Wong, & Teo, 2010).

To test for differential factor structures, researchers could use exploratory factor analysis or confirmatory factor analysis. More recently, exploratory structural equation modeling (ESEM) may also hold promise for testing differential factor structures across cultures (Asparouhov & Muthen, 2009).

Differential Salience

Another form of cross-cultural difference would be differential salience. Some psychological factors may be more relevant or more salient in one context compared to another.

Researchers who are interested in differential salience could ask whether a certain issue is of central concern in a particular culture. For example, Yu and Yang (1994) claimed that in individualist societies, individual-oriented achievement motivation (IOAM) is more salient, whereas in collectivist cultures, socially oriented achievement motivation (SOAM) is more salient. Students who are motivated by SOAM allow social groups and significant others to set achievement goals for them. A student's success is determined by whether one is able to match standards of excellence set by significant others and larger social groups. In contrast, students motivated by IOAM set their own personal standards, and they also personally determine the standards for success and failure. Yu and Yang found that SOAM is highly salient in Chinese societies. On the other hand, in Western cultures, IOAM is more salient.

A meta-analytic study conducted by Dekker and Fischer (2008) on achievement goals has shown that mastery goals are more highly endorsed in individualist societies whereas performance goals are more salient in collectivist cultures. This may have something to do with the social context of achievement in both cultures. In an individualist culture, achievement is more a matter of personal concern. People strive to achieve in domains that are personally relevant and meaningful for them. However, in collectivist societies, achievement is not only pursued for oneself but also for the family or the group. Because achievement is socially embedded, it is not enough for individuals to succeed based on their own terms. They also have to show their family that they are achieving, which makes performance goals more salient.

To find out whether some constructs are more salient in one culture versus another, researchers could conduct tests of mean level differences. They could also analyze the effect sizes associated with particular constructs in different cultural contexts. For example, Xiang, Lee, and Solmon (1997) explored the relationship of mastery and performance goals in sports to a wide range of sports outcomes in China and the United States. They found that although mastery and performance goals were both positive predictors in both contexts, the effect sizes associated with mastery and performance goals were larger in the United States compared to that in China. This hints at the possibility that achievement goals (as a whole) are more salient predictors in one culture versus another. Maybe for the Chinese the achievement goals do not matter as much as that in the American context. Perhaps, for them diligence, effort, and learning virtues are more salient (see Li, 2002, 2012, for this possibility).

Differential Nomological Nets

Finally, relationships among constructs in the nomological network may also vary across cultures. The nomological network refers to the network of inferences or predictions about a specific variable (Cronbach & Meehl, 1955). The relationship between Construct A and Construct B may be positive in a certain culture but nonsignificant or even negative in another culture. For example, self-efficacy and interest are usually associated with higher levels of performance in Western research. However, in an intriguing cross-cultural study among Canadians and Taiwanese conducted by D'Ailly (2004), she found that this is not necessarily the case among Taiwanese students. Using an experimental paradigm, she found that self-efficacy beliefs were significantly associated with effort on the three different learning tasks for the Canadian students ($rs = .27, .21,$ and $.26$; all $ps < .05$). However, for Taiwanese students, the correlations were nonsignificant ($rs = -.06, .05,$ and $.00$). Interest was found to be significantly associated with effort for Canadian students across three learning tasks ($rs = .19, .23,$ and $.34$; all $ps < .05$) but was not significant for the Taiwanese sample ($rs = .02, .02,$ and $.13$; all $ps > .05$).

To find cross-cultural differences in how constructs are related to each other in the nomological network, researchers could look at the patterns of correlations or the beta weights in a regression equation and see how they vary across cultures. Another possible method is to use multigroup structural equation modeling (SEM) on samples from two or more cultures and constrain certain parameters to be equal. Researchers can check whether the imposition of such constraints would reduce the model fit. The reduction in model fit would mean that the relationships among the variables are not similar across cultures.

A relevant PI example on how PI researchers were able to uncover differential nomological networks was the study conducted by McInerney (2008) among Anglo, Aboriginal, Lebanese, and Asian students in Australian secondary schools. He looked at how the three components of meaning in PI theory can predict outcomes such as affect for (liking) school and valuing of school. He focused on the possibility that various constructs would have differential nomological networks across the four cultures examined. In the results, the three components of meaning–sense of self, facilitating conditions, and personal incentives (perceived goals)–predicted relevant educational outcomes, that is, affect toward school and valuing of school among Anglo, Aboriginals, Lebanese, and Asian immigrants in Australia. These findings provide broad support to the etic aspect of the three components of meaning in predicting educational investment (operationalized as affect for school and valuing of school in the current study). More specifically, five constructs (mastery goals, sense of purpose, teacher support, pride from others, and positive peer influence) were broadly associated with positive outcomes, suggesting that these constructs may be considered as etic.

On the other hand, the results also provided emic information. An example is the higher salience of extrinsic goals for Aboriginals in predicting affect to school. The salience of extrinsic goals for Aboriginal students may be partially explained by historical cultural traditions in which it was important to for the tribe to have immediate "payback" from hunting and gathering. Social goals were predictors of valuing school in Aboriginal and Lebanese contexts but not among the Anglo and Asian Australians. Performance goals were positive predictors of affect in the Asian sample corroborating the huge evidence on the adaptive consequences of performance goals among Asian students. Asian students are assumed to be very competitive with regard to schooling; thus, the pursuit of performance goals can be adaptive in such a sociocultural milieu (see also King, McInerney, & Watkins, 2012a, 2013). In terms of sense of self, the study found that positive self-concept was not a significant predictor of valuing schooling for Asian Australians, although it was significant for the Anglos; this finding provides some support for the theorized lower need of Asians for self-enhancement. The preceding example suggests a way with which to examine differential nomological networks across various cultures.

Despite the helpfulness of the preceding taxonomy, it is also worth noting a few caveats. The cross-cultural differences just posited are not mutually exclusive. Researchers may uncover several types of cross-cultural differences in a single study of a well-defined psychological phenomenon. Moreover, the taxonomy is not meant to classify all the possible ways in which cross-cultural differences may emerge, nor is it meant to be used as a rigid classification tool. The aims of this taxonomy are more modest: to give coherence to the confused medley of cross-cultural differences that motivational researchers may uncover or have uncovered thus far and to give a language for motivational researchers to articulate cross-cultural findings that have often been marginalized in mainstream research.

Motivational scholars doing research in cross-cultural contexts should be cognizant of the different types of cross-cultural differences. In previous research, when cross-cultural differences such as these are found, they are usually deemphasized as researchers focus on the findings that conform to Western theory. Another strategy researchers have used to deal with these anomalous findings is to give token acknowledgment to culture and posit certain post hoc explanations. We believe that these strategies do not do justice to the powerful role of culture in shaping achievement motivation. It is our hope that this taxonomy will provide a useful common language to facilitate scientific progress.

