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CULTURE AND THE EXPERIENCE OF INTERDEPENDENCE

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CULTURE AND THE EXPERIENCE OF INTERDEPENDENCE

By

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ABSTRACT

CULTURE AND THE EXPERIENCE OF INTERDEPENDENCE

By

Ileana P. Rodríguez-Maldonado

This is a cross-cultural study of values and interdependence. The two cultures studied were the United States and Puerto Rico. A preliminary comparative study of values showed that Puerto Ricans value conformity more than Americans, while Americans value achievement more than Puerto Ricans. Based on the preliminary study, an experiment was designed to re-assess the cultural values, expose participants to different levels of interdependence, measure their attitudes about interdependence, and measure their performance in an interdependent task, with the expectation of relating values, attitudes and behaviors in a theoretical model consistent with Social Adaptation Theory. The results showed that the better predictor of interdependence attitudes was the level of situational interdependence. Culture was also found to influence the interdependence attitudes.

To Raúl.
To *la familia*.
To Borinquen.

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PREFACE

Culture has been the focus of my learning and research for some years now, but I must confess that in my early graduate student days this was the last thing I wanted to do. My studies were not to be determined by my ethnicity or my gender, but by my intellect, as if these could be separated. I wanted to study the social aspects of human nature. I would envision a face-less, color-less, gender-less social animal that lived inside all of us, and that's who I wanted to study. However, real life got in the way. Not only were those around me expecting a natural inclination toward the study of culture (read: Pygmalion Effect), but everyday life in a host culture different from my native culture was the source of constant reminders that we all are really not the same. The more I realized the layers created by our socialization, the harder it was for me to get to the generic social animal.

This dissertation is part of my reconciliation with the richness and boundaries we acquire through our culture. While I value and practice the ideals of the objective study of human behavior, I have also grown to appreciate the biases that culture ingrains in our being, even as researchers. I wish to continue the study of culture and embark in a search for ways in which ethnicity may be cherished as the source of useful and advantageous biases. Diversity is good.

Ileana P. Rodríguez-Maldonado

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LIST OF ABBREVIATIONS

UPR University of Puerto Rico at Mayaguez

MSU Michigan State University

US United States

PR Puerto Rico

Rwg Interrater Reliability Index (Interrater Agreement Index)

INTRODUCTION

Culture is the broadest of social frameworks to shape our thoughts, feelings, and behaviors. Culture is also a tool of adaptation. Through symbols and materials members learn to be effective within their physical and social context. A wealth of research has explored the worldwide diversity of symbols and materials that serve humans in their adaptation to their environment. However, in the dawn of the 21st century the world is rapidly changing in ways that make the study of culture increasingly relevant. What used to be curious explorations of foreign ways of life have become manuals for intercultural communication, facts that may help in understanding the fellow co-worker, as well as our neighbor. Increased ethnic diversity in societies, technological advances that facilitate worldwide communications, and the globalization of economies, are all movements that have increased the significance of culture as a social variable. A contemporary social and personality psychologist may not only be puzzled by cultural differences in perception of interpersonal space and social graces, but should also be interested in all the influences that the cultural background may have on the thoughts, feelings and behaviors of an individual.

This dissertation was designed as a contribution to the better understanding of culture as a social variable in collective behavior. This is a study of the role of Puerto Rican and American cultural values on the attitudes and behaviors of individuals in an

interdependent situation. As an observer participant, a native of Puerto Rico living in the American Midwest, I have gained some insights into the relevance of culture on a variety of social behaviors. Just like personality variables, such as “social skills” affect the behavior of an individual in a group, I have informally observed different ways in which the cultural background of individuals seem to influence behavior in collectives. At the more focused level, this study sought to better understand the influence of cultural values on attitudes and individual performance when in a situation of reward or outcome interdependence.

In a 1977 review of cross-cultural small group research, Shuter summarizes that group processes are significantly influenced by cultural values. In the same paper, Shuter proposes a theory which maintains that each small group variable is affected by values within the culture. A lot of research has been done on the topic of outcome or reward interdependence (eg. Weinstein & Holzback, 1973; Rosembaum, 1978; Fandt, Cady, & Sparks, 1993) but this work has yet to be applied at a cross-cultural level.

A preliminary comparative study of cultural values was done in the United States (Michigan) and in Puerto Rico. The preliminary study was done to outline the core values held by individuals in these two cultures. Based on the findings on the preliminary investigation, specific predictions were made for each culture regarding the impact of the differential preference of relevant cultural values on the attitudes and the behavior in a situation of reward interdependence. These predictions were tested in a cross-cultural experiment in which the values, attitudes and behaviors of individuals in the United States and in Puerto Rico were measured in the context of a simulated group in which participants were exposed to different levels of outcome/reward interdependence.

This dissertation includes a report on the preliminary study which is a comparative study of cultural values in Puerto Rico and the United States, and a report on the cross-cultural laboratory experiment which explored the relationship between culture and the experience of interdependence.

Chapter 1

THE PRELIMINARY STUDY: THE CONTENT AND STRUCTURE OF VALUES IN THE UNITED STATES AND PUERTO RICO

Introduction

"Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may on the one hand, be considered as products of action, on the other as conditioning elements of further action" (Kroeber & Kluckhohn, 1952, p. 357). For any collective that claims a culture, there is a shared bank of knowledge, preferences and expectations that offer a framework in which psychological phenomena are experienced and expressed. The existence of social systems depends on the predictability of social behavior, and this is only possible through these shared content structures (Hofstede, 1980).

Out of the variety of information shared by culture members, values are considered essential in the organization of the culture (Kroeber & Kluckhohn, 1952). Values are mental structures that develop early in the life of the individual. Thus, they

are expected to be deeply internalized as abstract preferences, whereas other culturally influenced knowledge structures, such as attitudes and beliefs, are more vulnerable to the experiences of the individual (Rokeach, 1968). In terms of social adaptation theory (Piaget, 1929), values are the most abstract of social cognitions and they reflect the most basic characteristics of adaptation (Kahle, 1983; Kahle, Kulka, & Klingel, 1980; Piner & Kahle, 1984).

The anthropological definition of values states that they are conceptions of *the desirable* which influence the selection from available modes, means, and ends of actions (Kluckhohn, 1951; italics added for emphasis). More broadly defined, values are tendencies to prefer certain states of affairs over others (Hofstede, 1980). Theorists from a variety of social sciences have adopted this view of values as criteria that individuals use to select and justify actions and to evaluate people (including the self) and events (e.g. Schwartz, 1992; Rokeach, 1973; Williams, 1968; Kluckhohn, 1951). The definition of values compiled by Schwartz & Bilsky (1987, 1990) will be adopted because these researchers developed a clear and concise definition that incorporates all the elements recurrently mentioned by other researchers. Values (1) are beliefs, that (2) pertain to desirable end states or behaviors, (3) transcend specific situations, (4) guide selection or evaluation of behavior and events, and (5) are ordered by relative importance.

The specific contents of value structures have been of interest to social scientists for a very long time, and the research in this area has come a long way. From intuitive listing of possible preferences (e.g., Rokeach, 1973) to the detailed cross-cultural analysis of factors resulting from sound statistical procedures (Schwartz, 1992; Schwartz & Bilsky, 1987, 1990; Hofstede, 1980), the study of the content of values has evolved into a

number of universally shared values. The most comprehensive work to date in the study of the content of values is presented by Schwartz (1992) who studied the content of values across 20 countries.

A good work on (1) the content of the values, (2) the comprehensiveness of the values listed, (3) the equivalence of meaning of values across groups, and (4) the structure of such values, was done by Schwartz and Bilsky (1987, 1990). After revisions and cross-cultural replications, Schwartz (1992) presented a model that outlines ten (10) motivational domains that represent the goals and motivations expressed by the variety of values. According to this theory, values represent goals and motivations. The 10 motivational domains are: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism. Evidence for yet another motivational dimension representing values of spirituality has emerged in some studies but not in others, therefore this dimension was not be addressed in this study.

These goals or motivational domains may also be organized in terms of the interests they serve. Schwartz (1992) suggests that values may serve the interests of the individual, of a collective, or the interests may be mixed. Figure 1 presents the theoretical structure of relations among motivational types of values as proposed by Schwartz (1992).

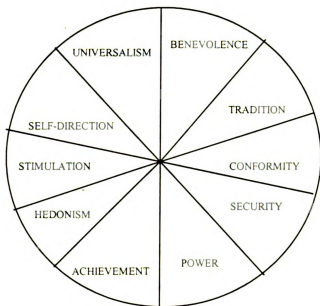


Figure 1: Theoretical Structure of Values

Extensive cross-cultural research has uncovered the dimension of individualism v. collectivism as a strong theoretical construct along which cultures around the world vary (e.g. Triandis, 1989; Triandis, McCusker, & Hui, 1990). The theoretical and practical implications of the individualism-collectivism dimension (Luke, 1973) have been studied in a variety of social sciences. Some of the issues that have been studied in relation to these constructs are social systems (e.g., Parsons & Shils, 1951), morality (Shweder, 1982), religion (Bakan, 1966), cognitive differentiation (Witkin & Berry, 1975), economic development (Adelman & Morris, 1967), modernity (Inkeles & Calegari, 1979), and cultural patterns (Hsu, 1983).

In order to integrate the cross-cultural literature on individualism and collectivism with the more specific interest in the study of values, individualism and collectivism will be defined in terms of the motivational types and values that serve their particular

interests. Based on this classification, a discussion of the particular motivational dimensions is presented.

According to Schwartz (1992), the motivational domains that serve individualistic values are self-direction, stimulation, hedonism, achievement, and power. **Self-direction** is a type defined by the goals of independent thought and action, and is characterized by the valuing of creativity, freedom, choosing own goals, curiosity, and independence.

Stimulation represents goals of excitement, novelty, and challenge in life. Values representing this motivational type are varied life, exciting life, and daring. **Hedonism**, a motivational type characterized by the goals of pleasure and sensuous gratification for oneself, represents the values of happiness, cheerfulness, and enjoyment of life.

Achievement is a motivational type defined by goals of personal success according to social and cultural standards, and competence in performance. Values characteristic of the achievement motivational type are ambition, success, capable, and influential. The last of the individualistic motivational domains is **power**, a type defined by goals of the attainment of social status and prestige, and the control over people and resources. These personal values share individualistic goals, and acting on these values leads to the enhancement of the individual. Theoretically, out of these five individualistic motivations, the values of self-direction and achievement seem to be particularly relevant to attitudes and behaviors in work groups. Since, both self-direction and achievement focus on individual success, individuals high on these motivations may find it relatively difficult to work effectively in interdependent groups.

Other motivational types are related by the shared interest in serving the goals of collectives. These dimensions are benevolence, tradition, and conformity. **Benevolence**

is defined by the goals of preservation, and the enhancement of welfare of the people with whom one is in frequent contact. Values characteristic of this dimension are: helpfulness, loyalty, forgiveness, honesty, responsibility, true friendship, and mature love. The motivational goal of **tradition** includes goals of respect, commitment, and the acceptance of the customs and ideas imposed by the culture and religion on the individual. The tradition dimension is represented by the values of respect for tradition, humbleness, devotion, accepting own's portion of life, and moderation. And finally, **conformity**, a motivational type that has as a goal the restraint of actions, inclinations and impulses likely to upset others. Values in this dimension are: obedience, self-discipline, politeness, and the honoring of parents and elders. Out of the collectivistic values, conformity seems to be the most relevant to attitudes and behaviors in work group, since it makes reference to attitudes and actions when in the presence of others. Individuals that present a strong conformity motivation may feel relatively more comfortable working in an interdependent group task.

Finally, the two dimensions proposed by Schwartz (1992) to involve both individualistic and collectivistic interests are universalism and security. **Universalism** is a motivational type that gathers the goals of understanding, appreciation, tolerance, and the protection for the welfare of all people and for nature. **Security** is defined by goals of safety, harmony, and the stability of society, relationships and the self. Values representing this dimension are social order, family security, national security, reciprocation of favors, clean, sense of belonging, and health.

