International Education

Volume 42
Issue 2 *Spring 2013*

Nothing but Being There Matters: Expectancy-Value Motivation Between U.S. and Chinese Middle School Students

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NOTHING BUT BEING THERE MATTERS: EXPECTANCY-VALUE MOTIVATION BETWEEN U.S. AND CHINESE MIDDLE SCHOOL STUDENTS

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ABSTRACT

Current literature theorizes that culture-induced expectancy beliefs and values in learning may engage learners of varied cultures in differentiated motivational processes. The purpose of the study was to determine the extent to which U.S. and Chinese middle school students differed in expectancy-value motivation in physical education. Middle school students from the U.S. (n = 813, 14 schools) and China (n = 806, 8 schools) provided data on expectancy-value motivation in physical education. A MANOVA with country as the independent factor and grade level as covariate revealed that the U.S. students held higher expectancy beliefs (p =.001, η^2=.62), while the Chinese students showed stronger appreciation for the attainment (p =.001, η^2=.33) and utility values (p =.001, η^2=.35). The students from both countries equally appreciated the intrinsic value (p =.45). A canonical correlation analysis demonstrated that the expectancy-value motivation declined with age/grade increase at the same pace regardless of culture. These findings clarify for us the cultural influence or non-cultural influence on the expectancy-value motivation in middle school students. They inform us about the potential to develop intrinsic-value based across-cultural motivation strategies as well as the cultural sensitivity of applying motivation strategies focusing on expectancy of success, attainment value, and utility value.

INTRODUCTION

Based on previous research, young learners from the East and West may learn in different ways that lead to different outcomes. For example, an achievement gap has been observed in mathematics and science with Asian learners outperforming their Western counterparts (Harmon et al., 1997). According to the litera-

ture, Asian children may possess higher level of achievement motivation (Tweed & Lehman, 2002). Research studies (e.g., Li, 2003) revealed that Chinese and U.S. college students shared similar epistemological beliefs about the process of learning (knowledge is external and can be acquired), but the students displayed drastically different beliefs concerning ability (e.g., IQ can or cannot be improved through learning). While the U.S. students emphasized ability and ability-based motivation as primary contributing factors to success, Chinese students believed effort to be the key. These culture-induced differences may lead learners to different dispositions of success and values in learning. Subsequently, this may lead to different motivational processes. To further understand the differences, the primary purpose of the study was to determine the extent to which U.S. and Chinese middle school students differed in expectancy beliefs and task values in physical education.

According to Eccles and Wigfield's (1995) study, achievement motivation relies on competence-based expectancy for success and perceived values in the content. Research on the expectancy-value motivation has indicated that expectancy beliefs and task values are primary motivational sources in various learning contexts including mathematics, science, reading, music, and sports (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). These findings have implied that children's expectancy beliefs and task values are content-specific and age-sensitive (Jacob et al., 2002).

Among achievement motivation theories, the expectancy-value construct has been argued to be the most salient and effective with which students identify (Wigfield, 1994). Research in the classroom has provided strong evidence showing the power of the construct in determining learning achievement. In a recent meta-analysis on motivation studies in physical education, Chen, Chen, and Zhu (2012) found that the expectancy-value construct received highest ratings among all motivation constructs, thus supporting Wigfield's (1994) argument that K-12 learners are most likely to be motivated by their expectancy beliefs and task values.

Two primary components in the expectancy-value construct are expectancy beliefs and task values. Presumably, in the expectancy-value theory students are constantly assessing their competence in relation to the task at hand in order to be successful in learning (Eccles, Adler, & Meece, 1984). Parallel to this process is students' perception of the value in learning tasks; the values that students perceived serve as the driving force for meaningful engagement in learning (Wigfield, 1994). They provide a necessary source of motivation for students to overcome difficulties to receive beneficial outcomes of the learning experience.