PI THEORY AS AN INTEGRATIVE FRAME: A VISUAL REPRESENTATION FOR INTEGRATING ETIC AND EMIC FINDINGS

PI theory can be construed as a skeleton frame upon which psychologists can hang their more differentiated and detailed picture for each culture that they study in-depth. A diagrammatic representation of how to visualize the findings that could accrue from the use of a PI perspective is presented in Figure 1. Albeit an oversimplification, we think that Figure 1 has great heuristic value.

At the top of the figure are the three etic facets of meaning: facilitating conditions, perceived goals of behavior, and sense of self. These etic shells are deemed to be universal. However, the content of each of these shells could be fleshed out in each culture through in-depth emic examples. The arrows from the three facets of meaning all point to an overarching personal investment, which refers to a person's investment of time, resources, and energy into a particular task, activity, or domain. In the current article, we focus on personal investment in the school domain.

Motivational psychologists could use different variables to operationalize this "personal investment" in the school domain. Some would operationalize it in terms of academic achievement others in terms of the number of hours in studying still others in terms of students' learning strategies.

We envision this skeleton frame as helping give coherence and unity to the many different findings that could accumulate as PI researchers conduct their studies across a wide range of cultures. In the upper part of the figure are the derived etics. Psychological factors/constructs included in this panel are thought to have cross-cultural validity in predicting school outcomes. The examples we include in the derived etics panel have usually been supported by pan-cultural studies. For example, under perceived goals we put mastery goals because a wide range of studies as well as studies conducted by PI researchers across different cultures have shown mastery goals to be universally associated with students' motivational outcomes (Huang, 2012; Hulleman et al., 2010). Under facilitating conditions, we put teacher support, and under sense of self, we put positive self-concept. The reason we included them here is that several
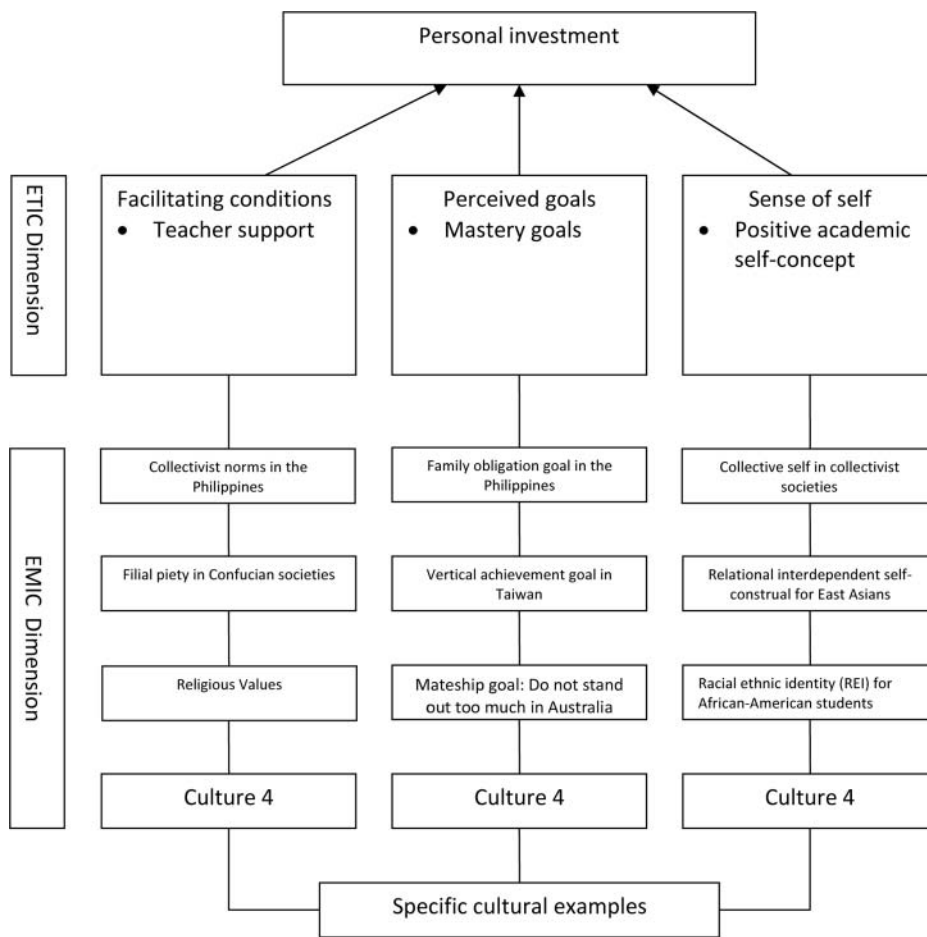

FIGURE 1   Etic and emic dimensions of personal investment. *Note.* When related to motivation, it is possible to ascertain whether the presumed etic dimensions actually exist, and their particular emic characteristics.

meta-analytic studies across many different cultures have supported the positive links between these constructs and personal investment (Cornelius-White, 2007; Hattie, 2008).

For the emic cells, under facilitating conditions we have included constructs such as collectivist social norms and filial piety. These societal values have been found to be particularly relevant for collectivist cultures. Filial piety is most relevant for Chinese societies and other Confucian-heritage cultures. Studies have shown that filial piety positively predicts motivation and engagement among Chinese students (e.g., Hui, Sun, Chow, & Chu, 2011). However, filial piety does not seem to be relevant for most Western societies, which do not share the Confucian culture. Thus, we deem filial piety to be more emic rather than etic. We also included religious values here given that some cultures prioritize religion more than others, and studies have shown that religious values may also influence students' learning and motivation in certain cultures (Maehr & Karabenick, 2005).

Under perceived goals, we have included social obligation goal, given that a previous study has shown that social obligation is particularly relevant for Filipino students (King, McInerney, & Yeung, 2012). Another emic goal is the notion of the vertical goal proposed by Chen, Wang, Wei, Fwu, and Hwang (2009), which refers to goals pursued in relation to persons of authority such as parents and teachers. They argued that this goal is relevant for Chinese students and is rooted in trying to fulfill social expectations. As opposed to personal goals, the contents of which are chosen autonomously by an individual, the content and criteria for vertical goals are usually defined by society in general. They found that vertical goals had distinct effects on achievement-related attribution processes (see also Chen & Wei, 2013). In Australia, researchers have found the salience of a mateship goal that pertains to not being seen as better than one's peers in academics (McInerney, 2008). This type of goal may hinder students from achieving in school for fear of standing out and not being in solidarity with their peers.