Throughout the cross-cultural literature, the United States is a stable example of a nation with a relatively individualistic culture (e.g. Triandis, H. C., 1989). On the other

hand, Puerto Rico has a Latin culture and most Latin cultures have been found to be oriented towards collectivism (Hofstede, 1980). A cross-cultural study that included Puerto Rico found that Puerto Ricans hold many collectivistic cultural elements, with certain individualistic tendencies that distance this culture from stronger collectivistic cultures such as the Japanese (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). The distance of Puerto Ricans from core collectivistic values found in a study by Triandis and colleagues (1988) were attributed by Lucca, the Puerto Rican researcher, as affected by the use of a university students sample and possible methodological confounds.

According to Lucca's subjective judgment, Puerto Rican students are on the individualistic side of the neutral point on the individualism-collectivism dimension. Because Lucca considered that some of the findings pertaining to the Puerto Rican sample did not fit her expectations of cultural patterns, the researchers suggested that maybe the items in the questionnaire considered behaviors that are not culturally proscribed or prescribed in Puerto Rico. For example, while the Puerto Rican sample reported not to be concerned with what others say about them, Lucca considered that the opinions of others about one's behavior are very important in the overall Puerto Rican culture. Thus, the question of value patterns and the interests that they serve in the Puerto Rican society remained open. The purpose of this preliminary study was to carefully explore the cultural differences in values.

Hypotheses

This study investigated the value priorities of the individuals in the United States and in Puerto Rico evaluating the importance that individuals in each culture give to

individualistic and collectivistic values. In this study of value systems of the United States and Puerto Rico, the Americans were expected to show a more individualistic value pattern, in which the motivational dimensions of values of self-direction, stimulation, hedonism, achievement and power would be rated as relatively more important for the individuals, whereas the motivational dimensions of benevolence, tradition and conformity would be rated as relatively less important for the individuals. For the Puerto Rican society a more collectivistic pattern was expected. The motivational domains of benevolence, tradition, and conformity were expected to be rated as relatively highly important for individuals, whereas the motivations of self-direction, stimulation, hedonism, achievement, and power were expected to be rated as less important for individuals. The motivational types of values of universalism and security were expected to be present with equal strength in both nations.

The presence of such patterns of value priorities would support an overall characterization of the American culture as individualistic and the Puerto Rican culture as collectivistic.

According to these hypotheses, the culture of the individuals would lead to a specific rank order of value priorities representative of the culture. The level of measurement was the individual, therefore within each society the importance attributed to particular values was expected to vary at the individual level.

Method

Samples: One hundred (100) students (29 males; 71 females) from the University of Puerto Rico at Mayagüez (UPR) and one hundred (100) students (31 males; 68 females)

from Michigan State University (MSU) were the participants in this study. All of the participants were undergraduate students enrolled in psychology courses at these universities. The ages of the Puerto Rican participants ranged from 18 to 55 ($M=21$) and that of the Americans ranged from 18 to 46 ($M=22$).

Materials: The presence of motivational dimension in each culture was measured with the Value Survey Instrument developed by Schwartz (1992). This questionnaire has a list of the values that represent the different motivational dimensions and asks the participants to rate each one of these values in terms of their personal importance. The values listed are the same ones that were presented throughout the introduction as representative of each of the motivational dimensions. The motivational dimensions are represented in the list by three (3) to seven (7) values. The Value Survey Instrument (Schwartz, 1992) is presented in Appendix A₁. Appendix A₂ presents the translation to Spanish of this instrument, which was developed for the study of Schwartz (1992) across 20 countries. The Value Survey Instrument had participants rate 56 values in a -1 to 7 likert scale. The question that the survey asked about each value was the following: "As a guiding principle in my life, this value is: (-1) opposed to my values, (0) not important, (3) important, (6) very important, (7) of supreme importance".

Procedure: The data on the surveys was collected from psychology classes at MSU and UPR during the Summer 1994 semester. The participants were approached during one of the meetings of their psychology class and were asked to volunteer their time and information. The questionnaire generally took from 10 to 15 minutes to complete. After they completed the questionnaire the participants received debriefing information,

including the predictions of this cross-cultural study (see Appendix B₁ for debriefing information in English and Appendix B₂ for debriefing information in Spanish).

Results

The main hypothesis in this study predicted that there would be relative value priorities according to the nation of origin of the participants. Previous to examining this hypothesis the internal consistency of the cross-cultural motivational dimensions outlined by Schwartz (1992) was studied. Coefficients were computed for the index of each value type in both samples. The reliabilities for the motivational dimensions were the following: self-direction, $M=.61$, range .53 [PR] to .69 [US]; stimulation, $M=.72$, range .77 [PR] to .68 [US]; hedonism, $M=.70$, range .71 [PR] to .69 [US]; achievement, $M=.62$, range .58 [PR] to .67 [US]; power, $M=.74$, range .72 [PR] to .76 [US]; security, $M=.62$, range .53 [PR] to .72 [US]; conformity, $M=.68$, range .68 [PR] to .69 [US]; benevolence, $M=.75$, range .76 [PR] to .59 [US]; universalism, $M=.75$, range .72 [PR] to .79 [US] and; tradition ($M=.49$, range .33 [PR] to .64 [US]). The low reliabilities may be attributed to the small number of items in each index (from 3 to 7 items), but they are consistent with the reliabilities previously found by Schwartz, Sagiv, and Antonovsky (1991), in a study across four cultures, in which the measures of reliability of the indexes fell into the range of .49 to .79. The tradition index was also the lowest in reliability in this study done by Schwartz and his colleagues (1991).

Reliabilities for the clusters of motivational dimensions labeled in the introduction as individualistic values and collectivistic values were also calculated. Both indexes showed high reliabilities. For the individualistic values (i.e. self-direction, stimulation,

hedonism, achievement, and power) the mean alpha was of .81 with a range of .80 [PR] to .82 [US]. For the collectivistic values (i.e. benevolence, conformity and tradition) the mean alpha was of .77 with a range of .76 [PR] to .78 [US].

Within-Culture Differences

In the American sample, the values were ranked (1 to 7 scale) in the following descending order: benevolence (M=5.18), achievement (M=4.95), self-direction (M=4.94), hedonism (M=4.88), security (M=4.48), conformity (M=4.41), universalism (M=4.34), stimulation (M=3.90), tradition (M=3.13), power (M=2.84). For the Puerto Rican sample the ratings were the following: benevolence (M=5.46), conformity (M=5.32), self-direction (M=5.24), universalism (M=5.20), achievement (M=5.03), security (M=4.74), stimulation (M=4.27), tradition (M=4.22), hedonism (M=3.84), power (M=3.21).

Between-Cultures Differences

In order to make valid cross-cultural comparisons of the value survey scores, the possibility of cultural variations in response bias needs to be taken in consideration (e.g., Zax & Takahashi, 1967). Regarding the use of rating scales, Hispanic samples have been found to give less extreme responses than Mediterranean participants (Hui & Triandis, 1989) but more extreme responses than non-Hispanic white Americans (Marin, Gamba, & Marin, 1992). Also similar to Asians, Hispanics tend to give cautious responses (Hui & Triandis, 1989). Interesting is that in the study comparing Hispanics versus non-Hispanics white Americans (Marin et al., 1992), the extreme responses practiced by the Hispanic diminished as they became more acculturated into mainstream American society. Based on this particular finding it could be argued that even within the cultural

and ethnic diversity present in the United States, we may still find a response bias shared by most Americans. More specifically relevant to the present study, when comparing the response style of Japanese, Americans (from Illinois), and Puerto Ricans, Triandis and his colleagues (1988) found that the Japanese tended to use the middle of the scale while the Americans and the Puerto Ricans were more likely to use the whole scale, when responding to a questionnaire that measured allocentric tendencies. Contrasting to the finding by Triandis and colleagues (1988) we found differences in the use of the value rating scale between the Puerto Ricans and the Americans.

The ratings that the individuals gave to the different motivational dimensions were averaged to calculate a mean rating across all values for each participant. These individual, cross-dimensions mean ratings were aggregated to the culture level and compared by a t-test. This analysis showed that Puerto Ricans tended overall to rate values significantly higher ($M=4.66$) than did the Americans ($M=4.31$) ($t(191)=-3.29$, $p<.001$). The average rating of the Puerto Ricans ranged from 3.04 to 6.02, with a standard deviation of .71, while the average rating of American participants ranged from 2.51 to 6.21, with a standard deviation of .75. Overall the ratings made by the American participants were more spread across the scale, while those made by the Puerto Ricans tended to be higher in the scale and showed less variance. Because of these cross-cultural differences in the approach to the values rating scale, the mean differences on the ratings of the motivational dimensions would be expected to be biased. In order to study the relative preference of values across, two different statistical analyses will be presented. First, a study of standardized scores of the ratings created at the individual level and second, a study of the rankings of the motivational dimensions at the individual level.

The use of standard scores for the comparison of value ratings between cultures is particularly useful in this case when we have found cultural differences in the overall average rating. Taking into account the distribution of value ratings at the individual level, standard scores were calculated, making each participant's mean rating equal to zero and observing how their rating of each of the motivational dimensions deviated from their mean. Standard scores were calculated for each of the motivational dimensions for each of the participants and between cultures t-tests were then performed for each of the dimensions. There were not statistical differences between nations on the z-scores of the ratings of the motivational dimensions of **self-direction** ($t(190)=1.22, p<.23$), **stimulation** ($t(192)=-.65, p<.51$), power ($t(182)=-1.04, p<.3$), **security** ($t(188)=.88, p<.4$), and **benevolence** ($t(191)=1.42, p<.16$). The standardized ratings of the motivational dimensions of hedonism and achievement were significantly higher for the Americans than for the Puerto Ricans. The mean standardized rating of the motivation for **hedonism** for the Americans was .12 while for the Puerto Ricans it was -.17 ($t(181)=7.55, p<.001$). For the **achievement** motivation the mean in the United States was .14, while in Puerto Rico it was .08 ($t(190)=3.34, p<.001$). Opposite patterns were found for the standardized ratings of the motivational dimensions of conformity, tradition, and universalism. **Conformity** was rated significantly higher in Puerto Rico ($M=.14$) than in the United States ($M=.03$) ($t(189)=-4.35, p<.001$). For the **tradition** motivation the mean standardized rating in Puerto Rico was -.09 and in the United States it was -.26 ($t(178)=-5.86, p<.001$). Finally, the **universalism** motivation was also higher in Puerto Rico ($M=.11$) than in the United States ($M=.01$) ($t(179)=-4.38, p<.001$).

The second analysis performed to study the differences in preferences of motivational dimensions between the United States and Puerto Rico was a study of the rankings of these dimensions at the individual level. Scores for the motivational dimensions were calculated by averaging the ratings given to the values theoretically representative of each of them. Based on these raw means these motivational dimensions were ranked at the individual level. A ranking value from 1 to 10 was assigned to each motivational dimensions for each subject. The higher the number the higher the importance of that motivational dimension for the subject. If any two or more motivational dimensions were tied in their rankings, the corresponding positions were averaged and the corresponding motivations assigned the same value. For example, if two motivational dimensions were ranked as the fifth most important values, they would both be assigned the average between positions 5 and 6 in the ranking, a ranking of 5.5. T-tests for each motivational dimension were performed to compare their ranking position across cultures. The same pattern uncovered by the study of the standardized ratings was found in this analysis. No statistical differences in the rankings by Americans and Puerto Ricans were found for the motivational dimensions of self-direction ($t(193)=.7, p<.49$), stimulation ($t(197)=-.81, p<.42$), power ($t(198)=-.11, p<.91$), security ($t(193)=1.49, p<.14$), and benevolence ($t(193)=.92, p<.36$). The rankings of the motivational dimensions of hedonism and achievement were significantly higher in the American sample than in the Puerto Rican sample. The mean ranking of the hedonism dimension by the Americans was 7.15 while the mean ranking of the Puerto Ricans was 3.81 ($t(195)=7.94, p<.001$). For the achievement dimension, the American mean ranking was 7.29 and the Puerto Rican mean ranking was 6.26 ($t(186)=3.58, p<.001$). On the

other hand, the motivational dimensions of conformity, tradition, and universalism were ranked higher by the Puerto Ricans than by the Americans. For the conformity dimension the mean ranking of the Puerto Ricans was 7.27 and the mean ranking of the Americans was 5.51 ($t(197)=-5.16, p<.001$). The mean rankings for the tradition dimension were 4.13 by the Puerto Ricans and 2.56 by the Americans ($t(187)=-5.44, p<.001$). Finally, the mean ranking for the universalism dimension by the Puerto Ricans was 6.83 and by the Americans it was 5.13 ($t(192)=-5.52, p<.001$).