According to Eccles and Wigfield (1995), expectancy belief for success is defined as a person's competence beliefs about how successful he/she will be in completing upcoming activities. Wigfield and Eccles (2000) articulated that these expectancies beliefs are individuals' expectations for success rather than their outcome expectations. Outcome expectations, according to Bandura (1997), refer to

individuals' beliefs that a given behavior will lead to a given outcome. In addition, Wigfield and Eccles (2000) explained that the expectancy construct in their model is similar to Bandura's (1997) efficacy expectation that refers to individuals' beliefs about their ability to accomplish a task successfully (Bandura, 1997).

Eccles and Wigfield (1995) stipulated that expectancy beliefs are task-oriented; thus the motivational impact may be task-specific. The task values, however, may exert enduring effects on a learner at the content domain level. In other words, when one realizes the value a subject matter offers, he/she may develop enduring motivation for pursuing the content or participating in the activity. Eccles and her colleagues (Eccles et al., 1983; Eccles & Wigfield, 1995) identified three primary values in schooling. The *attainment value* depicts recognition of the importance to succeed in an activity. The *intrinsic value* refers to how interesting the person perceives the activity to be. The *utility value* concerns perceived usefulness of the activity to the person's current or future life. Eccles et al. (1983) also theorized that motivational commitment to learning a subject matter may lead to perceptions of negative consequences and such perceptions must be conceptualized as cost. In the expectancy-value framework the cost dimension signifies negative consequences of motivational commitment to schooling such as fear of failure, physical and/or mental anxiety, lost opportunities that the student might endure as a result of choosing one activity over another (Wigfield, 1994).

One subject area that has been receiving rapidly-growing attention is physical education. Physical education has undergone a tremendous transformation in recent years—from a content that focuses on sports-related skills to one that focuses on the development of knowledge that addresses child obesity and hypokinetic diseases. Associated with this change in the curriculum comes the issue of which specific expectancy beliefs and task values students develop in order to become motivated to learn healthy habits. A number of studies in the U.S. (e.g., Chen, Martin, Ennis, & Sun, 2008) and China (Chen & Liu, 2008, 2009) have begun to answer these important questions. Results from these studies have demonstrated that learners from different cultures may have a different emphasis on the expectancy-value dimensions. One finding that is common in responses from both cultures is that the attainment value of participating in health-enhancing physical activities might overcome the impact of cost in the motivational processes. On the other hand, motivation for physical education was determined by intrinsic and utility values, as well as by the expectancy beliefs for success. In Chen and Liu's (2008) study with a sample of Chinese college students, the results suggest that the dichotomous value-motivation paths experienced early in schooling influenced the decisions on participating in physical activity and signing up for physical education.

With the concerns for children's health becoming global, culturally relevant comparisons are needed to determine if the expectancy-value construct will be a viable approach acceptable in both cultures. The cross-cultural study is important during a time when educators across the world are striving to learn from each

other (Wang & Gutherie, 2004) to promote curricular assimilation that will lead to a better education and quality of life to all citizens of the world. It seems timely to conduct the cross-cultural study in that both the U.S. and China are reforming their physical education curricula rapidly in K-12 schools (National Association of Physical Education and Sport & American Heart Association [NASPE], 2010; Wang, Ji, Huang, Liu, & Lin, 2008).

In seeking answers to the issue of cross-cultural relevance of the expectancy-value theory, the purpose of this study was to compare U.S. and Chinese middle school students' expectancy beliefs and task values in physical education. In this study, we hypothesized that U.S. and Chinese middle school students were likely to differ in the expectancy-value dimensions due to different cultural value systems in general. We also hypothesized that the expectancy-value motivation would fluctuate or decline at a different rate as a function of cultural influences. These hypothesized differences between the U.S. and Chinese middle school students should be viewed as culturally constructed because the differences may convey inferred interpretations of experiences and meanings in a given culture (Quinn & Holland, 1987).