Under the sense of self component, we put the relational-interdependent self-construal proposed by Cross and her colleagues (Cross, Bacon, & Morris, 2000). The relational-interdependent self-construal refers to the tendency to include important relationships with others in one's self-concept. This is in stark contrast to the independent self-construal, which is more pervasive in Western societies. The central premise of the independent self-construal is that the person is essentially separate from others and the primary components of one's self-construal include unique traits, abilities, preferences, goals, and experiences. In contrast, the relational interdependent self-construal assumes that the person is connected to others so that the self is defined in part by its relationships with other people. Self-construals have important motivational properties. Another example is the collective self, which refers to the sense of self derived from membership in larger impersonal groups or social categories (Brewer & Gardner, 1996).

A third example is racial-ethnic identity (REI), which is self-schema based on one's race or ethnicity (Oyserman, 2008). A number of studies have found that REI is more relevant to ethnic minority students and is composed of factors related to a positive sense of in-group belonging (positive connectedness), awareness of how racism colors the perception of outgroup members towards one's own ethnic group (awareness of racism), and the belief that achievement is an in-group identifier (embedded achievement; e.g., Oyserman, 2008). Numerous studies have found that REI predicts achievement and motivational engagement of minority students (e.g., Oyserman, Bybee, & Terry, 2006).

These examples are meant to show researchers how a comprehensive picture of motivational functioning could be developed but is not meant to be a comprehensive list of all the emic and derived etic constructs. A caveat about Figure 1 is that it is an oversimplification. It cannot fully represent the many-splendored thing that is cross-cultural diversity, given that this diversity can take many forms as we have elucidated in the taxonomy discussed earlier. Figure 1 is also very different from the diagrammatic representations that mainstream motivational theories favor given that it does not specify a priori the types of constructs that can be put in the etics and emics panel. The task of identifying the derived etics and emics of motivation is an ongoing endeavor, and it is our hope that the theoretical lens and methodological approach of PI theory could serve psychologists well in this regard.

The research process for populating the cells of Figure 1 resembles the work of artists who are creating a mosaic. Researchers are the artists, and their findings are the tiles that are used to fill out the mosaic. The broad contours of the figures in the mosaic are already predefined (etic elements; i.e., sense of self, facilitating conditions, and perceived goals of behavior) but the color and the shape each of the tiles are unique (emic elements). Clearly, the work of creating this mosaic of motivational functioning across a wide range of cultures is difficult and will require cumulative research efforts. However, we are optimistic that a coherent image is emerging from the patchwork of findings from different researchers. Further testing and cross-cultural research will eventually make Figure 1 more and more complete.

Figure 1 is necessarily open-ended. We encourage researchers to add their own research findings into the diagram and populate the cells that need to be filled in. It differs from the schematic representations of mainstream theories with their causal arrows and key constructs predefined a priori. Although some scholars may think that PI theory's open-ended nature may be too ambiguous for rigorous hypothesis testing, we believe that it is precisely this openness for emic findings to emerge that constitutes a key strength of the PI framework. Moreover, rigorous hypothesis testing is not precluded in PI theory. For constructs to be raised to the level of the derived etic, rigorous hypotheses testing has to be done to ensure that it is truly a legitimate

candidate for being considered a derived etic. We believe that previous motivational research has too often assumed their favored constructs to be universal without testing this claim empirically.

A key difference between PI theory and other mainstream motivational theories lies in the fact that PI theory can be considered an open-system theory. In contrast, most mainstream motivational frameworks are closed-system theories. In a closed-system theory, the environment is assumed to be stable and predictable and is posited to have a static influence on different variables. However, in an open-system theory, the relations among the variables can be changed by the environment. The strength of the relationship between some variables may be weakened or strengthened as a result of the context or the meanings of the variables themselves may change because of the cultural context (please refer to our preceding taxonomy of cross-cultural differences for more details).

Most researchers prefer closed systems because they are easier to deal with theoretically, despite their limitations. However, we argue that the more realistic representation derived from PI theory is a strong argument for favoring this framework at least when trying to understand cross-cultural issues.

Given these considerations, the synthesis offered by PI theory will not take the form of a comprehensive list of all possible etic and emic constructs. Such a framework is not possible given that research on non-WEIRD samples have only just begun. On the contrary, the synthesis promised by PI theory lies in its capacity to embrace both etic and emic approaches and combine information generated from these approaches into a coherent framework provisionally represented in Figure 1.

Although some researchers may criticize Figure 1 for its complexity, we want to answer this with a remark from Allport (1960), who criticized theorists for their overemphasis on elegant testable theories that were not always faithful to a more complex reality: "Methodologists with a taste for miniature and fractionated systems complain that they (open-system models) do not lead to 'testable propositions'" (cf. Roby, 1959). The challenge is valuable in so far as it calls for an expansion of research ingenuity. But the complaint is ill-advised if it demands that we return to quasi-closed systems simply because they are more "researchable" and elegant. Our task is to study what is, and not what is immediately convenient (Allport, 1960, pp. 305–306).

PI THEORY VERSUS OTHER MAINSTREAM THEORIES

After having discussed the theoretical and methodological underpinnings of PI theory as well as laying out a possible

framework for classifying the myriad cross-cultural findings that could emerge, we now take a broader view and compare PI theory with mainstream motivational theories. A common criticism is that there are already too many motivational theories out there, and putting PI theory alongside these other theoretical models will only add to the conceptual confusion.

In this section, we discuss several key weaknesses of mainstream motivation research and show how PI theory can address these shortcomings. The ability of PI theory to address weaknesses of mainstream theorizing is a strong case for researchers to consider it as a potentially useful theoretical alternative.

Lack of Attention to the Larger Cultural Context

The acknowledgment of the role of context is not new to contemporary motivation theories. Almost all the major theories in motivation research in the classroom include this. For example, achievement goal theory acknowledges that mastery and performance goals can be influenced by classroom context such as the grading system of the teachers and parental influence (Shim, Cho, & Wang, 2013). Self-determination theory has shown that the autonomy support provided by the teachers in the classroom can have important implications for intrapsychological processes such as intrinsic motivation (Deci & Ryan, 2000; Jang, Kim, & Reeve, 2012). However, whereas these theories study "proximal" context (e.g., classroom context, parents, peers influence), they usually neglect the larger cultural context or what one may call the more "distal" context in which all these processes are embedded and which has the power to dynamically shape motivational and learning processes. This more distal context bears conceptual similarities to the macro-system in Bronfenbrenner's (1979) ecological systems theory.

