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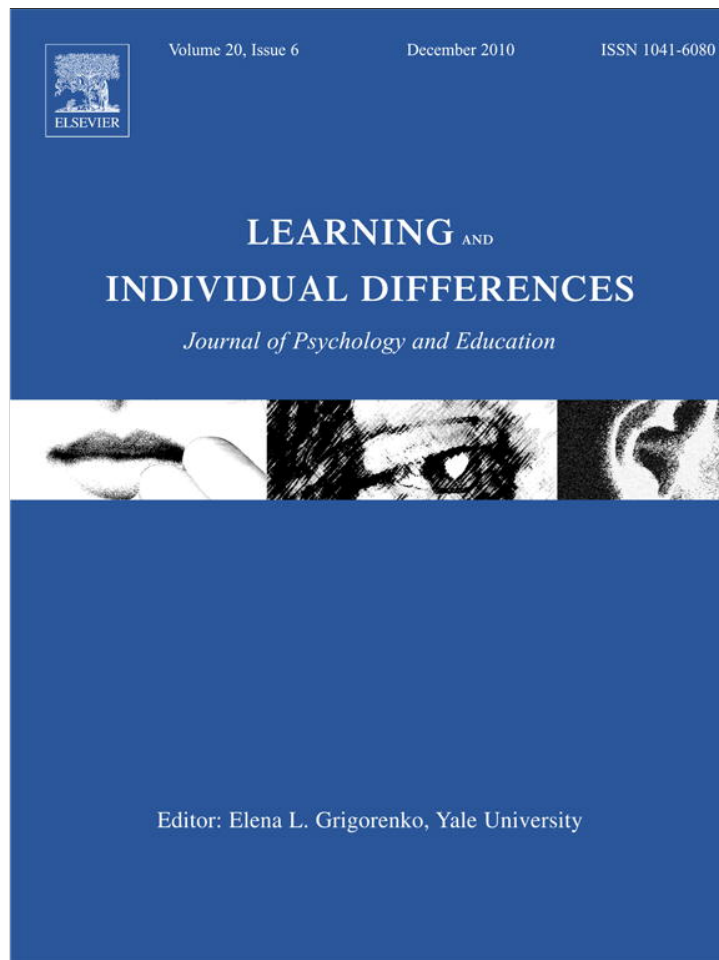
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On the elusive nature of high Chinese achievement

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ABSTRACT

It is argued that Stankov's proposal to view unforgiveness as underlying the combination of high educational achievement, anxiety, and self-doubt is an original way of summarizing Confucian score patterns. However, it is argued that the proposal cannot explain why reading scores in Confucian countries are not higher than in other countries and that an empirical study to test the proposal is difficult to conduct as it would require the involvement of many different countries.

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The article by Stankov (2010) adds to the list of publications on the background of high academic achievement by Chinese (or more generally, members of Confucian cultures), notably in the mathematics and science domain (cf. Stevenson & Stigler, 1992). There seems to be wide agreement in the literature that the background of the differences in achievement is multidimensional and that there is no single causal factor that can explain all cross-cultural performance differences that have been observed. I concur with Stankov when he is critical of "single-factor explanations", such as innate differences, for the explanation of differences in outcomes like educational achievement that are related to multiple domains of psychological functioning, such as cognition and motivation.

Combinations of achievement orientation, motivation, and socialization styles have been proposed (Kom & Park, 2006). Stankov provides an original extension of this literature by pointing to factors that have never been used in combination as potential explanation for the performance differences. He argues that the Confucian philosophy combines a number of characteristics that provide a strong incentive for high academic achievement. Compared to Europeans, members of Confucian Asian countries tend to have relatively high scores on toughness, maliciousness, and proviolence. This combination fosters a certain kind of unforgiveness that can explain the combination of high achievement, high anxiety and self-doubt that is seen in these countries. Two features make this reasoning attractive. First, it provides a parsimonious explanation of a fairly complex pattern of empirical findings that are seemingly unrelated. Second, references are made to features of Confucianism, which is widely accepted as authoritative philosophical system that is applicable to various East-Asian countries.

In the remainder of this commentary, I first propose a number of potential explanations of the high achievement scores in mathematics and science in Confucian countries that are not mentioned by Stankov and that have received very little attention in the literature to the best of my knowledge. After this review, I evaluate the evidence in favor of Stankov's viewpoint. My argument is there that, despite the intuitively appealing nature of the reasoning, there are methodological reasons that make it difficult to confirm or refute the hypothesis. I then describe what types of studies would be needed to test this reasoning. The main methodological problem of these potential explanations of achievement differences is that they look for factors, such as cultural values, that are very different for non-Confucian and Confucian countries. These explanations tend to focus on what is unique for the Confucian countries (convergent validity) and pay insufficient attention to rule out alternative explanations.

1. Proposed factors for explaining the achievement differences

Since the first publication on the high academic performance levels of students from Confucian countries about 20 years ago, many different factors have been proposed to account for the differences. In a few cases the proposed explanations have been demonstrated in a satisfactory manner; for example, Stevenson found that Chinese children had very good short-term memory skills (digit span). Baddeley's phonological loop hypothesis predicts that children who speak languages that have shorter words for digits, such as Chinese, have longer memory spans for digits (Baddeley, Thomson, & Buchanan, 1975). Baddeley's model is based on the assumption that children can hold as many units in short-term memory as they can repeat in a 1.5 s time period. So, children who use shorter words for digits are expected to have longer memory spans. This model has been confirmed in a number of cross-cultural studies (e.g., Shebani, Van de Vijver, & Poortinga, 2005, 2008). Such a relatively simple explanation

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may help to explain educational achievement differences but is unlikely to provide a sufficient explanation for the differences in educational attainment. The same problem holds for innate differences in ability; I concur with Stankov's dismissal of this hypothesis.