An individualism-collectivism index was created with the standardized ratings based on the interests served (i.e. individual vs collective) by the values. The scale was created by giving each of the theoretically individualistic motivational dimensions of self-direction, stimulation, hedonism, achievement, and power a weight of -1, and a weight of +1 to each of the collectivistic dimensions of conformity, tradition, and benevolence. The motivational dimensions of security and universalism were not included because theoretically they are expected to be found with equal strength in collectivistic and in individualistic cultures. A t-test of this individualism-collectivism index between nations showed a statistically significant tendency for Puerto Ricans to be more collectivistic ($M=.57$) than the Americans ($M=-.02$) ($t(192)=-4.79, p<.001$).

Focus on achievement, conformity, and self-direction

As stated in the introduction, the motivational dimensions of interest are self-direction, achievement, and conformity, because of their theoretical relevance to behaviors in work groups and more specifically to individuals in a situation of reward interdependence. As noted earlier on the cross-cultural simple comparisons, for the motivational dimension of self-direction, there was no difference on the standardized

ratings between the Americans. On the other hand, the analysis of the standardized ratings of the motivational dimensions of conformity and achievement did present cross-cultural differences. The first option as statistical method to explore the cross-cultural patterns of value preferences was a Repeated Measures ANOVA, which permits a direct test of different profiles of values across . This type of analysis requires homogeneity of covariance across the groups, basically all pairs of levels of the within-subjects variable need to have equivalent correlation. SPSS offers the option of calculating the Box's M which tests the equality of covariance matrices. For this set of data the Box's M was 6.17, and $F(3, 6635520)=2.03$, $p<.107$. The dependent variable's covariances were the same across the groups, therefore the Repeated-Measures ANOVA was an appropriate statistical tool to use. Because there are only two levels of the repeated measures variable, Sphericity and Compound Symmetry are assumed. A 2(culture) x 2 (values: conformity, achievement) Repeated-Measures ANOVA was performed. There was no main effect for culture ($F(1, 192)=2.17$, $p<.14$). There was a marginal main effect for the value dimensions ($F(1, 192)=3.14$, $p<.08$). However, there was a significant interaction between culture and values ($F(1, 192)=25$, $p<.0001$). Table 1 presents the comparisons corresponding to this interaction. See Figure 2 for a graphical representation of this interaction.

Table 1: Comparisons of Values Between and Within Cultures in the Preliminary Study
[* p<.05, ** p<.01]

	US Achievement	US Conformity	PR Achievement	PR Conformity
US Achievement	0	-5.45**	-4.42**	-4643
US Conformity		0	.9196	4.91**
PR Achievement			0	3.91**
PR Conformity				0

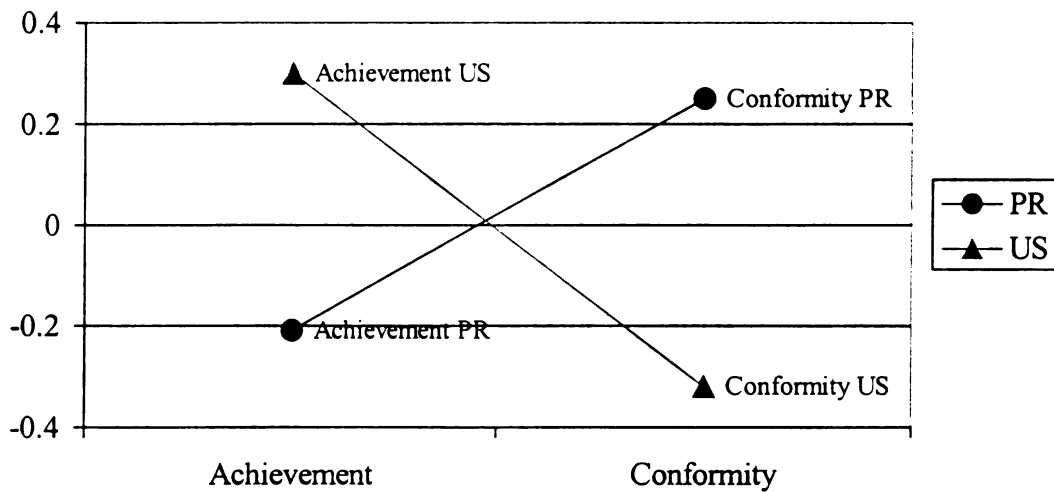


Figure 2: Culture x Values Interaction in the Preliminary Study

These analyses show a crossover on the preference of the values of achievement and conformity in these two cultures, with a barely marginal higher preference of the value of achievement across cultures ($t(193)=1.67, p<.1$). The mean for achievement across cultures was .11, while the mean for conformity was .08. As expected, there was a relative higher preference of achievement in the US than in PR, and a relative higher preference of conformity in PR than in the US.

Discussion

The main hypothesis proposed in this preliminary study was supported by the findings. Overall the American sample evidenced a relative preference for individualistic values over collectivistic values, or, equivalently, the Puerto Rican sample showed a tendency to prefer collectivistic values over individualistic values. The specific motivational dimensions of achievement, self-direction, and conformity, which were theoretically expected to be relevant to group tasks, showed interesting results. Unexpectedly, the individualistic values of self-direction seem to be strongly held by Puerto Ricans as much as by Americans. However, cultural differences were found regarding the preference of the motivational dimensions of achievement and conformity. The American sample showed evidence of a stronger preference for achievement values than the Puerto Rican sample. On the other hand, the Puerto Ricans valued conformity much more than did the Americans.

Self-direction, a motivational dimension that addresses the interest in creativity, independence, freedom, self-respect, curiosity, and the choosing of own goals, was found to be strong in both cultures. Theoretically, self-direction is a motivational dimension that could be expected to have an impact in work group situations, since issues such as independence, freedom and choosing of own goal may be limited in this setting. The finding that this motivational dimension is highly and equally valued by Americans and Puerto Ricans may suggest that working in a group can be in conflict with a value strongly held in both cultures. However, the high value placed on self-direction is shared in both cultures, and therefore no cross-cultural comparisons may be argued to emerge from this value preference. On the other hand, it may be argued that once in a group

differences in the other two motivations (i.e. achievement and conformity) may create differences in the attitudes and performance. The motivation for achievement, which was higher than conformity in the United States, involves the valuing of ambition, success, capability, influence, and intelligence. Interdependence in a group task may interfere with a strong motivation for personal achievement. Depending on others for success may be frustrating for the ambitious individual. A person that is strongly motivated for success may not be totally comfortable in a situation in which their success is not only dependent on their performance but is also contingent on the actions of others. On the other hand, conformity, which was higher than achievement in the Puerto Rican sample, is represented by values of obedience, sense of belonging, and politeness. These kinds of values may be more likely to lead to a comfortable experience in an interdependent group. Continued membership in the group is important to conformity motivated individuals, therefore interdependence is a situation they should favor and feel comfortable in. These possible links were studied in the following laboratory experiment.

In the presentation of the reliability results it was argued that the low reliabilities were consistent with previous studies with this same value survey. However, in order to use this value indexes in the context of other variables, as it was intended in the following cross-cultural experiment, the reliability of the indexes needed to improve. In order to improve the reliability of the indexes an possible extension of the indexes of conformity and achievement was tested in a pilot study. The following chapter presents the description and results of this pilot study.

Chapter 2

THE PILOT STUDY

Introduction

The purpose of this pilot study was to explore the possibility of adding new items to the Schwartz (1992) indexes of achievement and conformity in order to improve their reliability. The pilot survey included the original items used by Schwartz (1992), which were used in the preliminary study, and several potential parallel items, which were selected by searching for synonyms and antonyms to the old items. The survey also included items from the indexes of self-direction, security and power, which were included for masking purposes. Other potentially relevant items were also included. These latter items were: equity, equality, competition, cooperation, independence, interdependence, and dependence.

Method

Subjects:

The participants were students from DeVry Institute of Technology, DuPage Campus, Addison, IL. 80 students from Introduction to Psychology classes participated in this pilot study of the value survey. There were 62 males, 16 females. Two(2) students

did not identify their sex. The age of the participants ranged from 17 to 39, with a mean of 21.3. Another piece of demographic information that was collected was the ethnicity of the participants. Participants were offered a blank space to enter their ethnic background, and six groups emerged: African Americans (6), Hispanics (6), Caucasians (47), Asian (14), Philipinos (3), and Muslim (1). Three participants did not report their ethnic background.

Procedure:

This pilot study was proposed to and authorized by the Dean of Academics and the President of DeVry Institute of Technology, DuPage Campus. The students were asked to volunteer their participation and were not offered any compensation in exchange for their participation. Students were approached by their Psychology professor and asked to participate in the study.

Results

The pilot data was examined in several ways to determine which items to include in the experiment's revised survey. Also, once the experiment's data was collected, the pilot was used again as an extra sample to compare the performance of the items in the scales. In general, three types of explorations were done to revise the indexes.

1. Principal Components Factor Analyses, with Varimax Rotations were done with the pilot data and within cultures with the experiment's data. These analyses were used to explore the way the factors emerged and the items that loaded on the factors of interest.

2. Once the associated items were selected for each scale, the reliability of the indexes was tested. In the pilot data, the alpha reliability of the old achievement index was .74, while the revised and extended index had a reliability of .91. On the index of conformity, there is also an increase in the alpha reliability, from .74 to .86.
3. Finally, another feature desirable in the indexes was good within-culture agreement. The Interrater Reliability/Agreement Index (rwg) was also used as a way to select items. Considering that the variables of interest here were expected to represent cultural phenomena, the degree to which the members of the culture agree on the ratings of the index was considered an important feature for the value indexes. The way in which this index was used will be described in detail below.

A Principal Components Factor Analysis (PCA) with Varimax Rotations was performed. The PCA was limited to extract 7 factors. The extraction of 7 factors was based on the number of a priori value scales included (5) along with all the extra items.

An interesting aspect of this set of data is the diversity of the sample. While 59% of the participants were Caucasian, the rest of the participants came from very diverse backgrounds. Considering that these are culturally relevant factors, the ethnic diversity of the sample may have contributed to the way the factors emerged and more importantly how the items loaded in each factor. In any case, in the rotated component matrix, the two value indexes of interest did emerge as the two first factors. The first factor corresponded to the measure of achievement [Eigenvalue = 21.89], and the second factor corresponded to conformity [Eigenvalue = 5.76]. See Table 2 for a list of the old and new items and their loadings in these two factors. Old items appear in **bold**. Only the items relevant to achievement and conformity are listed.

Table 2: Factor Loadings of Old and New Items in the Pilot Study

<i>ITEMS</i>	<i>ACHIEVEMENT</i>	<i>CONFORMITY</i>
Ambitious	.784	.221
Successful	.791	.048
Capable*	.756	.186
Influential*	.231	.081
Aspirations	.75	.108
Accomplishing	.741	.181
Purposeful	.713	.345
Obedience*	.311	.482
Self-Discipline*	.584	.391
Politeness*	.444	.728
Honoring of Parents and Elders	.409	.609
Courtesy	.244	.612
Cooperation	.361	.612
Consideration	.256	.617
Adherence (to rules)	.279	.661
Observance (of rules)	.319	.400
Self-Restraint (in favor of others)	.123	.686
Sharing	.151	.727

*Items that belonged to the old indexes but were later dropped from the indexes used in the analyses of the experiment's data.