The power of PI theory lies in its ability to include both these "proximal context" and the larger cultural context. Proximal context is subsumed under the facilitating conditions component of the model. Many of the variables examined under this component by PI researchers such as teacher support, parental support, and peer support are also well studied in the mainstream motivational frameworks. However, what PI theory offers is an expanded notion of context that includes larger cultural processes which most mainstream motivation theories neglect.

Narrow Definition of Motivational Constructs

The most prominent motivational constructs (e.g., achievement goals, intrinsic motivation, expectancies, self-efficacy, value beliefs, and interest) in the extant literature are usually drawn from Western theorizing. There is a paucity of studies that have looked at emically inspired constructs such as "heart and mind for learning" (Li, 2002), personal virtues associated with learning (Li, 2012), filial piety

(Hui et al., 2011), and family obligation (Fuligni, 2001). We know almost nothing about how these emic constructs influence student motivation and learning.

Several cross-cultural psychologists have criticized achievement goal theorists for their exclusive focus on mastery and performance goals and the neglect of socially oriented goals, which are more relevant in collectivist cultures (e.g., Cheng & Lam, 2013; King, McInerney, & Watkins, 2012b, 2013; Urdan & Maehr, 1995). Self-determination theorists have also been criticized for placing too much emphasis on autonomy, which some cross-cultural psychologists argue is not as important in collectivist cultures (Markus & Kitayama, 2003; Markus, Kitayama, & Heiman, 1996; see Jang et al., 2009, however, for counterarguments).

In contrast, PI theory offers an approach that allows psychologists to discover novel constructs because it complements the imposed etic approach with the emic approach. Openness to emically inspired constructs has enriched social and personality psychology. For example, self-compassion is a construct derived from Buddhism and has been found to be a generative idea that has helped clinical psychologists understand their clients more and develop appropriate intervention programs for them (Neff, Rude, & Kirkpatrick, 2007). The interpersonal relatedness factor, an indigenous personality construct among Chinese populations, has been uncovered by the team of Cheung et al. (2001) and has been found to have incremental predictive validity (beyond the Big Five personality factors) among the Chinese. PI theory provides a framework for including emic ideas in order to enhance our understanding of student motivation.

This openness to emic constructs may cause some researchers to assert that PI theorists unnecessarily proliferate constructs. Although parsimony is an important goal of science, this must be balanced with an equally healthy dose of respect for the complexity of underlying cross-cultural reality. To Occam's remark, "Entities should not be multiplied unnecessarily," we offer Einstein's words as a rejoinder: "Everything should be made as simple as possible, but not simpler." PI theory offers parsimony in its derived etic constructs. However, it balances this zeal for parsimony by considering emically derived constructs that are needed to provide a fuller account of motivation across diverse cultures.

Lack of Reflexivity in Theory Development

Psychological science progresses when empirical data are used to refine theoretical formulations. However, we argue that contemporary motivational research may have fallen short of this ideal, at least in the realm of cross-cultural phenomena. We are aware of no major theoretical refinement that has occurred for any of the mainstream motivational theories due to findings from cross-cultural research. Most of the motivation studies that were conducted in non-

Western settings and were published in mainstream educational psychology journals basically reinforced the main tenets of a particular mainstream motivation theory.

Consider the study of D'Ailly (2003), which focused on testing self-determination theory in the Taiwanese context. Her research focused on how autonomy support and parental involvement influenced students' internal motivational state and academic achievement. There were several interesting findings that directly contradict the basic propositions of self-determination theory: (a) Autonomy was negatively related to Taiwanese students' academic achievement (self-determination theory posits that autonomy would positively predict academic achievement), (b) autonomy did not have an influence on effort expenditure in school (self-determination theory would predict that autonomy positively predicts effort exertion), and (c) external motivation was positively related to effort expenditure after partialling out the effects of perceived control (self-determination theory would predict that external motivation is negatively related to effort).

D'Ailly (2003) also found that measures of teachers' motivating style had no predictive and concurrent validity in the Taiwanese context. Western research assumes that some teachers are more controlling, whereas others are more autonomy supportive. Individual differences in teacher's motivation style could presumably account for students' motivation, engagement, and achievement. Although D'Ailly's translated measures showed high levels of reliability, there was no correspondence between teachers' reported motivational style and how autonomy-supportive or controlling students perceived them to be. These teacher reports also did not correlate with any of the student motivation measures such as students' relative autonomy index (the degree to which studying is pursued due to intrinsic interest as opposed to external pressure), perceived control, mastery motivation, and academic achievement. Because of this, the researcher decided to drop these from further analysis.

Due to these surprising findings, she wrote,

> For children in Taiwan, interest and fun (intrinsic) or guilt and shame (introjected) may not be as strong a motivator for hard work as rules (external) and values (identified). The findings in the present study indicate that some of the high performance observed in Chinese children can be attributed to their compliance to societal values and external pressure. (p. 94)

However, in the conclusion of her study, she wrote, "In general, in the Chinese population I was able to replicate the previous North American findings, especially the psychometric properties of the measurements" (p. 95). We find this tendency to gloss over culturally distinct findings in favor of those that conform to Western theorizing to be quite common. Even in our own work, we have experienced a significant pressure from editors and reviewers to focus on

the aspects of our study that were more in line with Western theorizing. As a fellow cross-cultural educational psychologist rightfully noted, "It was much easier to publish research that supported, rather than questioned, existing dogma!" (Watkins, 2010, p. 332).

PI theory can offer an alternative that lets researchers make sense of what could be construed as "cross-cultural puzzles" by mainstream researchers. They could also free researchers from the shackles of having to replicate Western findings and getting flummoxed when one's results do not conform to Western findings. A popular saying goes, "If all you have is a hammer, everything looks like a nail."

Contrast the lack of theoretical refinement due to cross-cultural findings in motivation research with the changes that have occurred in the field of personality research. Personality researchers now recognize that although there is broad support for the importance of five personality factors (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), there are also culturally bound personality factors not captured by these five broad dimensions. One such example is the aforementioned Chinese Tradition/Interpersonal Relatedness factor, which research has shown to demonstrate incremental predictive validity even after taking into account the variance associated with the Big Five model (Cheung et al., 2001).

Heavy Reliance on Top-Down Approaches

A fourth criticism of contemporary motivational theorizing is its heavy reliance on top-down approaches (or the imposed etic approach) and the almost complete neglect of the bottom-up approach (emic approach). Progress in psychological science would be best served by an integration of both approaches which PI theorists advocate.