METHOD

Setting and Participants

Chinese participants included 806 students from eight middle schools (267 in 6th, 276 in 7th, and 245 in 8th grade) randomly selected in a very large metropolitan area in China; there were 407 boys (50.5%) and 399 girls (48.4%). The U.S. participants included 813 students (284 in 6th, 268 in 7th, 260 in 8th grade) from 14 middle schools randomly selected in a comparably large metropolitan area in the U.S.; there were 390 boys (48%) and 423 girls (52%). All students received their parent permission and the study was approved by the U.S. University Institutional Review Board and by a comparable governing body of the Chinese university.

Variables and Measures

Expectancy belief and task values. Students' expectancy belief for success and perceived task values of physical education were measured using the 13-item Self- and Task-Perception Questionnaire (Eccles et al., 1984) modified for physical education (Xiang, McBride, Guan, & Solmon, 2003). Each item, except the cost items, was attached to a 5-point scale anchored by a descriptor appropriate for the item. The cost dimension was not included in the analysis for the following reasons: Cost was measured in the form of qualitative written responses. To the best of our knowledge, we are not aware of an established scaling mechanism to quantify the responses at the present time. In addition, previous findings revealed that factors perceived as cost might not impose negative motivational impact on students' participation and engagement decisions in physical education (Chen et al., 2008; Chen & Liu, 2009). The questionnaire was translated and validated by bi-lingual Chinese-American scholars (n = 6) using an Adelphi procedure with

100% agreement on consistence between the two versions (Chen & Liu, 2008). The Chinese version was used in collecting the Chinese participants' responses. The internal consistency coefficients for responses from each country were calculated to determine the measurement reliability.

Grade level. Grade level was included in the study as an independent variable covarying with the primary independent variable of country. Jacob et al. (2002) revealed that the expectancy-value motivation was affected by age. Specifically, Jacob and colleagues observed that when children move from a low grade level to a high grade level their expectancy-value motivation declines in all content areas. Including this variable allowed researchers to partition observed changes in the expectancy-value motivation, if any, in terms of cultural and developmental interactions.

Data Collection

Data were collected by trained graduate students in both countries. Four identical training sessions were provided to the data collectors to minimize threats to data reliability; each session lasted six hours. Data collection took place in the latter half of the fall semester when the students had experienced their respective physical education curriculum. The expectancy-value questionnaire was administered in classrooms or the gymnasium. Each item was read aloud to the students. The data collectors explained the meaning of the items if necessary and answered students' questions. The students were instructed to respond to all the items independently and truthfully. They were also informed about their rights to withdraw and that their participation or non-participation would not affect their grades.

Data Analysis

Confirmatory factor analysis was carried out to examine the factor structure of the expectancy-value model in each country. Hu and Bentler's (1999) joint criteria were used to determine the model data fit: Comparative Fit Index (CFI) $\geq .95$ and Standardized Root Mean Square Residual (SRMR) $\leq .09$; OR SRMR $\leq .09$ and Root Mean Square Error of Approximation (RMSEA) $\leq .06$. In addition to confirmatory analysis, we used multi-group analysis to examine whether the relationships between the factors and indicators in the model differ across countries.

Responses to the expectancy-value questionnaire were aggregated according to its original construct dimensions (Eccles et al., 1984) for the multivariate analysis of variance (MANOVA). MANOVA was used to analyze the differences in class means on expectancy beliefs and task values between the U.S. and Chinese students with grade level as a covariate. Because the measures were taken in intact classes, auto-correlation in responses from students in the same class should be assumed. Therefore, the data were analyzed with class as the unit of analysis to avoid erroneous results due to the auto-correlation (Scariano & Davenport, 1987). In addition, a canonical correlation analysis was conducted to determine the extent of similarity between the U.S. and Chinese data sets as the expectancy-value measures co-varied with age.