How did this factor analysis contribute to the selection of items used in the analyses of the experiment's data? [Reference was made to the similar FA's that were done within culture with the experiment's data. All samples, including the pilot sample, were taken in consideration in the final selection of the items that were included in the scales for further analyses. The preliminary FA's that were done within-cultures, with the experiment's surveys will not be presented here.] I will address this question by discussing the five items that were dropped.

CAPABLE. While this item clearly loaded very high on the achievement index in the pilot study (.756) it did not do so well in the American sample of the experiment, where this item loaded at .188 in the achievement index.

INFLUENTIAL. All of the items listed in this table above were included in the survey used in the experiment, with the exception of “influential”. Earlier, I made reference to the item “influential” which was included in the Schwartz (1992) dimension of achievement, and was tested in the preliminary study and in the pilot, but was dropped from the extended survey used in the analysis of the experimental data. This item was dropped based on the factor analysis of the pilot data. As you can see in the table above, the item “influential” loaded on the achievement factor at .231, while all the other achievement related items loaded at a .7 level or higher. Therefore, it was not included in the experiment’s survey. It is now realized that this was not a good idea, since including the item in the experiment’s survey would have been easy and it would have permitted a comparison between the full original Schwartz (1992) achievement index and the revised index used in the experiment. While this comparison cannot be done with the data from the experiment it can be done with the data of the pilot.

OBEDIENCE. This item had an acceptable loading in the index of conformity, at .482, but when you look at it’s loading on achievement, at .311, then it is not that clear how this item should be interpreted. The final decision was made with a look at the factor analyses of the PR and US data from the experiment (complete results not presented here). In the PR sample, obedience loaded on the conformity factor well, at .599, but in the US sample this item loaded on the conformity index at only .371. While it could still have been included it was decided to drop it from the scale. The item was included in the experiment’s survey.

SELF-DISCIPLINE. This item was expected to load higher in the conformity factor, but it loaded even more on the achievement factor (.584). This was enough to drop it from the conformity scale.

POLITENESS. While this item loaded very well on the conformity factor, as expected, the variance in the PR sample was extremely high, and since I ultimately used the Interrater Agreement Index (rwg) as a selection tool, this item was dropped. Below the reader will find a more detailed description of the way in which rwg was used as an item selection criteria.

Why was OBSERVANCE kept in the conformity scale? While in the pilot this item did not do so well, it did better in the experiment. In PR it loaded on the conformity factor at .601, and in the US at .555.

What is the Interrater Reliability Index (rwg) and how was it used?

A common misunderstanding with the Interrater Reliability Index proposed by James, Demaree, & Wolf (1984) is created by the name of the index. This is not a reliability index, but rather a within-group agreement index (Kozlowski & Hattrup, 1992). This index is a measure of the degree to which raters are “interchangeable”, or the degree to which judges agree on a set of judgements (James, et al., 1984, Shrout & Fleiss, 1979, Bartko, 1976). The idea behind using the agreement index was that, if culture shapes values then the value indexes should show good within culture agreement. These analyses were done by hand. It is relatively easy to include and exclude an item in these calculations to observe the effect on the agreement index. This is how a few items (from the set selected through the factor analysis) were finally selected for further analyses. The

items that were finally used in the analyses of achievement and conformity were the combination of items that resulted in the highest agreement index in both cultures.

The formula for the Interrater AGREEMENT index for a set of items ($rwg_{(j)}$) is:

$$R_{WG(j)} = \frac{J[1 - ((\text{Mean } s_{xj}^2) / \sigma_{EU}^2)]}{J[1 - ((\text{Mean } s_{xj}^2) / \sigma_{EU}^2)] + ((\text{Mean } s_{xj}^2) / \sigma_{EU}^2)}$$

Where:

- $R_{WG(j)}$ is the within-group interrater *agreement*
- J is the number of essentially parallel items
- $\text{Mean } s_{xj}^2$ is the mean of the observed variances on the J items
- σ_{EU}^2 is the expected variance if the judgements were due exclusively to random measurement error. This number is basically the variance of a completely rectangular or uniform distribution, and it is based on the number of alternatives in the response scale. A = number of alternatives in scale.

$$\sigma_{EU}^2 = (A^2 - 1)/12 \quad (\text{Mood, Graybill, \& Boes, 1974})$$

The σ_{EU}^2 for the indexes in the present study was:

How was the agreement index used to select items?

The main source of information for the items that were included in the final measures were the exploratory factor analyses discussed above. But the agreement index was also used to refine the measures. For example, the item “politeness” loaded highly in the factor consistent with conformity, across the three sets of data (i.e. DeVry, PR, US). But, when the item “politeness” was included in the rwg calculations the agreement in the Puerto Rican sample dropped dramatically, which was easy to explain with a look at the variance of “politeness” in Puerto Rico, 13.05! Because there was no agreement on the

importance of politeness in the Puerto Rican sample, this item was dropped from the index of conformity.

The revised index of conformity included the following items: honoring parents and elders (showing respect), cooperation (working with others for a common cause), sharing (giving what is yours to others), adherence (to rules and regulations), observance (of rules), self-restraint (in favor of others), courtesy (being nice to others, not being rude), and consideration (taking into account the feelings and thoughts of others). Politeness and self-discipline were old items that were eliminated. The revised items for achievement were: ambitious (hardworking), successful (aspiring), aspirations (having dreams and goals), accomplishing (reaching goals, completing tasks), and purposeful (having goals). For the purpose of easy comparison, Table 3 shows a list of the items in the preliminary survey next to the items in the value survey used in the experiment, for the two values of interest.

Table 3: Revised Value Indexes

ACHIEVEMENT		CONFORMITY	
<i>Preliminary Study Items</i>	<i>Experimental Study Items</i>	<i>Preliminary Study Items</i>	<i>Experimental Study Items</i>
Ambitious*	Ambitious	Honoring Parents and Elders	Honoring Parents and Elders
Successful	Successful	Politeness	Courtesy
Capable	Aspirations	Self-discipline	Cooperation
Influential	Purposeful		Observance
	Accomplishing		Sharing
			Self-restraint
			Consideration
			Adherence

*Items in **bold** are those that were used in both the preliminary study and the present study.

Items to measure the motivational dimension of self-direction, security and power were added for masking purposes. Other potentially relevant items were also included. These latter items were: equity, equality, competition, cooperation, independence, interdependence, and dependence.

In this study, the rwg for the revised version of conformity was .95, and the rwg for the revised version of achievement was .98.

Based on the pilot data, is there a relationship between the original Schwartz (1992) scale and the revised scale later used for the analysis of the experiment's data? In the pilot, the Pearson correlation between the old achievement index and the new achievement index was .875. The Pearson correlation between the old conformity index and the new conformity index was .867.

Another way of answering this question is looking at the correlation between the old items and the completely new set of items for each scale, excluding the common items from the extended indexes. In the pilot, the Pearson correlation between the old items for achievement and the completely new items included in the extended scale was .817. Regarding the conformity index, the corresponding correlation was .822.

Conclusion

The structural analysis of the pilot data and the correlations between the old and the new indexes for achievement and conformity support the selection of items used in the analysis of the experimental data. The revised scales are higher in reliability and higher in terms of interrater agreement.

Chapter 3

INTRODUCTION TO THE CROSS-CULTURAL EXPERIMENT

Social adaptation theory (Piaget, 1929, 1930, 1952; Bromley, 1978) postulates that individuals develop general strategies or dispositions that allow them to function effectively and survive in their social environment. Examples of these functional features are beliefs, personality traits, abilities, aspirations, and values (Bromley, 1978). As dispositional features or strategies, values are relatively stable, shaping the form of multiple interpersonal relations and acts, but only approximating highly specific aspects of interpersonal relations and acts (Kahle, Kulka, & Klingel, 1980). As social adaptation theory has theoretically and empirically evolved, the predictions have become more specific and the causal link between values, attitudes and behaviors have been studied (Kahle, 1983; Kahle, 1980; Homer & Kahle, 1988). Using LISREL VI (Jöreskog & Sörbom, 1983), Homer & Kahle (1988) tested the predictions of social adaptation theory in the context of attitudes towards natural foods. These researchers found support for causal links from locus of control related values to attitudes towards natural foods, and from these attitudes to the behaviors of buying of natural foods. Nonsignificant path coefficients were found between the value dimensions and shopping behaviors, thus supporting a mediating role for attitudes (Homer et al., 1988).

Following the value-attitude-behavior model, this study tried to link cultural values priorities to particular sets of attitudes, and these attitudes to behaviors in a simulated interdependent group situation.

Work Groups and Reward Interdependence

A comprehensive definition of "group" was formulated by DeLamater (1974). This author postulated that groups can be defined in terms of four properties: (1) interaction between individuals, (2) perceptions of other members and the development of shared perceptions, (3) the development of affective ties, and (4) the development of interdependence or roles. Corresponding with this last defining property of groups, the individuals in this study perceived to be part of social unit, performing the same task as the other members and sharing an interdependent outcome with them.

Interdependence in terms of the rewards received by the performance in a group task refers to whether or not rewards are given to groups, and if so, whether they are given based on individual performance or group performance (Slavin, 1983). The two levels of reward interdependence in which this project will focus are: (1) the individuals were rewarded based solely on their own performance and the proportion of their contribution to the group's outcome, or (2) each individual was rewarded based on the performance and proportional contributions of the other individuals in the group. These two reward systems were not completely representative of the more studied cooperative vs competitive reward structures (Rosembaum, Moore, Cotton, Gray, Cook, Hieser, & Shovar, 1978), but presented two levels of interdependence. In both conditions there was a shared group outcome, and the difference was in the way in which each group member benefited from their performance and that shared outcome.

Chapter 4

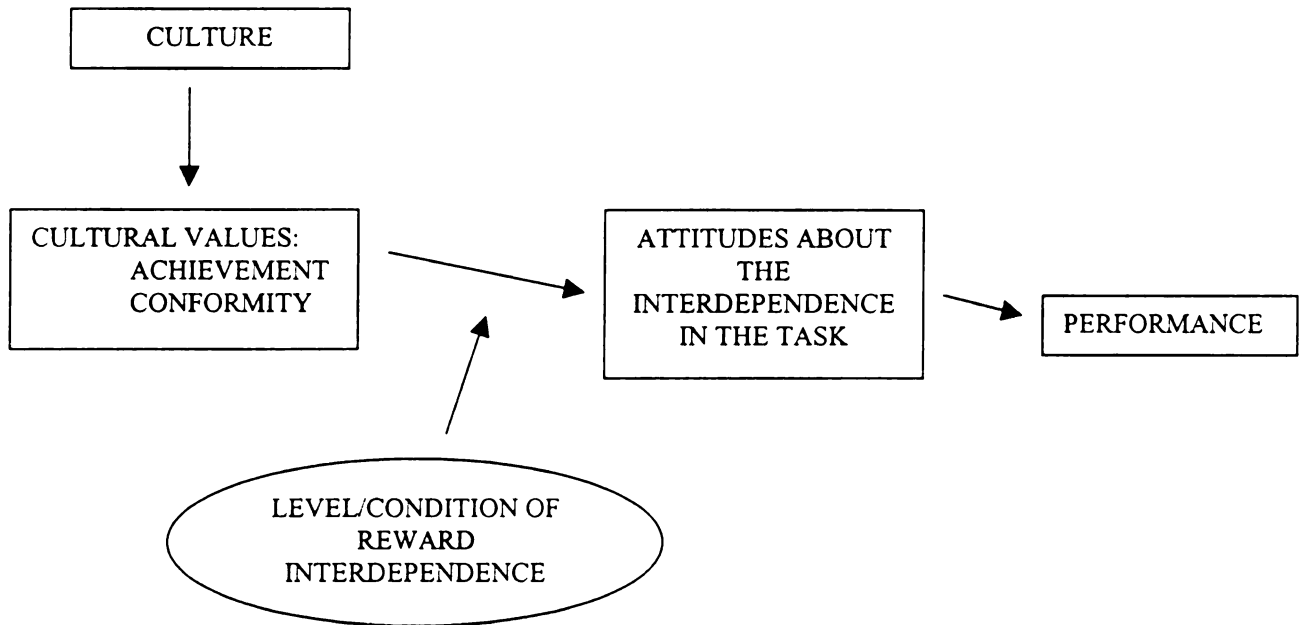
HYPOTHESES

A search for cultural value differences was pursued in the preliminary study, and the findings supported the hypothesis that the Americans share more individualistic values while Puerto Ricans share more collectivistic values. Among the 10 values discussed and studied in the preliminary study, the motivational dimensions achievement and conformity were highlighted for their theoretical relevance in interdependent groups. The values survey showed that the motivation for achievement was found stronger in the United States and the motivation for conformity stronger in Puerto Rico. The empirical questions here addressed sought for the best match between the cultural values held by the participants in outcome interdependent simulated groups.