Again, we draw from the example of personality and clinical psychology to demonstrate how the use of bottom-up and top-down approaches has proven generative. In personality research, a common distinction is made between the idiographic and the nomothetic approach (Falk, 1956; Robinson, 2011). The idiographic approach, which focuses on the uniqueness of the individual, resembles the emic approach, whereas the nomothetic approach, which focuses on the similarities across individuals, resembles the etic approach. A clinical psychologist who wants to help her patient will make her patient answer nomothetic questionnaires such the standardized measures of personality and depression. However, she would not stop there, but also do extensive interviews and ask the patient for his or her life narrative, which is distinctively idiographic. A combination of the nomothetic and idiographic approaches will help the clinical psychologist craft the best treatment for the patient.

Inadequate Attention to Issues of Measurement Equivalence

Previous research has given inadequate attention to the issue of measurement equivalence in cross-cultural research. Due to space constraints, we do not go into detail about all the issues associated with this, given that previous publications have already tackled this issue in great detail (e.g., Vijver, 2003; Vijver & Tanzer, 2004).

PI theorists have given due attention to issues of measurement equivalence by ensuring that the instruments they are using are valid in the local culture. Indeed, many studies using PI theory explicitly tested the equivalence of psychological instruments across a wide range of cultures (e.g., King & Ganotice, 2013; McInerney, 2012; McInerney & Ali, 2006).

PI THEORY AS AN OVERARCHING FRAMEWORK: TOWARD A POSSIBLE RAPPROCHEMENT WITH MAINSTREAM THEORIES

Instead of just offering one alternative out of many possible options, we suggest that PI theory could also serve to integrate the various motivational frameworks. Zusho and Clayton (2011) wrote,

> There are currently too many motivational frameworks to be of practical use. . . . Many of the dominant theories of motivation focus on conceptually similar constructs (e.g., mastery goals, intrinsic value); indeed at times, we even use almost identical items to measure supposedly distinct constructs. . . . Toward this end, we suggest PI theory because it already contains elements of these other theories: Self-related processes could include expectancy constructs and motives, personal incentives could include both intrinsic and extrinsic values and goals, and perceived options highlights the interaction between the individual and the situation. (p. 255)

We recognize that mainstream motivational research has produced a rich body of knowledge that may be suited in answering particular research questions. We believe that a rapprochement is possible between mainstream motivational theories and PI theory, which could draw on the key strengths of both frameworks. What we suggest is for mainstream motivational theorists to locate/situate their constructs within the skeleton frame of PI theory, which is shown in Figure 1.

Motivational scholars who favor certain theories of achievement motivation (e.g., expectancy-value, self-determination, achievement goal theory) could continue using key constructs derived from their favored motivational theories. They could then try to situate their research findings in Figure 1 as they expand their research inquiries to other cultural contexts. Although little actual research has

integrated PI theory with other mainstream motivational frameworks, we believe that such an endeavor is not only possible but certainly very promising.

For example, scholars who are interested in the role of autonomy (which is derived from self-determination theory) can first translate their instrument and test it in a different culture such as Korean culture (the imposed etic approach; see Jang et al., 2009, for an example). If they find that autonomy is an etic construct, they can then pursue an emic approach through conducting in-depth ethnographic studies in the Korean context, keeping in mind possible research questions such as the following: (a) Does autonomy support mean the same thing for Koreans as it does for American participants? (b) Does autonomy support have the same factor structure in the American and the Korean context? (c) Is autonomy support equally salient in the collectivist Korean context as it is in the United States, or should we instead focus on other motivational constructs that are more relevant in the Korean context? (d) Does autonomy support relate to the other constructs in the nomological network in a similar way? Finally, our hypothetical PI researcher could further test the role of autonomy support and other relevant constructs uncovered from the in-depth ethnographic studies to test for universality in motivational patterns across a wide range of cultures.

PI THEORY: LOOKING BACKWARD, LOOKING FORWARD

Despite the advantages of adopting a PI framework in cross-cultural motivation research, it is also important to bring it up to date with the 21st-century developments in motivational theorizing. The relative lack of research on PI theory has caused it to lag behind the development of other theories. Thus, it is imperative that the new wave of PI researchers incorporate these substantive and methodological advances to fully utilize the potential of PI theory.

One substantive issue is *the need to focus on approach-avoidance forms of goals.* Recent theorizing on goal constructs has recognized the need to bifurcate goals into their approach (focus on attaining a particular outcome) and avoidance (focus on avoiding the loss of something) components (Elliot & Murayama, 2008). However, in PI research, most of the perceived goals investigated have been formulated in approach terms. The ISM, the most popular instrument to measure goals in PI theory to date, only measures the approach types of goals. Future research is needed to determine whether developing an avoidance subtype for each goal would improve predictive and construct validity. Because there are already existing studies examining mastery-avoidance and performance avoidance goals, it would also be of interest to examine whether social goals and extrinsic goals could be bifurcated into approach-avoidance dimensions.

For social solidarity goals, a plausible avoidant component would be social-avoidance goals wherein the person strives to achieve because of the desire to avoid social rejection. There is preliminary evidence that such a form of motivation may exist, such as the mateship goal among some Australian students that we previously discussed. Research in Germany has also shown that some students fear becoming called *streber* (which is roughly equivalent to the English word for teacher's pet). This fear of social rejection drives them to downplay the importance of academic achievement (Boehnke, 2008).

A second issue for PI theory concerns the *need to differentiate domain-specific from domain-general perspectives on motivation.* Although PI research has been conducted in different domains such as school, work, and sports settings, most of the studies in the educational context have been conducted in a domain-general manner. In most cases, PI researchers ask students about their goals, facilitating conditions, and sense of self with regard to the general school experience. It is possible that the contents of the three facets of meaning may vary across different subject areas. PI researchers could do a more in-depth explorations of domain-specific and domain-general motivation.

Third, PI theorists need to address methodological issues. For example, PI theorists should complement variable-centered analyses with person-centered analyses. Previous research on PI theory has mostly used variable-centered analysis such as SEM and multiple regression techniques. However, recent research in motivation has also indicated the utility of using person-centered analyses to describe categories of persons rather than just focusing on linear relationships among the variables. It might be possible that, in different cultures, different goal configurations lead to optimal achievement. For example, King, McInerney, and Yeung (2012) conducted a cluster analysis among Filipino students and found that those who were high in three types of goals–mastery, performance, and social–were those who achieved the highest, compared to those who were high in only one or two types of goals. However, it is possible that a different pattern may emerge for U.S. students who may be more motivated by mastery and performance goals and not so much by social goals.

A fourth issue is the *need to pinpoint the cultural "ingredient" responsible for cross-cultural variations* (Matsumoto & Yoo, 2006). However, previous research has mostly focused on comparisons across cultures without measuring the specific source of these variations. For example, it has frequently been noted that Asian cultures have more salient social goals compared to Western cultures. This is usually attributed to differences in independent and interdependent self-construal, but researchers rarely measure this. This unpackaging approach is explained more fully in the following section.

