摘要

本文是关于中国幼儿情绪能力的实验报告。结果表明，3 至 5 岁年龄段中国幼儿的情绪能力的发展并不理想。这是因为，能够推测他人的想法是一种很重要的认知能力。儿童在这一阶段不仅需要具有能够了解某一事件发生的能力，而且也需要了解他人因不 知道事实而可能持有错误想法的能力。这种判断具有加强和判断他人的行为功效。所以的研究证明，儿童在这一年龄到四岁之 际，在这方面的能力有明显的发展。3 岁至 5 岁的幼儿通常不具自这种推断及理解他人有与自己不同想法的能力。认 为别人的想法是与自己一样的，但四岁的幼儿却往往已具备了这种推断能力，相应年龄的中国儿童则看不到这种显著的变化。西方的儿童阶 级有一种很重要的文化观念，即强调幼儿的言语行为与言语行为 保持高度的一致性。但这种观念未必存在于其他的文化中。譬如说，中国的育儿方法特别注重行为的规范的训练，中国儿童故事 中，人们常常强调道德规范的培养，而不是认知方面的训练，中国 人一般认为行为的结果比行为的目的来得重要，这些文化上的差异 或许可以用来解释本实验的结果。

A Comparative Study of Test Anxiety among Chinese and American High School Students

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ABSTRACT. The present study used TAI to examine test anxiety among a sample of American high school students in Boston and a sample of Chinese high school students in Beijing. The results indicated that the American subjects were significantly more test anxious than the Chinese subjects and that the female subjects were generally more test anxious than the male subjects in both samples. The higher test anxiety on the part of American subjects was attributed to the practice effect developed by the Chinese subjects due to their over-exposure to tests and quizzes in preparation for the College Entrance Examination. The results of three additional open-ended questions revealed that the Chinese subjects were more appreciative of the role of tests in learning and cared less for the results of each test than for their effects on the final grade.

Anxiety may be defined as "an unpleasant emotional state or condition which is characterized by subjective feelings of tension, apprehension, and worry and by activation or arousal of the autonomic nervous system" (Spielberger, 1972, p. 482). Test anxiety refers to typical anxiety-eliciting situations and conditions in the educational context dealing with training, learning, and performance (Rost & Haferkamp, 1982). Since the 1960s, test anxiety has caught increasing attention among psychologists and educational researchers around the world. For instance, between 1960–1986, a total of 532 research studies

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were undertaken in the US alone to examine the correlates, causes, effects, and treatment of test anxiety across a wide variety of contexts (Hembree, 1988). A flood of empirical findings and theories have been generated out of these studies, which generally suggest that the concept of test anxiety refers to individual differences in the predisposition to respond with emotional reactions and self-centred worry cognitions when confronted with evaluative situations (e.g., Alpert & Haber, 1960; Morris & Liebert, 1970, 1973; Morris et al., 1981; Sarason, 1972, 1978, 1980; Schwarzer, 1982; Schwarzer et al. 1983; Spielberger, 1966, 1972, 1975; Spielberger et al., 1976, 1978; Wine, 1971, 1980). More specifically, emotional reactions are characterized by feelings of tension, apprehension, nervousness, and activation of the autonomic nervous system, whereas worry cognitions are related to self-critical and self-derogatory task-irrelevant thoughts (e.g., Morris & Liebert, 1970; Sarason, 1960, 1972, 1980, 1984; Schwarzer, 1986, 1987; Spielberger, 1972, 1975; Spielberger et al., 1976; Wine, 1971, 1980).

Additionally, many researchers also reported that worry cognitions showed a more consistent negative correlation with both performance expectancies and actual performance on cognitive tasks than did emotionality (e.g., Liebert & Morris, 1967; Morris & Fulmer, 1976; Morris et al. 1981). To account for this, Wine (1971, 1980) suggested that high test-anxious individuals reacted in evaluative situations with maladaptive cognitive responses, which distracted students from attending to task at hand and interfered with their effective use of time as well. Besides, Spielberger and his associates (1972, 1976, 1978) observed that persons high in A-Trait (Anxiety-Trait) tended to perceive greater dangers and threats in evaluative conditions than did persons low in A-Trait, and tended to respond to the threatening situations with A-State elevations of greater intensity. Based on the observation, Spielberger (1980) developed the Test Anxiety Inventory (TAI), which is a 20-item psychometric measure, assessing two factorially derived components of test anxiety—worry and emotionality. The TAI has been adapted and used extensively in quite a number of countries around the world (e.g., Hagtvet, 1984; Schwarzer, Jerusalem, & Lange, 1982; Schwarzer, & Kim, 1984; van der Ploeg, 1982, 1983).