RESULTS

Confirmatory Factor Analysis

The fit indices from the CFA indicated an excellent data model fit for Chinese data: $\chi 2 = 167.94$ ($df = 39$), $p < .001$; SRMR= .03, CFI= .97, and RMSEA= .06; and for the U.S. sample: $\chi 2 = 125.39$ ($df = 39$), $p < .001$; SRMR= .03, CFI= .98, and RMSEA= .04. Further, the reliability coefficients from the results of CFA also suggested that the expectancy-value model is stable and replicable in both countries. Specifically, the Cranach's α of the model was .88 for Chinese data and .86 for U.S. sample, and the four factors model construct reliability coefficient (RHO) was .92 for Chinese data and .89 for U.S. data.

CFA Multi-Group Analysis

We used a three-step multi-group analysis to detect whether the expectancy-value model varies across country. The results of step one suggested that the model is tenable for each culture group. Specifically, above CFA results for each group indicated good model-data fit. The second step analysis indicated that the model is tenable for both groups simultaneously ($\chi 2 = 293.31$ ($df = 78$), $p < .001$, CFI = .97, SRMR = .03, and RMSEA = .04). In step 3, we first constrained all interesting parameters to be equal across groups ($\chi 2 = 390.56$ ($df = 90$), $p < .001$, CFI = .96, SRMR = .07, and RMSEA = .04) and then tested the differences between multi-sample with constraints and multi-sample without constraints. Differences were found when we tested the differences between corresponding parameters ($\Delta\chi 2 = 97.24$, $\Delta df = 11$, $p < .001$). The Largest LM tests for each factor revealed that the responses to the third indicator of expectancy beliefs were different across countries. This item was then deleted in the following analysis of MANOVA.

Analysis of MANOVA

Table 1 lists the class means of the expectancy-value measures with their respective reliability coefficients (Cronbach α) that indicate acceptable internal consistency reliability of data. The BoxM test showed that the assumption of variance/co-variance homogeneity was not violated (Box$M$ = 65.06, p = .41). The MANOVA multivariate analysis rendered no statistically significant difference on the Country-by-Grade interaction (Wilk's λ = .91, p =.74); but statistically significant differences existed for the main effects of Country (Hotelling's T = 3.56, F = 47.19, p = .001, η^2=.78) and Grade (Wilk's λ = .66, F = 3.02, p = .004, η^2 =.19). Table 2 reports results from the MANOVA univariate analysis for the dependent variables (the expectancy beliefs and each task value). The U.S. students displayed higher expectancy beliefs in succeeding in physical education than Chinese students ($p < .001$, η^2 =.62). But their appreciation of the content in attainment value ($p < .001$, η^2 = .33) and utility value ($p < .001$, η^2 = .35) was lower than Chinese students' appreciation. The students in both countries appreciated the intrinsic value of physical education almost identically (p = .45). The MANOVA also revealed statistically significant differences among grades. As indicated in Figure 1, the students' expectancy beliefs and task values decreased from the 6th

grade to the 8th. Table 3 reveals the dimensions with statistically significant differences between grades.

Canonical Correlation Analysis

The canonical correlation analysis confirmed that the decline of the expectancy-value measures was very similar between the U.S. and Chinese students. The two dimensions generated in the canonical correlation analysis represented age and both were statistically significant. The older students in both countries demonstrated decreased (negative correlation coefficients) expectancy beliefs and task values in comparison with their younger counterparts. The results described in Table 4 and 5 support the data reported in Figure 1 and Table 3.

DISCUSSION

The purpose of the study was to compare U.S. and Chinese middle school students' expectancy beliefs and task values in physical education. The results seem to suggest that nothing but being in a country, or a cultural environment, matters in terms of expectancy-value motivation. Yet, one value – intrinsic value – may possess a universal power of intrinsic motivation for middle school students in both countries. Also the results painted a similar picture of motivation declining with growth as found in other studies.