THE NEED FOR A CULTURAL IMAGINATION

A "cultural" imagination would behoove researchers to include other constructs in their studies and not just those derived from Western models (see King & Watkins, 2013, for the original formulation). We believe that PI theory could offer a unifying framework wherein constructs from Western theorizing could be studied in combination with more emically derived psychological processes.

We are not arguing that the key motivational constructs identified by contemporary theories of motivation are unilaterally inapplicable to other non-Western settings. However, our claim is that what these theories deem to be central or focal might not occupy such a crucial role in other non-Western cultures.

In a reversal of sorts, researchers in social psychology have examined how the culturally derived notion of filial piety, which is common among Chinese populations, is applicable to Western settings. They found that filial piety can also be found in Western populations as demonstrated through the responses to a survey. Face is another construct that is embedded deeply in East Asian social life, which generally refers to the integrity of one's moral character and the way one's public image is perceived (Gao, Ting-Toomey, & Gudykunst, 1996). Face is more salient in Eastern compared to Western cultures. However, some scholars have emphasized the universality of this construct (Ho, 1976), and some researchers argue that it is also relevant in Western social interactions (Agassi & Jarvie, 1969). Recently, Zane and Yeh (2002) developed the Loss of Face Scale and administered it to both Chinese and European Americans. Responses were found to support both construct reliability and validity across both populations supporting its applicability in the Western setting.

Consider then this thought experiment: In this alternative research world, Asian psychology is the dominant paradigm. A Western researcher wants to account for social behavior in Western samples and relies solely on constructs such as face and filial piety in his or her study. Finding that the scales measuring these constructs are reliable and valid, our imaginary researcher then proceeds to model the relationships among face, filial piety, and social behavior while ignoring other more crucial variables that are focal for Western peoples (e.g., self-efficacy, internal locus of control). Such an approach should be deemed, at the very least, to be quite limited. Despite the constructs of face and filial piety being found to be widely applicable (e.g., Ho, 1976; Zane & Yeh, 2002), they are clearly less central notions in the Western psyche. A more appropriate approach would be to utilize key constructs that are salient in Western settings while also including face and filial piety as something that could provide "added value" but not as the sole and only measures.

Cross-cultural psychologists have demonstrated increases in R^2 or predictive power when salient indigenous constructs are added into the regression equation in addition to the etic constructs usually derived from Western theorizing (e.g., King, McInerney, & Watkins, 2010, 2012b, 2013). In a study conducted with Chinese students in Hong Kong, King et al. (2010) showed increases in predictive power when social goals (found to be salient for Chinese students) were added into the regression equation instead of just using mastery and performance goals. Similar results were found by King, McInerney, and Watkins (2012b) in a study with Filipino students.

Unpackaging Cultures

A promising approach to more closely examine the cultural underpinnings of motivational processes and uncover the underlying reasons behind cultural similarities and differences is the "unpackaging cultures" approach advocated by Matsumoto and Yoo (2006). It involves examining whether cultural differences in the target variable are mediated by other cultural-level variations in other individual-level variables (thus the term "cultural mediators'). This approach involves regressing the target variable first on culture (a dummy variable) and then on the cultural mediators in a hierarchical regression model. Cultural differences are supposed to be verified by the significance of the coefficient for culture in the first step of the hierarchical regression model. The role of the cultural mediator is assessed in the second step of the equation. If the cultural mediators also have significant coefficients, and the regression coefficient of culture is smaller compared to that of the first step, then it can be concluded that the cultural mediator accounts for the supposed cultural difference. This is, in a sense, "unpackaging" the effects of culture by identifying the specific individual-level mediator that accounts for the cultural difference.

Although this approach has become increasingly adopted in personality and social psychology, it has yet to be extensively used in cross-cultural research in educational psychology (see Bernardo & Ismail, 2010, for an exception). Future cross-cultural researchers studying psycho-educational phenomena may find it useful to adopt this approach as they strive to understand the motivational dynamics of different cultural groups.

Bernardo and Ismail (2010) utilized this approach to understand why Malaysian and Filipino students differed in terms of the achievement goals they adopt: Malaysian students endorsed performance-approach goals more strongly compared to Filipino students, whereas Filipinos endorsed mastery-approach goals more. The researchers were able to unpackage the source of this cultural difference. In the Philippine cultural context, mastery-oriented students are perceived as likable, and people like to be friends with such students. However, in the Malaysian context, performance-oriented students were perceived to be more well liked and were thought to have positive personal qualities. These

differences in social perceptions accounted for the differential achievement goal adoption in these two contexts. The power of this approach lies in its capacity to pinpoint a possible source of cross-cultural variation. Rather than just saying Culture A is different from Culture B in terms of X, this study was able to pinpoint the reason behind these differences and to subject it to an empirical test.

Consequences of Lack of Cultural Imagination

The lack of a cultural imagination may lead to problems such as stereotyping (e.g., claiming that certain cultural groups are inferior to others based on certain motivational traits such as self-efficacy or mastery orientation) and the creation of culturally inappropriate intervention programs that are destined to fail.

One of the foremost examples of program failure is the project called Target Oriented Curriculum (TOC; Carless, 1997), which was implemented in Hong Kong, an environment characterized by "vernacular Confucianism." The Hong Kong educational context is heavily test oriented, and comparison of grades among students is highly salient. TOC was an innovation that Western best practice would prescribe as something timely for the Hong Kong educational system. TOC emphasized criterion-referenced testing, which aimed to replace the rigors of norm-referencing with individually paced learning. However, this reform failed because teachers who had a "theory-in-use deriving from vernacular Confucianism simply would not see what the problem was" (Watkins & Biggs, 2001, p. 16). Another possible cause of failure was the top-down approach with little or no attempt to change teachers' and parents conceptions of assessment. For example, a primary school teacher related that when teachers tried to use more pedagogically sound approaches in her school, parents blocked this effort. Dissatisfied parents filed complaints to the District Education Office, which in turn pressured the principal to bring the teachers to line. In an intensely competitive society such as Hong Kong, where students have to compete for places in secondary schools and tertiary institutions, such parental reaction is understandable (Watkins & Biggs, 2001).

From a PI perspective, it seems that the TOC advocates neglected to look at the cultural norms operative in the Hong Kong context. For Hong Kong students, it is a common practice for students to prepare intensively for the university exams through a drilling method which has been recognized as the only way of passing the entrance exams (Watkins & Biggs, 1996). With its eschewal of the rote memorization and extensive drilling exercises as self-defeating, TOC neglected emic information in terms of students' goals for school. TOC reformers wanted to foster mastery-oriented goals among students but neglected that local students also hold extrinsic and social status goals. The failure of TOC to take this emic information into account may have led to its demise.