For instance, van der Ploeg (1982, 1983) adapted the Dutch version of the TAI and administered it to a group of school children in Norway. They reported that the impairing effects of test anxiety, particularly of the worry component, on performance were mainly nestled in the upper range intelligence and that less intelligent children were less affected by the impairing effects of test anxiety. They also reported that high parental standards were associated with high test anxiety. Similarly, Schwarzer and Kim (1984), in validating the Korean adaptation of the TAI, discovered that Korean students demonstrated higher test anxiety than students from Germany, Hindi, Hungary, Netherlands, and the U.S.A. They attributed this to the traditional school system, authoritarian parental attitudes, severe educational behavioral patterns and high importance of good scores in school work in Korean society. In the same vein, Lin (1985) adapted the TAI in Chinese language and administered it to 200 college students from five universities in Beijing. He reported that test anxiety was most related to fear of examinations, tensions during examinations, resultant physiological discomfort from examinations, and imaginary retreat. He also reported that female students were generally more test-anxious than male students and that male students were more critical of examinations.

In brief, the foregoing discussions generally indicate that: 1) test anxiety may be defined in terms of individual differences in worry (cognitive concern about one's performance) and emotionality (autonomic reactions for the test situation) when facing academic evaluative tasks and is characterized by heightened apprehensive mental and physical responses; 2) the cause of test anxiety is multi-directional, but seems to be most associated with an individual's concern over negative consequences of evaluative tasks; 3) test anxiety interferes with performance of high test-anxious individuals, leading them to be preoccupied with task-irrelevant thoughts in test situations. In fact, Hembree (1988), through a meta-analysis of 562 studies examining the nature, effects, and treatment of academic test anxiety in the United States, reported that test anxiety was related inversely to students' self-esteem and directly to their fears of negative evaluation, defensiveness, and other forms of anxiety. Hembree also concluded that test anxiety was directly related to dislikes of tests and less effective study skills and was scored consistently higher for females than for males.

In order to validate the research findings of test anxiety from a cross-cultural perspective, the present author investigated test anxiety in two comparable groups of high school students in Beijing and Boston.
respectively with the following two hypotheses: 1) Chinese high school students would be significantly more test-anxious than American High school students; and 2) female students would be significantly more test-anxious than male students in both countries.

The first hypothesis was made on the premise that as Chinese high school graduates were admitted to college through passing a highly selective nation-wide College Entrance Examination (CEE), they would be considerably more anxious and stressed about taking tests than their American counterparts who, by virtue of being able to go to college through a joint consideration of SAT scores, school academic records, and recommendation letters from relevant teachers, were not as intimidated by results of tests as Chinese high school students. As a matter of fact, the two years of senior high school in China were almost entirely devoted to having “a sea of tests and quizzes” to warm up for the CEE. In contrast, American high school graduates not only have a lot more colleges and universities to choose from than their Chinese counterparts, but also are not required to go to college through passing a critical examination in education. The second hypothesis was intended to replicate the finding of gender difference in experience of test anxiety reported by many researchers (e.g., Spielberger et al., 1978; Van der Pleeg, 1982, 1983; Hendel, 1980; Hodapp, Laux & Spielberger, 1982; Oner, 1983, Oner & Kaymak, 1987; Olah et al., 1978; Richmond, Rodrigo, & Luisardo, 1989; Sharma, Sud & Spielberger, 1983; Hagstvet, 1984, Sipos & Spielberger, 1985; Schwarzer & Kim, 1984).

**Method**

**Participants**

High school students were sampled from two high schools in Beijing and Boston so that their age, gender, educational level, and institutional environments would be most comparable. The American subjects were sampled from Somerville High School situated in the city of Somerville in metropolitan Boston area. The subjects were in 11th and 12th grades and were all in college preparatory classes. The Chinese subjects were sampled from the Second Middle School Attached to Beijing Normal University situated in northern Beijing. The subjects were in senior grades (second and third grades in senior high school) and were all scheduled to take part in the CEE in the coming July. Both schools were quite well-known in the local areas.

The sample consisted of 172 students, 81 Americans and 91 Chinese. Of the American subjects, 39 were males and 42 were females. They ranged from 16 to 19 in age, with the average age being 16.6 years old. Of the Chinese subjects, 46 were males and 45 were females. They ranged from 16 to 18 in age, with the average age being 17.7 years old.