Based on social adaptation theory and the literature on values and group interdependence, a cross-level model (Rousseau, 1985) is proposed to relate cultural values, attitudes and performance under two conditions/levels of interdependence. A cross-level model specifies causal effects of phenomena at one level of social complexity (e.g. group) on those at another (e.g. individual) (Baron & Kenny, 1986). In this study, the independent variables were the culture of the participants, and interdependence in the reward system. The process or task interdependence [i.e. the degree to which group

members need to rely on each other to perform the task] remained constant. The dependent variables were the ratings for the values of conformity and achievement, attitudes toward the interdependence in the task, and performance. Notice that self-direction was equally rated and ranked in both cultures in the preliminary study, therefore the present study will only focus on the values of achievement and conformity. This cross-level model relates culture with the cultural values and with the attitudes and behaviors of individuals in an interdependent (simulated) group task. The culture was predicted to influence the preference of the achievement and conformity values, consistent with the findings of the preliminary study. In turn, the values were predicted to shape the attitudes that the individuals develop about the interdependent reward structure. These attitudes were to be moderated by the degree of interdependence embedded in the situation. And finally, the attitudes about the interdependent reward structure were proposed to mediate the impact of the cultural values on the performance in the interdependent task. See Figure 3 for a graphical representation of the here proposed model.

Figure 3: Proposed Cross-Level Model



In general, a link was proposed between the interests served by the values of the individual and the attitudes about the reward interdependence in the group task, and between these attitudes and the performance in the group task. Based on the preliminary study and social adaptation theory, the following specific propositions were advanced.

Hypothesis 1: *The impact of culture on the preference of the conformity and achievement values.* Americans were expected to value achievement more than the Puerto Ricans. On the other hand, the Puerto Ricans were expected to value conformity more than the Americans.

Hypothesis 2: *The cultural values-attitudes-performance model.* Culture was predicted to influence the performance in an interdependent task through cross-cultural differences

in values and attitudes. Hypotheses 2a and 2b detail the predictions of each step in this model.

Hypothesis 2a: *The relationship between culture, values and the attitudes toward the reward interdependence.* If the findings support Hypothesis 1, then the cross-cultural differences in the valuing of achievement and conformity are expected to influence the attitudes about the reward interdependence. The Americans (Hypothesis 1: higher in achievement and lower in conformity) were expected to have more negative attitudes about interdependence than the Puerto Ricans (Hypothesis 1: lower in achievement, higher in conformity). Also, the situational interdependence (i.e. higher vs. lower reward interdependence in the task) was expected to moderate the relationship between the cultural values and the attitudes about the reward system. Situational interdependence was expected to interact with the cultural values, such that a higher valuing of achievement (expected in the United States, Hypothesis 1) would be inconsistent with a highly interdependent situation, while a higher valuing of conformity (expected in Puerto Rico, Hypothesis 1) would be more consistent with a highly interdependent task.

Hypothesis 2b: *The relationship between attitudes about interdependence and performance.* In general, the more positive the attitudes about interdependence the better the performance in the interdependent task. Based on the predictions presented in Hypothesis 2a, in a highly interdependent situation the Puerto Ricans were expected to perform better than the Americans.

Chapter 5

METHOD

Subjects

Eighty (80) students from the University of Puerto Rico at Mayagüez (UPR) and eighty (80) from Michigan State University (MSU) were be the participants in this cross-cultural experiment.

Experimental Design

The experimental design was a 2 (culture: United States or Puerto Rico) X 2 (interdependence in reward structure: high or low). The experimental task was building towers with wooden blocks. The manipulation of reward interdependence was done by assigning value to the blocks built into towers, creating a group pool of blocks which received bonus points according to the group performance, and having the individual's reward depend either on their own performance (low reward interdependence) or on the performance of others (high reward interdependence).

Physical Facilities

The physical facilities both at MSU and at UPR-Mayagüez were laboratories that have at least three doors to rooms within it. The participant worked alone in one room.

As part of the cover story the “other participants” were presumably working in the other rooms.

Materials

The experimental room was equipped with a large table to work on, a chair, a video camera, and an audio tape player. The participants received most of the instructions through an audio recording (one for each condition), and the tower building performance was recorded on videotape. Throughout the experiment the participants used paper-and-pencil for the values survey, attitude measures and manipulations checks.

Wooden blocks were used to build towers. The blocks were shaped as rectangles with the following dimensions: 1" wide x 2½" length x ¾" depth. There were three kinds of blocks varying in their coloring, this is, BLUE blocks, RED blocks, and YELLOW blocks.

The audio instructions and the paper-and-pencil materials, such as questionnaires, used in the United States were in English while those used in Puerto Rico were in Spanish.

Procedure

There was only one participant coming into the laboratory for each experimental session. One experimenter ran each session. The experiment took approximately 40 minutes to complete.

The experiment's procedure consisted of five steps: (1) measurement of the preference of the values conformity, achievement, and self-direction; (2) introduction of the reward interdependence manipulation; (3) pre-task manipulations check and assessment of attitudes toward level of reward interdependence; (4) task (tower building)

instructions, practice trial, and performance in three trials of tower building; and finally, (5) post-task assessment of attitudes and manipulations check.

The setup in the experimental room was extremely similar in the US and in PR. One difference was that the room at PR was bigger, but the experiment's materials were in a corner in an area similar in size to the experimental room in the US. Also, the room in PR had an observational mirror, that allowed the experimenter to follow the participant's progress closely (but this had no significant impact on the procedure). This is how the experimental rooms looked: (1) table against a wall, with three piles of blocks, divided by color; (2) consent form on table with pencil next to it; (3) the bonus table pasted on the wall, right in front of the participant; (4) a glued model of a towers was sitting on a corner of the table; (5) video camera on right corner, focusing on table; (6) audio recording player on shelves to the right (left at Puerto Rico); (7) two envelopes on shelves to the right, one for the pre-task and the other for the post-task manipulations checks/attitude measures. There is more information ahead on how the participants were instructed by the audio recording to take and complete these surveys during the experiment's procedure.

Once the participant arrived at the laboratory, he/she was ushered into the experimental room and asked to read and sign a *consent form* to participate in the experiment (See Appendix C₁ for consent form in English and Appendix C₂ for consent form in Spanish). When they signed the consent form they were to slip the sheet under the door, where the experimenter would pick it up (whenever this was required of the participant, the observational mirror in PR was useful because the experimenter could see the participant walking to the door, thus the procedure moved more swiftly; while in the

US the experimenter had to hear the materials being slipped under the door, and sometimes some time could go by before the experimenter noticed that a part of the procedure had been finished). After the consent form had been turned in, the experimenter would walk in with the value survey and ask the participant to complete it, with the suggestion that this task was to be done while other participants were being setup for the study. The value survey was titled "General Questionnaire".

The value survey was in the same format as the original survey created by Schwartz (1992) which was used in the preliminary study, but was the revised survey that resulted from the pilot study (see Chapter 2). This revised survey was designed to focus on more reliable measures of the motivational dimensions of conformity and achievement, combining original items and new items (see Appendix E1 for Experiment Value Survey in English and Appendix E2 for the survey in Spanish). As in the original survey, the participants were asked to report how important is to them (in a 9 point scale) each one of a list of one word values, which were followed by a brief explanation. The survey had a total of 54 items, plus the age and sex questions, and it would take approximately 10 minutes for the participant to complete.

Once the participant completed the survey and returned it to the experimenter he/she was instructed to attend to the instructions in audio recording. The rest of the experiment was guided by this audio recording. The audio recording (one for each condition) presented all of the instructions, including the introduction of the manipulations and the description of how to build the towers [described in detail below] (See Appendix D₁ for specific instructions and transcript of the audio recording in English and Appendix D₂ for the specific instructions and transcript in Spanish).

The participants were told that they would work in a three-person group and that the other two participants were in other rooms, going through the same procedure that he/she was going through. They were told that each group member had 99 blocks, 33 of each color to build towers during the trials. The participants were told that the amount of blocks that each participant built into towers would go into a group pool of blocks, that each block was worth one (1) point, and that the more blocks go into the pool the more bonus points would be awarded to the group, and these in turn would be divided among the participants. The participants were presented with the following system for awarding bonus points. If the pool had 99 blocks or less the group would receive no (0) bonus points; if the pool had between 100 and 150 blocks the bonus points would be 25; if the pool had between 151 and 200, the bonus points would amount to 50; when the pool had between 201 and 250 blocks, the group would receive 75 bonus points; and finally, if the pool had between 251 and 297 blocks, the group would be awarded 100 bonus points. The participants were instructed that the video recording of their performance would be later used to calculate the amount of blocks that went into the pool after each trial with the corresponding bonus points. They were told that it would not be until after the experiment had been completed that the score for each participant in each trial would be calculated, but that these scores would be entered in a lottery and that at the end of the study the winner participant would receive his/her awarded points for the winning trial in dollars. Therefore, they were encouraged to think of the points as possible dollars. The score for each of the three trials would be the entries in the lottery for each participant. Any of the three trials may be the winner, and the number of blocks accumulated by the

participant on that particular trial would indicate their actual money prize if they were to win the lottery.

In the low reward interdependence condition, the participants were told that their score would correspond to the number of blocks that they built into towers plus their proportion of the group bonus points. For the high reward interdependence condition the instructions were that their personal score would be the average of the points accumulated (built and proportional bonus points) by the other two group members, and that in the same manner, each of the other group members would be awarded the average of the scores accumulated by the other two participants.

Once the participants have received the recorded information regarding the group manipulation and their corresponding level of reward interdependence they were asked to answer some questions about these aspects of the study. The participants were instructed to take this exercise out of one of the envelopes on the shelves to the right (envelope labeled “SCORING” / “PUNTUACION”). The exercise was a multiple-choice scoring exercise in which the participants were given a hypothetical example of three group members and the amount of blocks they had build into towers in a session. The participants were first asked to calculate the amount of group bonus they would be awarded and second to calculate the final score for one of the group members. The answer for the the first question would be the same for both conditions. To reach the correct answer the participants had to add the three amounts of blocks and go to the group bonus table (pasted on the wall in front of them) and find out the corresponding group bonus. The answer to the second answer varied depending on the condition. The alternatives in this questions showed the actual formulas used to calculate the individual

score. Once they finished the exercise, the audio recording instructed them to call the experimenter, who would come in and check that the answers to the scoring exercise were correct. If the answers were incorrect, it was the job of the experimenter to ensure that the participant understood the scoring procedure for their particular condition. In order to ensure uniformity in these explanations, the experimenters had an “answer sheet” for each condition that explained in simple terms the answers for each questions, and they were to use this as their explaining tool.