Programs that are appreciative of the sociocultural context and the various facilitating conditions are more likely to succeed. An example is the parent-training program developed in Turkey by Kagitsibaci (1997). This program consists of two parts: cognitive training and mother support. The mother support part emphasizes close family ties and relatedness, which is in line with the sociocultural norms in Turkey where collectivist values are highly salient. Evaluations of this program have revealed positive benefits accruing to both mothers and children. Children performed better on cognitive tests and had higher school performance compared to a comparison group. In addition, mothers felt more positive with their children and developed higher academic expectations.

Taken together, these studies show both cross-cultural universality and cultural specificity in the patterns of student motivation across a wide range of cultural groups. Although a detailed discussion of these similarities and differences is beyond the scope of this article, we hope that the studies just reviewed can supply a rich heuristic for future research and intervention.

DIRECTIONS FOR FUTURE RESEARCH

In this article, we have discussed PI theory as a useful framework for cross-cultural research on student motivation. This framework alerts us to interesting lines of inquiry that correspond broadly to the three components of meaning:

1. *How do students define themselves in different cultural contexts, and how do these self-beliefs influence motivation in the classroom?* It is widely accepted that the self has important implications for motivation across different cultural settings (see Osborne & Jones, 2011, for an overview). The importance of sense of self seems an etic reality. However, how various cultural groups construe the self or which aspects of the self are more salient in certain cultures remains an emic issue. Research on the self and identity has alerted us to the different constructions of the self across various cultures (Cross et al., 2000). Although researchers in educational psychology have now acknowledged the importance of the sense of self and identity to educational processes (see Kaplan & Flum, 2009, for a review), there remains a dearth of research linking these key constructs to culture.

   The groundbreaking work of cross-cultural psychologists on independent and interdependent self-construal (Markus & Kitayama, 1991) could prove to be a fertile ground for educational psychologists. For example, Dekker and Fischer (2008) have shown that culture, self-construal, and goals are closely related. For students living in individualistic cultures where

the independent self-construal is more salient, mastery goals are more highly endorsed. On the other hand, for those in collectivist cultures where the interdependent self-construal is more prevalent, students are more likely to adopt performance goals. A possible reason for this is that students in collectivist cultures need to show others (e.g., their parents or teachers) that they are achieving because achievement is not just an individual affair. This then facilitates a performance goal pursuit which is focused on demonstrating to other people that one is competent.

2. *What are the facilitating conditions of students from different cultural groups, and how do these affect investment in the learning process?* Different cultural groups experience different types of facilitating conditions. Studies on parental expectations have noted differences among diverse cultural groups (see Yamamoto & Holloway, 2010, for a review). Several studies, for example, have found that Asian American parents have higher parental expectations toward their children than parents of other ethnic groups, and these results hold even after controlling for socioeconomic status (Suizzo & Stapleton, 2007; Sy, Rowley, & Schulenberg, 2005). Research has also shown that, whereas Asian American parents are more explicit in stating their expections (Li, Holloway, Bempechat, & Loh, 2008), Latin American parents are not (Stanton-Salazar, 2001). These differences in parental expectations may explain the differential investment of students in school. Future research could also explore how other aspects of facilitating conditions such as those associated with teachers and peers can affect the investment of students across cultural groups.

3. *What are the personal incentives of students from different cultural groups, and how do these personal incentives influence their investment in school?* A considerable amount of research has shown that personal incentives otherwise referred to as goals do influence motivational outcomes (see Boekaerts, de Koning, & Vedder, 2006; Elliot, 2005, for reviews). However, it would be naïve to assume that all students are motivated by the same types of goals (e.g., mastery or performance). There is a need to look into the types of goals that students pursue in various cultural settings. Although the benefits associated with mastery goals seem to be well-established, the effects of other types of goals such as performance goals (both approach and avoidant forms), social goals, and extrinsic goals seem to be moderated by culture (see Cheng & Lam, 2013, for a specific example).

Research on values (Schwartz, 2007, 2011) may also be fertile ground for exploring how different goals affect learning in class because values can be conceived of as trans-situational goals (see Boekaerts

et al., 2006). Although a relatively few studies have examined values in relation to classroom motivational variables, some pioneering research has begun. For example, Liem, Martin, Porter, and Colmar (2012) conducted a study among Indonesian students and found that the endorsement of hedonistic values was detrimental to academic outcomes. On the other hand, self-direction is shown to be positively related to grades. Conformity and security were negatively related to academic achievement.

4. *Are there other forms of culture that we should look at beyond equating culture to the nation-state or ethnic group?* Extant research drawing on PI theory has mostly equated culture with the nation-state. However, culture could also be defined in broader terms. A. B. Cohen (2009) argued,

Along with ethnicity or nationality, *religion*, *region*, and *social class* [emphasis added] probably account for an especially large amount of variation in transmitted norms, values, beliefs, behaviors, and the like. These are important cultural influences. By studying these as cultures, psychologists can understand these domains better, as well as culture more broadly. (p. 195)

There has been very little research in educational psychology that focused on the effects of religion, region, and social class on student motivation or broader school outcomes. However, PI theorists have made some preliminary incursions into this terra incognita. These other faces of culture are important.

Religion

McInerney, Davidson, Suliman, and Tremayne (2000) studied the effects of religion on students' attitudes toward Personal Development Health and Physical Education (PDHPE) classes. They found that Muslim students in Australia had more negative attitudes and perceived more barriers to participation in PDHPE class. A significant number of Muslim students (40%) had problems with dress, public display, and independence. In addition, Catholic students wanted to encourage more mixed-sex activities in PDHPE, but this was not the case for Muslim students. Despite these differences, the researchers also found a lot of similarities across both groups in terms of attitudes toward PDHPE, and the authors noted that this "provides valuable information for teachers responsible for designing programs that may be equally acceptable to both groups" (p. 39).

Socioeconomic Status

Bernardo, Ganotice, and King (2014) looked at how students of different socioeconomic groups (middle class vs.

lower class) as operationalized in the type of school (private vs. public) they attended differed in terms of the three facets of meaning in PI theory. They found that students who had higher socioeconomic status had more optimal facilitating conditions (parental support, teacher support, positive peer influence), sense of self (academic self-concept, self-reliance), and achievement goals (mastery, performance, social, and extrinsic). Aside from looking at mean level differences, they also looked at how the three facets of meaning predicting science achievement and engagement toward school. They found a different pattern of prediction for students from the high and low socioeconomic status groups.