Expectancy Beliefs

First, we examined the hypothesis that the U.S. and Chinese middle school students were likely to differ in the expectancy-value dimensions due to different cultural value systems in general. The MANOVA result on the main effect suggests that the U.S. students expressed higher scores in expectancy beliefs. The finding is consistent and in support of the observation that U.S. students tend to display stronger beliefs for success (self-confidence) even in situations where they are performing poorly (Stevenson et al., 1990). In their study comparing children in the U.S. and China when studying mathematics, Stevenson and colleagues found that the American children liked mathematics because they thought learning math was easy, and indeed they were taught easy math. The Chinese children thought that math was difficult. The easy-in and easy-out in learning in the U.S., as the Stevenson et al. (1990) study showed, led more American children (75%) to believe that they were always "among the best" in comparison to only 50% of Chinese children who thought so.

The data from this study seem to show a similar pattern. However, the stronger expectancy for success in the U.S. middle school students should not be interpreted as over-confidence due to the lack of performance indicators measured in the study. The pattern, nevertheless, should not be overlooked. As previous studies show, children in the U.S. physical education classes are motivated (most likely by their perceived competence), but they learn little from the physical education experiences (Chen, Chen, & Zhu, 2012). Future investigation should examine to what extent the heightened expectancy beliefs for success will lead to

unquestionable learning achievement in physical education and to changing the sedentary lifestyle prevalent among American children and adolescents.

Task Values

The U.S. and Chinese children also differed on attainment and utility values (see Table 2, $p = .001$). In these value dimensions, the Chinese children responded with scores higher than those from the American children (see Table 1). In comparing American and Chinese children's beliefs in learning math, Taso (2004) found that Chinese (in Taiwan) children held a stronger utility belief for learning math than did their American counterparts regardless how limited the usefulness was (e.g., only useful for doing well in other school work). Tsao (2004) attributed the higher performance of the Chinese (Taiwan) students in mathematics to the Chinese children's higher levels of value-based motivation. Our data indicate that the Chinese middle school students not only believed that learning in physical education was useful, but also thought that achieving learning goals in physical education was important. Thus, they gave higher scores as well to the attainment value than their American peers.

If the attainment and utility values are interpreted as motives for extrinsic motivation, intrinsic value represents motives for intrinsic motivation (Deci & Ryan, 1985). The analyzed data revealed no statistically significant difference between the U. S. and Chinese students in their responses to the intrinsic value measure. This finding suggests that the children in both countries can be motivated by the inherent enjoyment and interest derived from engaging in physical activities offered in physical education. In fact, this finding may be viewed as an extension of general findings from the U.S. – China comparative studies in schooling. For example, Wang and Gutherie (2004) found that 4th grade students from the U.S. (n = 187) and China (n = 197) were equally intrinsically motivated for reading when the reading tasks equally presented curiosity, demanded active involvement, and evoked a mental state of being challenged. Although the equality of the intrinsic motivation can be questioned given drastic cultural differences in light of other research findings (e.g., Lee, Ichikawa, & Stevenson, 1987), the findings from this study and others (e.g., Wang & Gutherie, 2004) seem to suggest a possibility that certain characteristics embedded in learning tasks may be perceived similarly by students in different cultures; in turn, these characteristics may elicit strong and encouraging intrinsic motivation for learning the content.

The above findings suggest that the Chinese middle school students are more likely than their American peers to recognize the usefulness of the content in physical education. Chinese students tend to view school work as the most important activity and indispensable to their personal lives (Li, 2003). Further, coupled with the higher mean score for the utility value, it seems that the age-old Confucian epistemology of a body-mind integrated view of learning (Yu, 1996) was manifested in the group of Chinese students. They held a stronger value than their U.S. peers toward physical education and viewed the content to be important and useful. According to Chen and Liu (2009), Chinese students often realize that the

knowledge and skills learned in physical education can help them re-energize after a long-day of study in classrooms and contribute to their overall health. This utility value of physical activity is likely to lead to a belief of importance of achievement in physical education classes, though they may not like the discomfort of sweating, physical exertion, or competitive nature of the content (Chen & Liu, 2009). On the other hand, the findings on the intrinsic value confirmed the universality of intrinsic motivation embedded in the enjoyment, curiosity, and optimal challenges learning tasks can offer (Chen & Darst, 2001; Wang & Gutherie, 2004). This finding is important in that it reveals the possibility of focusing on the intrinsic value of learning tasks to overcome potential motivational barriers caused by students' various cultural backgrounds.