Once explanations were delivered (if necessary) the experimenter would play the audio recording and leave the room. The audio recording would then instruct the participant to answer the pre-task attitudes measure. They would find the questionnaire in an envelope on the shelves to the right (envelope labeled “SURVEY” / “CUESTIONARIO”). They had 4 minutes to answer the questions. These questions were intended to measure the degree to which the participants liked working in a group and the way in which their personal score and that of the other group members would be scored. This questionnaire was titled “Questionnaire #1” and it was formed by 11 questions asking: How much do you like... working in a group?, the way in which your score will be awarded?, the way in which the score of the other group members will be awarded?, depending on others for your score?, having others depend on you for their score?, being independent of others?, sharing your success?, benefiting from the success of others?, working by yourself (not in a group)?, the way in which the bonus points will be divided?, and, not being able to meet the other group members? (See Appendix F1 for Pre-Task Questionnaire: Attitudes About Group and Reward Interdependence in English, and Appedix F2 for the Spanish version). The participants had 1 minute to answer these

questions. When the allowed minute was finished, the audio recording instructed the participant to slide the envelope under the door and the recording proceeded to introduce the participant to the rules of the tower building task and the practice trial.

The tower building task used in this experiment was inspired in the method used by Rosenbaum (1978) in studies of interdependence. Rosenbaum (1978) argued that a task in which each member of a group is in control of a type of block (i.e. a type of resource), was a particularly good method to study interdependence. Rosenbaum used this task mainly to control the procedure or resource interdependence. The typical experimental method involved 3 participants working together in the task of building a tower. They would either work on one tower together, or on one tower each, depending on the level of task interdependence. Each participant owned a type of block (blocks were classified according to color). Under this procedure/resource interdependence conditions, Rosenbaum and others would study the effects of variables such as reward structure, and crowding (e.g. Rosenbaum, Moore, Cotton, Gray, Cook, Hieser, and Shovar, 1978; Heller, Groff, and Solomon, 1977).

The present experiment did not manipulate or study procedure/resource interdependence. This experiment focused only on outcome or reward interdependence, but the task was not developed only with this aspect of interdependence in mind. The wooden blocks were painted in three different colors, just like Rosenbaum did with the materials used in his studies. The present study does not place the participants in a situation of procedure interdependence, but rather the participants worked alone building their own towers. While the task was not developed only to study reward interdependence it was suitable for the type of manipulations that were planned and the effects that were

sought. The hypotheses of this experiment predict direct effects of attitudes on performance, as well as a system of effects leading to the effect on behavior. Using this type of task operationalizes the behaviors studied as basic manual tasks. The choice of a manual task over other more cognitively engaging tasks limits the empirical questions and answers to manual and very concrete behaviors, but nevertheless, these are questions and answers worthy of study.

The task was designed to be enjoyable but challenging. It was presumed to be enjoyable, given it's similarity to currently popular games (e.g. Jenga), and a variety of challenging characteristics were built into the rules of the task.

Each participant received 33 blocks of each color. There was a specific pattern to follow in the building of the towers (see Figure 4 for a drawing of the pattern of the towers). The participants not only received audio instructions but they also had a glued model tower right in front of them to use as a guide. A tower was formed by five (5) floors. Each floor had one block of each color, and the blocks had to be touching each other. The tower was to be started with a floor of vertical blocks followed by a floor of horizontal blocks, until 5 floors were completed. The vertically positioned blocks were less stable than the horizontal blocks, because they had less surface on which to balance. By having vertical blocks followed by horizontal blocks it was expected that the participants would pay close attention to their moves, making the task more engaging. The features of the towers, such as touching blocks and vertical blocks at the foundation, were introduced with the expectation that they would make the task difficult.

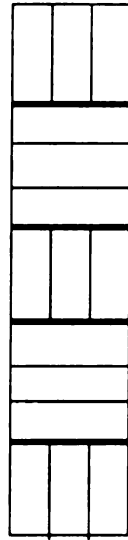


Figure 4: A Drawing of the Pattern of the Towers

[The drawing is not to scale. All blocks were the same size. The darker horizontal lines divide the floors of the tower.]

There were three (3) trials of building towers and a maximum of 2 1/2 minutes to build as many towers as possible in a trial. The participants were encouraged to do the task as fast as possible. When the time was over in each trial, the procedure-recording instructed them to divide the blocks by color into three piles and to get ready for the next trial. They had 30 seconds to reorganize the blocks and get ready for the next trial.

Once the participant received the recorded instructions he/she engaged in a tower building practice session. Right before the practice session the procedure-recording instructed the participant to STOP it and to call the experimenter in case he or she had any questions regarding the procedure. After this practice session the experimenter made sure that the participant understood all the details involved in the task. After this the procedure-recording would take over again.

The procedure-recording led the participant through three trials of building towers with the wooden blocks. The video would tell the participant when to start, when to stop, and when to reorganize the blocks in order to get ready for the next trial. Once three trials were completed, the participant was asked by the experimenter to answer a series of questions for manipulations check and further measures of attitudes. The questionnaire consisted of 19 questions assessing attitudes toward reward interdependence; liking of the study; attributions of performance to effort, luck, ability, and factors out of their control; and attitudes about the task (see Appendix G₁ for Post-Task Attitudes Measure and Manipulations Check in English and Appendix G₂ for the Spanish version).

To record the participation of students in the experiment, the participants at MSU were asked to provide their Experiment Credit Card. At UPR there was no established system of recording the participation of individuals in experiments; reward for participation depended on arrangements made with the professor that allowed her students to volunteer. All participants at UPR received credit toward their grade in their Introductory Psychology class. The participants were thoroughly debriefed and thanked for their participation (See Appendix H₁ for the Debriefing Information in English and Appendix H₂ for the Spanish version).

Dependent Variables

The evaluation of the values conformity and achievement, the attitudes toward interdependence and manipulations check were dependent measures that were assessed with the use of surveys. The other dependent measure was the performance of the participants. This variable was evaluated with two criteria: (1) blocks on the towers at the end of each trial, and (2) number of accidents during each trial. Accidents were coded

when parts of the towers or whole towers fell, or if and when any of the task rules were broken, for example, if a participant used more than one hand to keep a tower from falling. The video recording of the participation was used for the coding of the performance.

Chapter 6

RESULTS

This chapter is divided into six sections, each one pertaining to a different aspect of the data collected. The order of the sections is the following: Samples, Values, Manipulations Check, Attitudes, Performance, and Model.

I. Samples

In terms of education, gender, and age, the samples from both cultures were very similar.

Puerto Rico

At the University of Puerto Rico at Mayagüez (UPR), 80 participants were recruited from various sections of Introduction to Psychology. Students were asked to volunteer their participation in exchange for credit towards their grade in the course. Of these participants, 28 were males and 52 were females. The average age of the participants was 19.8, with a range of 17 to 27 years of age.

United States

At Michigan State University (MSU), 80 students from the subject pool participated in this study. Students were asked to volunteer their participation in exchange for credit towards their grade in the course. Twenty were males and 60

females. The average age of the participants was 19.7, with a range of 17 to 41 years of age.

II. Values

A. Study of the value scales

The items corresponding to the value indexes of achievement and conformity were determined based on the pilot study of the survey along with a preliminary exploration of the values survey data collected in the experiment. The indexes were revised to improve their reliability. For this study, the reliability of the value indexes of achievement and conformity was assessed within each culture. The achievement value index included the items: ambitious, successful, aspirations, purposeful, and accomplishing. For the achievement index, in PR the alpha reliability was .77, and the interrater agreement (rwg) was .95. For this same index, at the US the alpha reliability was .82, and the rwg = .96.

The value cluster of conformity was formed by the items: courtesy, honoring parents and elders, cooperation, observance, sharing, self-restraint, consideration, and adherence. In PR the alpha reliability of this index was .87 and the rwg = .96. In the US the alpha reliability for the index was .86 and the interrater agreement was .96.

The study of the internal consistency of the value scales within each culture showed that the scales were reliable to use for further analysis. Also, the high rwg's suggest that if necessary, these values could be aggregated to the cultural level. But, will the value indexes in this study be capturing the same values addressed in the value survey used in the preliminary study? This is an important question because the hypotheses for

this experiment were based on the findings of the preliminary study. While the preliminary study used what has been argued to be a universal measure of cultural values (Schwartz, 1992), the present experiment focused only on the cultures of Puerto Rico and the United States. It could be argued that the achievement and conformity indexes have been customized for these two cultures and may not apply in the same way universally. For the purpose of the present study, possible differences between the original Schwartz (1992) indexes of achievement and conformity, and those used for the analyses of the experiment's data are not fundamental to the study of the proposed hypotheses. In any case, to explore this issue, Pearson correlations were done between the new indexes and the old indexes. The one problem was with the item of "influential" which was not included in the experiment's value survey. The correlation between the old index of achievement (without influential) and the new index of achievement was .856. The correlation between the old index of conformity and the new index of conformity was .642. As with the pilot data, these results support the comparison and equivalence of the old indexes and the new indexes.

Another way of exploring the question of the equivalence of the items in each of the scales is by looking at the item-total correlations from the reliability analyses. Table 4 and Table 5 present the item-total correlations from the reliability analyses, for the items used in the revised indexes. It is apparent that the new and old items are quite comparable.

Table 4: Item-Total Correlations for Achievement

ITEM	Correlation with Achievement
Successful*	.749
Purposeful	.814
Accomplishing	.748
Ambitious*	.642
Aspirations	.758

*original items

Table 5: Item-Total Correlations for Conformity

ITEM	Correlation with Conformity
Courtesy	.661
Sharing	.728
Honoring Parents and Elders*	.729
Self-Restraint	.728
Consideration	.761
Observance (of rules)	.802
Adherence (to rules)	.631
Cooperation	.727

*original items

B. Study of the Use of the Scale

Were the participants in both countries using the scale in the same way? In the preliminary study, the Puerto Rican participants tended to use the higher end of the scale while the American participants, overall, tended more towards the center of the scale.

In this study, once again, a statistical difference was found between the average rating of the participants in PR and in the US ($t(158.4)=2.06, p<.04$). The average rating of the Puerto Rican participant was significantly higher ($M = 5.13$) than that of the American participant ($M = 4.88$). As in the preliminary study, all cross-cultural analysis were done with the standardized scores of the scales. What was standardized was the

way in which the participants rated the value indexes and this was achieved by standardizing the ratings at the individual level. This means that the mean rating of each participant becomes zero and what will be compared will be the degree to which each rating departs from the participant's mean. This way we are standardizing the use of the scale, rather than the value index.

C. Within Culture Analyses

1. Puerto Rico

In the Puerto Rican sample achievement was ranked higher ($M=5.53$) than conformity ($M=5.05$) [these are the raw ratings, from a scale from -1 to 7]. This was not the predicted pattern for this culture. An one-way ANOVA comparing the standardized scores of these two values within this culture showed that there was a significant difference between the ratings ($F(1, 159)=26.9, p<.0001$). The mean standardized rating of achievement ($M=.70$) was significantly higher than the mean rating for conformity ($M=.28$). This was not the predicted pattern for this culture, but the more important issue of the relative importance of values across cultures will be addressed in the cross-cultural comparisons.

2. United States

In the US sample, the value of achievement was also ranked higher ($M=5.49$) than the value of conformity ($M=4.67$) [these are raw ratings]. The analysis of variance showed that there was a significant difference between the standard scores of the values ($F(1, 158)=77.7, p<.0001$). Achievement was rated significantly higher ($M=.86$) than conformity ($M=.06$).

The within-culture analyses showed that the pattern of value preferences is similar within both cultures, with achievement being preferred over conformity.

D. Cross-cultural Comparisons with Standardized Scores

A 2 (culture) by 2 (value scales: achievement and conformity) Repeated-Measures ANOVA was done with the standardized indexes. This analysis showed no main effect for culture ($F(1, 158) = .57, p < .45$), but there were a significant main effect for the value scales ($F(1, 158) = 101.4, p < .0001$), and a significant culture by scales interaction ($F(1, 158) = 8.7, p < .004$).