Regional Differences

McInerney (2012) conducted research on the differences among Indigenous Australian students who live in urban, remote, or very remote settings. He used the ISM to investigate these students' motivational profiles and found that the ISM was cross-culturally valid among the three groups. He found some differences among these three groups of Indigenous students. For example, the very remote Indigenous students had the highest levels of social concern goals, whereas the urban Indigenous students had the lowest levels of social concern goals. The very remote and remote Indigenous students also had higher levels of social affiliation goals compared to the urban Indigenous students.

The three examples just cited represent exploratory attempts by PI researchers to address religious, socioeconomic, and regional differences. Future researchers could start looking at these other faces of culture other than culture operationalized as the nation-state. A broadened conceptualization may make PI theory more relevant for Western researchers. This is because even in WEIRD countries such as the United States, Canada, and Australia, religious, socioeconomic, and regional differences are very much central issues. With the increasing trend of globalization, more and more international students and migrants will come to hitherto WEIRD societies and make these societies more culturally and ethnically diverse.

EDUCATIONAL IMPLICATIONS

It is possible to derive several implications for educational practice from the findings of this review. First, teachers and school administrators should obtain a clearer understanding of the relevant social-contextual factors that that influence the learning outcomes of students from different cultures. Attention to these factors can lead to more targeted interventions, such as the example we provided earlier of the parent-training program developed in Turkey.

Second, teachers must draw on the goals that are salient and motivating for students. For example, in cultural groups where social goals are highly salient, teachers can make use of cooperative learning to "capitalize on affiliative needs to harness engagement" (Juvonen, 2007, p. 203). Because adopting mastery goals has been shown to be valid across different cultural settings, teachers would do well to nurture these goals among their students.

Third, teachers and practitioners should be more aware of their students' differential sense of self when dealing with their students. For example, the dominant paradigm that students should raise challenging questions in class and participate actively in group discussions has led some instructors to discriminate against Asian learners (e.g., Biggs, 1996; Chalmers & Volet, 1997). However, such stereotypes are perpetuated due to a lack of attention to students' sense of self. It might be possible that a low self-concept in terms of language is hindering non-Western students from engaging in class discussions and stereotyping them as "passive learners" would do little to improve their motivational outcomes.

A fourth implication is the creation of school cultures that can motivate students optimally by harnessing the etic dimensions that have been shown to be facilitative of student investment in school. As Maehr, Khan, Kaplan, and Peng (1999) argued,

> Schools are increasingly confronted with socio-cultural diversity. And they typically find it well nigh impossible to create specialized programmes for each and every group that might be identified.... We suggest that educators should be less concerned with creating specialized programmes for individual groups and be more concerned with creating optimal learning environments that have basic universal value. (p. 15)

Drawing on this, we recommend a focus on mastery goals, which have shown to be adaptive across a wide range of cultures. Arunkumar and Maehr (1998) provided a concrete example of such an intervention, wherein they demonstrated the positive impact of promoting mastery goals in schools which benefited both Euro-American and African American students. In a follow-up study, they also found the positive consequences of emphasizing mastery goals in schools with a more diverse group of students, which included Asian American, Hispanic, Native American, African American, and Euro-American students enrolled in 21 schools.

These educational implications become even more important as the progress of globalization continues unabated. Student composition is becoming increasingly diverse. In 2003, 42% (more than 20 million) of public school enrolments from prekindergarten to secondary school in the United States were from ethnic minority groups such as African American, Asian, and Hispanic among others (KewlRamani, Gilbertson, Fox, & Provasnik, 2007). In the United Kingdom, it was found that White British students are now outnumbered by ethnic minorities in one fifth of the districts (Paton, 2007). Colleges and

universities are also becoming more and more internationalized. However, there is a lot of evidence showing that teachers and administrators in WEIRD cultures (where most of the international students go to) are ill-equipped to deal with students from non-WEIRD cultures. They are often misunderstood, which causes frustration on the part of the teachers and stress on the part of the students.

Taken together, these statistics suggest the urgent need to make our motivational theorizing culturally sensitive given that the subjects we study (i.e., students in the school) are now becoming more culturally and ethnically diverse. Recently, Anderman (2011) called on our discipline to have more societal impact, and part of that challenge is to conduct research that is ecologically valid which can have meaningful implications not only for a certain portion of students (i.e., White middle-class students from WEIRD societies) but for all students (including ethnic minorities and non-Western groups).

CONCLUSION

Culture plays an important role in students' motivation in school but prominent motivation theories have relegated it to the sidelines. Few of the existing studies examine or challenge the essential components or meaning of motivation as articulated in particular theoretical models within different cultural contexts. A naïve assumption that these models are universal is usually evident with most of the studies. Researchers attempt to model the relationships between these Western motivational constructs and various outcome measures with little regard for the meanings associated with these constructs. This shortcoming becomes especially salient when cultural incongruities are encountered that cannot be explained by these theories.

The ultimate goal of a truly global psychology is to achieve an "assimilative synthesis" (Sinha, 1997) whereby both cultural universality and variability are captured. In terms of motivational theorizing, this means the integration of both etic and emic dimensions to produce a well-balanced new knowledge system "in which the common and unique aspects or elements of the two are authentically synthesized at the empirical or theoretical level" (K. S. Yang, 2000, p. 260). This article proposes PI theory as a potentially generative framework that can achieve this synthesis. It is a "meaning-centered" approach that seeks to understand motivation and achievement in their own cultural contexts while incorporating etic dimensions that have been shown to be valid across a variety of contexts. PI theory seems able to provide a middle path between the extremes of cultural relativism, which argues that all forms of cross-cultural comparisons are invalid and cultural absolutism, which raises the status of pseudo-etic constructs derived from Western theorizing into universal norms.

We would like to end our commentary on PI theory by using as a metaphor for emics and etics the yin-yang symbol in Chinese philosophy. Yin (shadow) and yang (light) are seen not as opposing forces (dualities) but as complementary forces that are mutually constitutive of each other. Everything has yin and yang, as one could not know what light is without darkness, nor can shadow exist without the light. Although we'll leave it to the reader to decide which one, etics or emics, is light and shadow, the point is that emics and etics serve psychologists in their own quest to understand human behavior reasonably well by reminding them that these concepts, while uncomfortably vague, are nevertheless real. They can let psychologists think creatively and dream lucidly while keeping them grounded to the overarching principle of emics and etics as guiding compasses. We believe that PI theory has the potential to help motivational psychologists cut paths through various methodological and conceptual jungles as they embark on their cross-cultural quest for greater psychological understanding.

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