Decline of Expectancy-Values

In both countries, the older students (those in higher grades) rated expectancy beliefs and task values lower than those in lower grades ($p < .01$). In Figure 1, one can observe the overall decline in all expectancy-value measures, suggesting a universal trend of children growing with weaker expectancy-value motivation in both countries. The results from the canonical correlation analysis also support this observation. The canonical coefficients reported in Table 5 clearly show a strong negative relationship between all expectancy-value measures with age as highlighted for the data from the respective countries.

The findings support the observations widely reported (e.g., Jacob et al., 2002) that expectancy-value motivation fluctuates across grade/age with a primarily downward direction. Jacob et al. (2002) reported that both expectancy beliefs and task values decline steadily from elementary to high school. In the domain of physical competence the decline is characterized by a curvilinear pattern with acceleration occurring during the middle school years (grade 6 -9, Jacobs et al., 2002). Cross-sectional data obtained in physical education suggested a similar decline (Xiang et al., 2003). The similarity of decline observed in the findings from this study suggests a possibility that the decline may be universal and independent from cultural influences.

Model Invariance Issue

An interesting finding of CFA multi-group analysis suggests that students' responses to the third indicator of expectancy beliefs were different across countries. Specifically, the item was stated: "Some kids are better in one subject than in another. For example, you might be better in math than in reading. Compared to most of your other school subjects, how are you doing in PE?" Preliminary analysis showed that the U.S. students were significantly more likely than their Chinese peers to report that they were doing better in PE than in other school subjects. This might be due to the different assessment systems in the two countries. Particularly, physical education is a high-stake tested academic subject matter in K-12 education in China. School students are required to take fitness and skill tests. Scores are recorded in their report cards that are considered along with other test scores during application for awards or admission to the next higher level of

schooling desired by the students. In the U.S., physical education is institutionalized in most schools (NASPE, 2010) but has been considered as a non-academic subject in school curriculum. Written knowledge test, skill test, and fitness test are included in most PE teachers' assessment plan. However, students' attendance, dress for class, participation, effort, improvement, and attitudes and behaviors have been the major components in PE grading system (Lund & Kirk, 2010). Different assessment systems might provide students with different comparative criterion and thus lead to different responses to the question. Although this item was deleted in the analysis of MANOVA, students' various responses to it seem to support our notion that being in a particular country, or a cultural environment, matters in terms of expectancy-value motivation.

CONCLUSION

Culturally distinct beliefs about education and educational values between West and East have been documented in many studies. For example, Salili (1996) found higher achievement motivation in Chinese students than in British students and concluded that the gap was due to higher social values that Chinese culture and society placed on education. The findings from this descriptive study, however, did raise a question about culturally relevant motivation toward learning. Born and being brought up in the two countries did seem to override the uniqueness of growing-up experiences in that the value of importance and usefulness of education is likely to be recognized in different ways. The findings, however, also point to the universality of the intrinsic value. As a driving force for the intrinsic motivation (Deci & Ryan, 1985), the intrinsic value is appreciated by the students in both countries signifying its potential to override cultural influences on learner motivation. This study confirms that the expectancy-value motivation declines as children grow older or experience more schooling regardless of the culture they are in. These findings clarify for us the cultural influence or non-cultural influence on the expectancy-value motivation in middle school students. They inform us about the potential to develop intrinsic-value based cross-cultural motivation strategies as well as the cultural sensitivity of applying motivation strategies focusing on expectancy of success, attainment value, and utility value.