The main effect of the value scales is that the ratings for achievement ($M = .78$) were higher than the ratings for conformity ($M = .17$). In this context, the lack of main effect of culture shows that in both cultures achievement is preferred over conformity. In the preliminary study there was a barely marginal effect on this direction.

These findings support Hypothesis 1, which argued that there would be cross-cultural differences in the preference of the values of achievement and conformity. Hypothesis 1 predicted that Americans would value achievement more than the Puerto Ricans, and that conversely the Puerto Ricans would value conformity more than the Americans.

The significant interaction between culture and the values was further explored with simple pairwise comparisons, presented in Table 6, and with the graphical representation in Figure 4.

Table 6: Comparisons of Values Between and Within Cultures in the Experiment
[* p<.05, ** p<.01]

	US achievement	US conformity	PR achievement	PR conformity
US achievement	0	-10.29**	-2.54*	-8.29**
US conformity		0	8.60**	2.76**
PR achievement			0	-6.34**
PR conformity				0

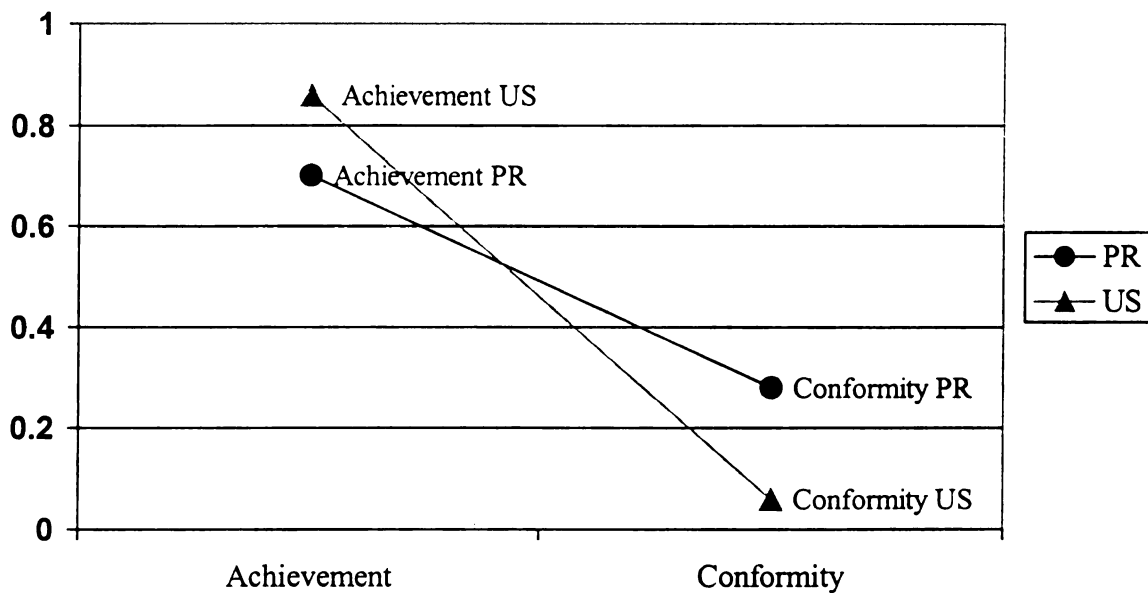


Figure 5: Culture x Values Interaction in Experiment

The more interesting finding is that, although across cultures there is a higher preference for achievement over conformity, when the cultures are compared, these values differ in their relative preference. In the cross-cultural comparison on the value of achievement, we see that in the US this value is relatively more important than it is in

Puerto Rico. On the other hand, conformity is relatively more important in Puerto Rico than in the United States. In conclusion, these findings support the predictions of Hypothesis 1 regarding the difference value preferences between these two cultures.

The only finding here that is not completely consistent with those of the preliminary study is the cross-cultural tendency for a preference of achievement over conformity. In the preliminary study there was a weak marginal effect of the values in this direction, but a crossover of the value preferences across these two cultures was clearly evident. At this point we have to go back to the issue of the equivalence of the indexes used in the preliminary study and those used for the analyses of the experiment's data. The correlations between the old indexes (those used in the preliminary study) and the new indexes (those used in the experiment's analyses) presented at the beginning of this section, suggest that both sets of indexes are addressing similar constructs. It could also be argued that these are customized indexes that apply only to the way in which these two cultures understand and interpret achievement and conformity. Other explanations for this difference between the preliminary study and the experiment's data may be based on the method of data collection. In the preliminary study the data was collected as an independent survey, in the classroom, not in a laboratory with a two-way mirror and as part of an experiment. In the present study, the participants answered the value survey on the table in which all of the materials for the following tower building task were placed. In this setting, the participants may well have been aware that they were soon to participate in an individual motor task and this may have made their motivation for achievement more salient. Also, for the Puerto Rican this was a completely new environment and situation, while the American participants may have already participated

in previous laboratory studies. Given the novelty of the situation and the possibility of being observed as individuals may have contributed to a higher motivation for achievement. If the setting of the data collection had an effect on the saliency of achievement, this way affecting the ratings, then the validity of these indexes as assessments of cultural values may be questioned. Cultural values are defined as abstract preferences that are pervasive and transcend situations. Yet, the high levels of within-culture agreement on these indexes suggests that these are more than just individual preferences subject to the priming influences of an experimental setting.

On a long term perspective, these findings may also suggest that the value preferences in the Puerto Rican culture may be in transition, from a collectivistic approach to a more individualistic approach, a possibility that makes historical sense considering the strong influence of the American culture on the Island. However, it is hard to believe that in the course of 4 years, since the preliminary data was collected, the value system of a culture has changed this drastically. Still, in terms of the relative importance of achievement and conformity across cultures, the results are consistent with the findings of the preliminary study.

III. Manipulations Check

During the course of the experiment, the participants completed two questionnaires. To see if the scales in the questionnaires were used in the same way in both cultures the mean rating across questions was studied within each culture. For questionnaire #1, the mean rating across questions in PR was 4.33 and in the US 4.26 ($t(144)=.49$, $p<.63$). In questionnaire #2, the mean rating in PR was 4.07 and in the US it

was 3.91 ($t(149)=-1.37$, $p<.18$). No statistical differences were found between the cultures' mean ratings in both questionnaires, therefore all analyses were done with the raw ratings.

The Post-Task Survey (Questionnaire #2) was composed of 19 questions. Some questions were designed as manipulation checks and others were assessments of attitudes and attributions. A Principal Components Factor Analysis with Varimax Rotation was done with the items of Questionnaire #2 across cultures, and for the purpose of verification, the analysis was repeated within culture to see if the factors emerged in the same way across the cultures and within each culture. Out of the 19 items in this questionnaire, 6 factors emerged. The factors were the same across cultures and within each culture.

The first factor (Eigenvalue[across cultures]=4.17) was formed by the items 2, 4, 5, and 6. The questions were: (2) How much was your performance influenced by the other group members?, (4) How much was your performance affected negatively by the other group members?, (5) How much was your performance affected positively by the other group members?, and (6) How much did your performance depend on the other group members? This factor was titled "Perceived Performance Interdependence."

The second factor (Eigenvalue[across cultures]=3.46) included items 7, 18, and 19. The questions for these items were: (7) How much did your reward depend on the other group members?, (18) How much was your score dependent on the performance of others?, and (19) To what degree was the score of the other group members dependent on your performance? This factor will be referred to as "Perceived Reward Interdependence."

The third factor (Eigenvalue[across cultures]=2.11) included items 3, 10, and 14. The questions corresponding to these items were: (3) How difficult was the tower building task?, (10) To what degree would you attribute your performance to luck?, and (14) How difficult was building to towers with one hand? This factor was titled "Difficulty."

The fourth factor (Eigenvalue[across cultures]=1.39) included items 16 and 17. These two items made reference to the scoring method. Question 16 asked "How much did you like the way in which your points were awarded?", and question 17 asked "To what degree was the method of scoring points fair?"

The last two factors were formed by lone items each. Item number 1 loaded as an independent factor. The question was "How much did you like to participate in this study?" (Eigenvalue[across cultures]=1.22). The other factor was item 11, "To what degree would you attribute your performance in this task to your ability?" (Eigenvalue[across cultures]=1.04).

The first two factors, perceived performance interdependence and perceived reward interdependence were used as the manipulations' check. Two (culture) x 2 (condition) ANOVAs were done with each of these factors to see if the manipulations were effective in persuading the participants to consider their situation one of interdependence, according to their condition. For the perceived performance interdependence factor a main effect for condition was found ($F(1, 159)=10.18, p<.002$) while there was no main effect for culture ($F(1, 159)=.497, p<.48$). According to these results, the manipulation worked the same in both cultures. The participants reported

having experienced a higher level of perceived performance interdependence ($M=2.96$) than in the low interdependence condition ($M=2.21$).

On the issue of perceived reward interdependence, the 2 (culture) x 2 (condition) ANOVA showed that there was also a main effect for condition ($F(1,159)=30.15$, $p<.0001$) while there was no main effect for culture ($F(1, 159)=.283$, $p<.59$). As well as the previous manipulation check, this one demonstrates that the instructions worked and that the participants were aware of the level of outcome interdependence present in their situation. In the condition of high interdependence the participants perceived their reward as more interdependent ($M=4.90$) than did the participants in the low interdependence condition ($M=3.53$).

The other four factors that emerged in the Post-Task Survey were measures of attitudes and attributions. While these are not manipulations' check, they are not either the target attitudes about interdependence that will be discussed under the "Attitudes" section of the results. The analyses on these remaining four factors of Questionnaire #2 are presented below.

Attitudes toward the scoring method were an important element of the reward interdependence manipulation. Factor 4 included the two items (16 and 17) that addressed the issue of scoring, asking how much the participants liked the scoring and considered the method a fair one. A 2 (culture) x 2 (condition) ANOVA was performed on this factor and there was only a main effect for condition ($F(1,159)=18.95$, $p<.0001$). In the condition of high interdependence the participants liked less the scoring method and considered it less fair ($M=3.89$) than in the low interdependence condition ($M= 4.69$).

On the factor of difficulty, while two of the items (items 3 and 14) clearly address the question of how difficult the task was, one of the items asked whether the performance may be attributed to luck (item 10). The participants may have seen the tower building task as one that ultimately was dependent on luck, that it was difficult because it depended on luck, or that the difficulty depended on how lucky they were. A 2 (culture) by 2 (condition) ANOVA was done with this factor and while there were no main effects for culture or condition, there was a significant interaction between culture and condition ($F(1, 159)=8.67, p<.004$). See Figure 6 for a graphical representation of this interaction and Table 7 for the corresponding simple comparisons.