**Instruments**

The Test Anxiety Inventory (TAI) was used for the present study (Spielberger, 1980). The TAI is a self-report psychometric instrument which measures individual differences in test anxiety as a situation-specific trait. It consists of 20 items and provides both a total score for Test Anxiety and two separate subscores for the Worry and the Emotionality components of test anxiety. Subjects rate on a four-point scale the frequency with which they experience specific symptoms of anxiety before, during, and after they participate in examinations. Derived by factor analytical procedures, the TAI and its Worry and Emotionality subscales have been reported to be internally consistent and highly correlated with other widely-used measures of test anxiety as well (Spielberger 1980). A Chinese version of the TAI was translated by the investigator and was later back translated into English by several Chinese natives studying in Boston to ensure comparability of the English and the Chinese versions of the TAI.

In addition, to pinpoint the cross-cultural differences in the experience of test anxiety, the investigator raised three open-ended questions for the subjects as well: (1) How do you feel about examinations? (2) What are you afraid of if you do badly on an exam? (3) Why do you want to do well on examinations? The three questions were attached at the end of the TAI, and limited space was provided for brief answers to be expected.

Taken together, the whole questionnaire took approximately 50 minutes to complete.

**Procedures**

The American subjects completed the TAI as well as the attached open-ended questionnaire in class under the supervision of the head of
the Science Department at Somerville High School. The Chinese subjects completed the Chinese adaptation of the TAI and the open-ended questionnaire in class under the supervision of the head teacher of Chinese language at the Second Middle School Attached to Beijing Normal University.

The scores for each subject were calculated for the TAI Total scale, and the Worry and the Emotionality subscales. Besides, separate t-tests and analyses of variances (ANOVA) were computed to compare the means and standard deviations of these scores between the genders and countries.

The responses to the three open-ended questions were first coded under different categories of thematic similarity by the investigator and were then ranked in terms of frequency of appearance.

Results and Discussion

Results of the TAI

Table 1 displays the means and standard deviations of the TAI total scores, and the Worry and the Emotionality subscores of the TAI for the American and Chinese subjects.

As can be seen, the American subjects scored consistently higher

<table>
<thead>
<tr>
<th>Scale</th>
<th>Americans</th>
<th></th>
<th>Chinese</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td></td>
<td>M</td>
</tr>
<tr>
<td>N</td>
<td>39</td>
<td>42</td>
<td>46</td>
<td>45</td>
</tr>
<tr>
<td>TAI Total</td>
<td>36.18</td>
<td>44.83</td>
<td>32.58</td>
<td>35.45</td>
</tr>
<tr>
<td>Mean</td>
<td>9.48</td>
<td>9.84</td>
<td>5.94</td>
<td>7.87</td>
</tr>
<tr>
<td>Worry</td>
<td>13.27</td>
<td>16.31</td>
<td>11.62</td>
<td>12.30</td>
</tr>
<tr>
<td>SD</td>
<td>4.33</td>
<td>4.09</td>
<td>2.49</td>
<td>3.64</td>
</tr>
<tr>
<td>Mean</td>
<td>4.67</td>
<td>5.56</td>
<td>3.21</td>
<td>3.64</td>
</tr>
</tbody>
</table>

on all of the three scales of the TAI than the Chinese counterparts, which is contradictory to the first hypothesis of the study. Results of t-tests on the scores of the three scales further indicated that the differences on the three scales were all statistically significant, with the t-values being 4.36, 4.65, and 4.06 (df = 1,172, p < .001) respectively. It is particularly intriguing to note that the American male subjects showed even higher test anxiety than the Chinese female subjects. Such an unexpected finding might be attributed to the fact that Chinese high school students were over-exposed to quizzes and tests in order to prepare for CEE. In other words, the Chinese subjects were believed to have developed a practice effect on test anxiety due to having to take many rounds of quizzes and tests for the CEE. As a result, they were not as afraid of taking tests as were their American counterparts, who took tests much less frequently.

In addition, the female subjects scored consistently higher on the three scales of TAI than their male counterparts in both samples. This finding supports the second hypothesis of the present study, replicating the general observation that females consistently exceed males in test anxiety. However, the results of t-tests indicated that the gender difference was only statistically significant for the American subjects, with the t-values for the three scales being 3.85, 2.61, and 4.09 (df = 1,172, p < .01) respectively. Additionally, the gender difference was more obvious with the scores for the TAI total scale and the Emotionality subscale as well. The insignificant gender difference for the Chinese subjects might be attributed to the practice effect as well.