Ni, Chiu, and Cheng (2010) mention linguistic factors, notably the regularity and simplicity of Chinese number naming, which makes it relatively easy to become numerically literate in Chinese; in addition, the authors refer to sociocultural factors, such as family processes (parental expectation and parental help) and motivation (strong parental desire that their children obtain a high academic qualification). It is possibly also this strong motivation, combined with the idea that everyone can be a good learner, that is responsible for the remarkable finding that socioeconomic status is much less predictive of educational attainment in China than in most other countries (Hau & Ho, 2010).

At least two factors can be mentioned that may be related to cross-cultural differences in achievement and that have not been proposed or tested in the literature. The first is reward for application, which refers to the view that investment of human resources (such as hard work) will lead to positive outcomes (e.g. more achievement, higher income). It has been shown that Chinese people have relatively high scores on reward for application (Leung, 2010). This belief could be an important part of the motivational system that undergirds educational achievement. The same holds for long-term orientation (Hofstede, 2001). Cultures with a high score on long-term orientation are characterized by persistence, ordering relationships by status and observing this order, and thrift (as opposed to respect for tradition and "face" in cultures with a short-term orientation, such as most African countries). Confucian cultures score high on this dimension. This focus on "here and now", combined with a relatively low level of respect for tradition and the status quo, can help to view society as malleable and to view education as an important factor for achieving upward social mobility. Evaluating the actual role of reward for application and long-term orientation in the explanation of cross-cultural differences in achievement is hard, as no empirical studies of the relationships are available.

Many studies of East Asian educational achievement employ Likert scales to assess personality, values, or motivation. Cross-cultural studies have shown that Confucian cultures are susceptible to showing response styles. Thus, the position of China on acquiescence is medium; however, Chinese have a strong tendency to avoid extremes of the scale and use the response in the middle of the scale (Harzing, 2006). In particular when using unipolar scales, the reluctance to use extreme categories can lead to a discrepancy between observed scores and true status. Furthermore, Chinese responding is susceptible to social desirability bias (Van Hemert, Van de Vijver, Poortinga, & Georgas, 2002). It is relatively uncommon to estimate the effects of response styles (including here social desirability) on observed scores and cross-cultural differences. It could well be that correction for these response styles could lead to a different pattern of observed cross-cultural score differences in non-cognitive factors.

2. Unforgiveness as the explanation of superior Chinese academic achievement?

As mentioned before, the constellation of non-cognitive factors proposed by Stankov's as underlying the high academic performance levels sounds intuitively attractive and appealing. Yet, there are two problems with the hypothesis. First, it is not clear why unforgiveness would not affect all educational domains. How can unforgiveness explain the by international standards higher performance of Confucian countries in the mathematical and science domain as compared to the reading domain? Additional explanations would be required to explain the difference. Second, it is difficult to find methodologically compelling studies to validate the reasoning. Therefore, I would like to consider unforgiveness as a working

hypothesis that is plausible, though as yet untested (and not easily testable). The specific constellation of motivational and personality factors, as described by Stankov, is unique for Confucian cultures. However, this uniqueness does not necessarily make the explanation valid. What kind of evidence would be needed to confirm or refute the hypothesis? The hypothesis is not about specific Chinese individuals but about a cultural pattern. Therefore, country-level data would be needed. The study to test the hypothesis should provide convergent and divergent validity evidence (Van de Vijver & Leung, 1997). A large-scale study would be needed that has many countries with a different standing on academic achievement and variables that are related to unforgiveness and so that a relationship can be tested. If this convergent validity can be demonstrated, it is still important to rule out alternative explanations. It is not very clear to what extent the unforgiveness hypothesis is incompatible with previous hypotheses that have been proposed such as more time spent on academic matters in Chinese education, as argued by Stevenson, family processes, and sociocultural explanations. Even if the compatibility with the unforgiveness hypothesis is not always clear for these explanations, it is important to include these in the study in order to test the hypothesis that unforgiveness is the only or most important predictor after the other explanations have been statistically controlled for.

These methodological problems are not unique for the unforgiveness hypothesis. Testing global explanations requires much research and the required empirical validation is often missing. These problems do not render the proposal of the hypothesis useless. Quite on the contrary, given the complexity of the data that are required for validating such an explanation it is important to make the hypothesis as clear and testable as possible. It is interesting to refer to Reichenbach's (1938) distinction between the context of discovery and justification. Reichenbach argued that generating hypotheses is a very different activity from validating a hypothesis; for example, creativity is essential in the former whereas methodological rigor is essential in the latter.

3. Conclusion

Stankov's reasoning is appealing and might be well true or at the very least suggest an interesting way of explaining the high scores of Confucian countries in mathematics and science. Yet, it is not clear why unforgiveness would affect not reading. Unforgiveness might well predict a global difference in academic achievement and not a domain-specific difference. Furthermore, no direct test of the hypothesis is provided in the article and conducting such a study might be cumbersome.

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