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Table 1

Expectancy-Value Measure Statistics between U.S. and Chinese Middle School Students (Unit of Analysis: Class)

	U.S. (n = 38)		CHN (n = 24)	
	M/SD	α	M/SD	α
Expectancy Beliefs	4.09 / .18	.83	3.52 / .29	.86
Attainment Value	3.66 / .37	.65	4.06 / .26	.68
Intrinsic Value	4.07 / .40	.89	3.99 / .42	.82
Utility Value	3.80 / .37	.82	3.97 / .43	.77

Table 2

MANOVA Results

Source/ Variable	*SS*	*df*	*MS*	*F*	*P*	$\eta 2$
Corrected Model						
Expectancy Beliefs	5.11	5	1.02	20.71	.00	.64
Attainment Value	4.16	5	.83	9.53	.00	.46
Utility Value	2.69	5	.53	4.13	.00	.27
Intrinsic Value	2.90	5	.58	4.49	.00	.28
Intercept						
Expectancy Beliefs	850.43	1	850.43	17230.83	.00	.997
Attainment Value	877.08	1	877.08	10030.53	.00	.994
Utility Value	887.14	1	887.14	6802.26	.00	.992
Intrinsic Value	952.41	1	952.41	7374.11	.00	.992
Country						

Expectancy Beliefs	4.60	1	4.60	93.27	.00	.625
Attainment Value	2.39	1	2.39	27.40	.00	.329
Utility Value	2.21	1	2.21	26.43	.00	.358
Intrinsic Value	.07	1	.07	.57	.45	.010
Grade						
Expectancy Beliefs	.40	2	.20	4.05	.02	.126
Attainment Value	1.66	2	.83	9.51	.00	.254
Utility Value	2.18	2	1.09	8.39	.00	.231
Intrinsic Value	2.53	2	1.26	9.82	.00	.260
Country * Grade						
Expectancy Beliefs	.12	2	.06	1.23	.29	.042
Attainment Value	.03	2	.01	.20	.81	.007
Utility Value	.01	2	.01	.01	.99	.000
Intrinsic Value	.05	2	.02	.20	.81	.007
Error						
Expectancy Beliefs	2.76	56	.04			
Attainment Value	4.89	56	.08			
Utility Value	7.30	56	.13			
Intrinsic Value	7.23	56	.12			

Table 3

Differences in Expectancy Beliefs and Task Values by Grade

						95% Conf. Interval	
	Grade (I)	Grade (J)	I-J	Std. Error	Sig.	Lower	Upper
Expectancy Beliefs	6th Grade	7th Grade	.08	.06	.47	-.08	.24
		8th Grade	.19*	.06	.01	.02	.36
	7th Grade	8th Grade	.11	.06	.23	-.05	.28
Attainment Value	6th Grade	7th Grade	.24*	.09	.02	.02	.46
		8th Grade	.40*	.09	.00	.18	.63
	7th Grade	8th Grade	.16	.09	.18	-.05	.38
Utility Value	6th Grade	7th Grade	.20	.11	.15	-.06	.47
		8th Grade	.46*	.11	.00	.19	.73
	7th Grade	8th Grade	.25	.11	.06	-.01	.53
Intrinsic Value	6th Grade	7th Grade	.31*	.11	.01	.04	.58
		8th Grade	.51*	.11	.00	.24	.78
	7th Grade	8th Grade	.20	.11	.18	-.06	.47

Table 4

Test Results for Canonical Multivariate Test

Dimensions	Canonical r	*F*	*df1*	*df2*	*p*
1-2	.43	13.99	16	1,562.00	.001
2-2	.26	7.79	7	782.00	.001

Table 5

Canonical Coefficients between the Dimensions and Expectancy-Value

	Dimension 1	**Dimension 2**
U.S. Expectancy Beliefs	**-.21**	**-.12**
U.S. Attainment Value	**-.19**	**-.59**
U.S. Intrinsic Value	**-.37**	**-.75**
U.S. Utility Value	**-.30**	**-.64**
CHN Expectancy Beliefs	**-.58**	**.21**
CHN Attainment Value	**-.59**	**-.09**
CHN Intrinsic Value	**-.92**	**.26**
CHN Utility Value	**-.61**	**.02**

Figure 1. Expectancy-value decrease by grade in both countries