Besides, the correlation between the Worry and the Emotionality components is .73 for the American subjects and .71 for the Chinese subjects; and .77 for the male subjects and .73 for the female subjects respectively. The high internal consistency not only lends good support to the face validity of the original TAI form, but also attests to the reliability of the Chinese adaptation of TAI developed by the author.

According to the results of the two-factor ANOVA of the TAI total scores, gender had a significant impact on the subjects' scores on the TAI. F(1,168) = 20.39, p < .001, and so did country F(1,168) = 16.06, p < .001. The strong correlations between these two factors also suggested that the mean gender difference varied for American and Chinese subjects, F(1,168) = 6.02, p < .005.

In brief, the Chinese subjects were less test-anxious than the
American subjects for having over-exposure to tests. The practice effect developed by the Chinese subjects needs to be understood in the context of college admission practice in Chinese society.

Results of the Three Open-Ended Questions

The results of the open-ended questionnaire revealed a number of interesting cross-cultural differences as well. First and foremost, the American subjects were generally critical of tests while the Chinese subjects were generally dialectical to them. Specifically, in answering the question of how do you feel about examinations, the most commonly appeared responses were "dislike it" for the American subjects but were "be both good and bad" for the Chinese subjects. Implicitly, the Chinese subjects showed a more positive attitude towards the role of tests in learning, which seems to be in congruence with the finding that the Chinese subjects had developed a practice effect for having been over-exposed to tests.

Additionally, in answering the question of what are you afraid of if you do badly on a test, the American subjects were essentially concerned with "getting bad grades" on the test whereas the Chinese subjects were essentially concerned with "getting bad grades for the final grade". The different orientation of concerns might as well be attributed to the contrasting frequency of tests undertaken by the subjects in the two samples. In other words, the Chinese subjects cared less for the results of each test than for their effects on the final grade because they would have many more opportunities to make them up. This appears to be related to the practice effect demonstrated by the Chinese subjects as well.

Finally, though the subjects in both samples shared a common goal of going on to college in answering the question of why do you want to do well on tests, the Chinese subjects were more concerned with "pleasing parents" while the American subjects were more concerned with "being competitive" and "being cool in class". This observation is consistent with the finding that parental expectations often played an important role in test anxiety and achievement motivation in Asian societies (Schwarzer & Kim, 1984; Mook et al. 1985; Ling, 1985).

Conclusion

The present findings have several implications for further studies of test anxiety from a cross-cultural perspective. First, more research studies are needed in order to further validate and justify the findings of the present study, particularly on the role of the practice effect on reducing test anxiety. It would of special interest to compare the findings of the present study with those derived in studies of test anxiety in other Asian countries or areas, such as in Hong Kong, Japan, Korea, Singapore, and Taiwan and to see if practice effect would make any difference as well. It would be equally interesting to further investigate the extent to which reduction of test anxiety is dependent upon the practice effect as compared to other educational and socio-economic factors. Secondly, more attention should be given to the study of the relationships between test anxiety and achievement motivation as education is highly valued in Chinese society. An interesting task for further research would be to examine motivational orientations and self-efficacy as correlates of test anxiety. It would be particularly intriguing to examine how test anxiety would vary as a function of positive self-efficacy that results from the practice effect. Finally, in terms of the design of research studies, it is important that a combination of qualitative and quantitative approaches be used. A combined research methodology would provide efficiency, clarification, and a more insightful understanding of the reality (Tam, 1993).

Notes

1. The College Entrance Examination (CEE) is held in early July of each year and takes three days to complete. Two subjects are tested each day, taking three hours for each subject. The subjects to be tested include mathematics, physics, chemistry, history, geography, Chinese language, English, and political studies, depending on whether the candidate wishes to major in science studies or in social science studies. Each year approximately 20% of the candidates are able to pass the examination.

References


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**摘要**

本研究运用 TAI 量表调查了一组美国高中生和一组中国高中生的考试焦虑情况。调查结果表明美国高中生的考试焦虑明显高于中国高中生。另外，两国高中生女被试的考试焦虑普遍高于男被试。针者认为美国被试的考试焦虑高于中国被试是由于后者因准备高考（College English Examination）而经常进行模拟考试所产生的练习效应所致。此外，本研究还通过一个简单的问卷调查发现中国被试较美国被试更积极地看待考试的作用，并较美国被试更关注个别考试对总成绩的影响。

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