Table 7: Culture x Situational Interdependence on Ratings of Task Difficulty

	US – High	US – Low	PR – High	PR – Low
US – High		-2.88**	-.89	.409
US – Low			1.66	3.77**
PR – High				-1.36
PR – Low				
$P < .01^{**}$				

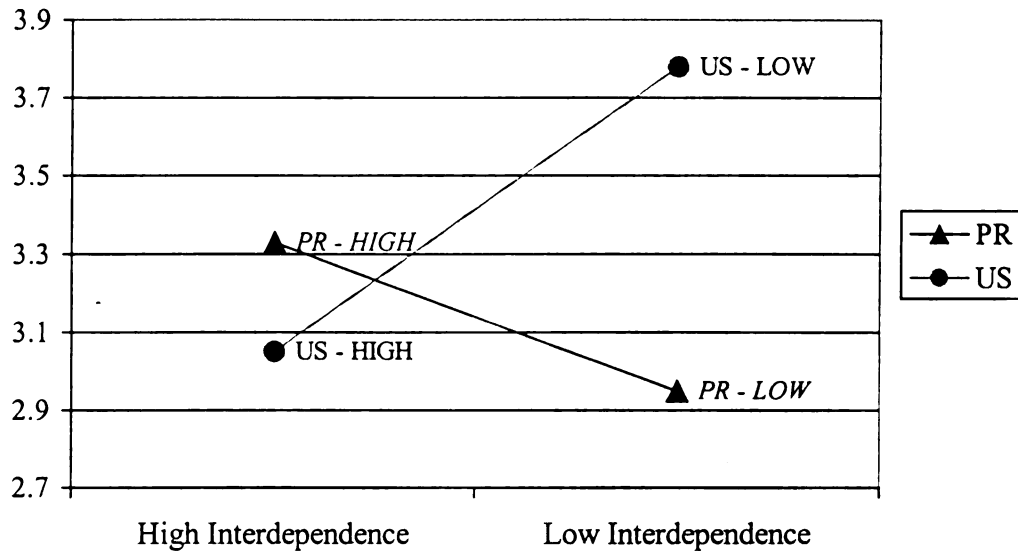


Figure 6: Culture x Situational Interdependence on Ratings of Task Difficulty

Americans in the Low Interdependence condition rated the task as more difficult ($M=3.78$) than did their cultural counterparts in the High Interdependence situation ($M=3.05$) ($t(75)=-2.88$, $p<.006$). The only significant cross-cultural comparison shows that Americans in the Low Interdependence situation also rated the task as more difficult ($M=3.78$) than did the Puerto Ricans in the same Low Interdependence situation ($M=2.95$) ($t(80)=-3.77$, $p<.0004$).

There are a variety of issues that may have played a role in these effects. The two significant simple comparisons were associated to the high rating of task difficulty reported by the American participants in the Low Interdependence condition. In this condition the participants were “aware” of other group members that presumably were working along with them in the same task, but their profit would depend mainly on their own individual performance. Through the instructions the role of the other group

members was minimized, by insisting that even the bonus to which all group members would contribute, were a small amount compared to the points they were to score with their own efforts on the table. Participants were reminded that their success depended mainly on their own performance. Still, there were these “mysterious and elusive” others that were in some, possibly confusing way part of this task. The American participants may have been reacting to this uncertainty with their high rating of difficulty in the Low Interdependence condition. Also, the association between the straight forward difficulty items and the luck attributions item, may suggest that in the Low Interdependence condition the Americans felt that their performance was due to chance and that in some way this made the task difficult. Luck attributions and uncertainty about the role of the other group members may have combined to cause this relationship between culture and condition on the rating of task difficulty.

If the participants associated the difficulty in the task with luck in the performance, then it is relevant to see how they scored on the ability attributions for the performance. Item 11, which loaded as a factor by itself, asked the question of the degree to which the participants thought that their performance was due to their ability. The 2 (culture) x 2 (condition) ANOVA showed that there was a main effect for culture on this attribution ($F(1, 159)=5.96, p<.02$), but no main effect for condition or any significant interactions. The Puerto Rican participants rated ability as an important factor in the performance ($M=5.35$), more so than did the Americans ($M=4.8$).

Finally, how much did the participants enjoy the study? This was the first item in the post-task questionnaire, and when these ratings were analyzed with a 2 (culture) x 2 (condition) ANOVA there was a significant main effect of culture ($F(1, 159)=16.73$,

$p < .0001$), while the situational interdependence (condition) did not have an effect on the enjoyment of the task. Overall, regardless of the situational interdependence (condition) the Puerto Rican participants enjoyed more the study ($M = 5.89$) than did the American participants ($M = 5.11$).

IV. Attitudes

The Pre-Task Survey (Questionnaire #1) was completed after the instructions for the task were introduced, this is after the manipulations, but before the actual performance. The purpose of this survey was to get an assessment of the participants' attitudes about different aspects of the instructions and task before their performance. Remember that because no statistical difference was found between the cultures' mean rating in this questionnaire all analyses were done with the raw ratings.

Questionnaire #1 was designed to assess the attitudes of the participants about the rules of the task, before they engaged in the task. The questionnaire was headed by the question: "how much do you like:" followed by a list of eleven aspects of the rules and task. Each aspect of the task was then to be rated in a 7-point scale, ranging conceptually from "not at all" to "very much". Within culture Principal Components Factor Analyses with Varimax rotations of this questionnaire yielded two clear factors. The two factors also emerged in the same order in both cultures. The first factor was related to attitudes about interdependence while the second was associated with attitudes about independence. Both factors are discussed below. Attitude of Interdependence

This factor was formed by items 1, 2, 3, 4, 5, 7, and 10 [Eigenvalues: PR=4.12, US=4.52]. These items asked: How much do you like: (1) working in a group?, (2) the

way in which your score will be calculated?; (3) the way in which the score of the other group members will be calculated?; (4) depending on others for your score?; (5) that others depend on you for their score?; (7) sharing your success?; and (10) the way in which the bonus scores will be divided?

Attitudes of Interdependence

This factor was formed by items 6 and 9 [Eigenvalues: PR=1.58, US=1.45]. Item 6 was “How much do you like being independent from other?”, and item 9 was “How much do you like working on your own (not in a group)?”

The Box test of homogeneity of covariance showed that, when we look at these attitudes across cultures and conditions, there is a significant difference in the covariance matrices of the dependent variables across the groups (Box’s $M = 32.74$, $F(9, 274777) = 3.55$, $p < .0001$). Thus, the assumption of homogeneity of covariance of the Repeated-Measures ANOVA is violated. The relationships in this set of data were explored with a MANOVA, with culture and condition as two independent variables and the two attitudes (independence and interdependence) as two correlated dependent variables. There was a main effect of condition on the attitude of interdependence ($F(1, 158) = 10.79$, $p < .001$). The participants in the high interdependence condition reported a more negative attitude toward interdependence ($M = 3.98$) than did the participants in the low interdependence condition ($M = 4.59$). On the other hand, the situational interdependence (condition) had no effect over the attitude of independence ($F(1, 158) = .103$, $p < .8$). In both conditions the mean rating for the independence attitude was 4.9. We find a similar pattern with the independent variable of culture. Culture had only a marginal main effect on the attitude of interdependence ($F(1, 158) = 3.35$, $p < .069$). In

the United States the attitude of interdependence was slightly more negative ($M=4.12$) than it was in Puerto Rico ($M=4.45$). There was no interaction between culture and condition on either attitude ($F(1,158)=0$, $p<1$).

The attitude about independence was not affected by either the experimental condition or the culture of the participants. On the other hand, the attitudes about interdependence were influenced by both the culture and the experience of interdependence in the experiment.

V. Performance

In Puerto Rico, the performance of 4 of the participants was eliminated because they were incompletely or improperly recorded on video, therefore there were 38 individuals in each condition in this culture, for a total of 76 Puerto Rican participants.

The performance data was recorded on video and later coded. The performance data was coded by the principal investigator. Two aspects of the task were coded; first the amount of blocks standing in towers at the end of the each trial, which was taken as the principal assessment of performance, and second, the errors made during each trial. An error was coded when: (1) towers or part of towers fell, (2) when the participant briefly used more than one hand to keep a tower from falling, (3) when towers were briefly built incorrectly, and (4) when the clock was ignored, even if only for a few seconds. The types of errors were not distinguished. If any of these violations occurred it would be coded as error, regardless of the type of error. If the participants broke the rules systematically and throughout the task the data was not included. For example, a participant in Puerto Rico build the towers against the facing wall, which of course gave

him an unfair advantage, and that set of data was eliminated. The information coded from the video recordings of the participants' performance was objective in nature. There were no subjective judgments to be made as part of the coding. The specific information that was coded was listed above, and these criteria were clear and easy to observe. Recall that all that was recorded on video was the participant's arm and hand and the table where the blocks were being built. The task of the coder was limited to counting blocks built into towers and to recording errors, which were coded according to the list presented above. While coders blind to the hypotheses would be ideal for any and all studies involving coding of behavior, in this particular study the coded information was objective, and this is why the principal investigator was the only coder of the behavior data.

A 2 (culture) x 2 (condition) x 3 (trials of building towers) Repeated-Measures ANOVA was done and the only significant result was a main effect for trial order, which simply reflects a practice effect. The later the trial, the more blocks were built into towers, regardless of culture or condition ($F(2, 312)=30.72, p<.0001$). The average number of blocks built into towers in the first trial was 46.7 (out of a total of 99 blocks), in the second trial the average was 48.9, and in the third trial 52.3. Table 8 presents the means, standard deviations and N's corresponding to the cells in this Repeated-Measures ANOVA. This table is presented for the benefit of the reader interesting in studying any possible trends that may not have been captured by the main effects.

Table 8: Condition x Culture x Trials

TRIAL	CONDITION	CULTURE	MEAN of blocks built into towers	STD. DEV.	N
TRIAL 1	HIGH	US	49.25	15.5	40
		PR	45.05	13.1	38
		TOTAL	47.2	14.4	78
	LOW	US	46.48	15.33	40
		PR	46.21	13.07	38
		TOTAL	46.35	14.18	78
	TOTAL	US	47.86	15.38	80
		PR	45.63	13.01	76
		TOTAL	46.78	14.27	156
TRIAL 2	HIGH	US	51.35	14.94	40
		PR	47.76	12.68	38
		TOTAL	49.60	13.91	78
	LOW	US	48.42	14.54	40
		PR	48.11	12.58	38
		TOTAL	48.27	13.53	78
	TOTAL	US	49.89	14.72	80
		PR	47.93	12.54	76
		TOTAL	48.94	13.69	156
TRIAL 3	HIGH	US	55.05	14.06	40
		PR	51.79	12.12	38
		TOTAL	53.46	13.17	78
	LOW	US	50.8	15.89	40
		PR	51.58	11.69	38
		TOTAL	51.18	13.92	78
	TOTAL	US	52.93	15.06	80
		PR	51.68	11.83	76
		TOTAL	52.32	13.55	156

Hypothesis 2b predicted a relationship between the culture of the participants and the performance in the task, moderated by the level of interdependence in the experimental condition. This portion of hypothesis 2 was founded on the prediction that culture would have a relationship with performance. Hypothesis 2a predicted a relationship between culture and performance, which would be mediated by the attitudes

toward the task. According to the Repeated-Measures ANOVA, culture had no effect on the performance in this task ($F(1, 152)=.92, p<.339$). An examination of the mean number of blocks built into towers in each trial within each culture, and across conditions, shows that the Americans built approximately 2 more blocks into towers than did the Puerto Ricans. See Table 9 for the mean of blocks built into towers in each trials, within each culture and trial. The directional analysis for the effect of culture on the amount of blocks built into towers across the trials was not significant ($t(1, 152)=.96, p>.1$).

Table 9: Culture x Trials

	<i>UNITED STATES</i>	<i>PUERTO RICO</i>
TRIAL 1	47.8	45.6
TRIAL 2	49.9	47.9
TRIAL 3	52.9	51.7

There was also no main effect for condition on the performance ($F(1, 152)=.586, p<.445$). See Table 10 for the group statistics on this analysis. An exploration of the mean number of blocks built into towers within each condition and across cultures, shows that in the high interdependence condition the participants built from 1 to 2 more blocks per trial. A directional test shows that this difference is not significant ($t(1, 152)=.76, p>.1$).

Table 10: Condition x Trials

	<i>HIGH INTERDEPENDENCE</i>	<i>LOW INTERDEPENDENCE</i>
TRIAL 1	47.2	46.3
TRIAL 2	49.6	48.3
TRIAL 3	53.5	51.2

The analysis that would be most informative in terms of the model proposed in the hypothesis is the test of the interaction between culture and condition on their effect on performance. The Repeated-Measures ANOVA showed no significant interaction between culture and condition ($F(1, 152)=.987, p<.32$). Table 8 presented the group means corresponding to this analysis. A study of the descriptive statistics of the errors made in each trial shows that the median in all three trials was 0 errors and the mode in all three trials was also 0 errors. The average number of errors in trial 1 was .59, in trial 2 there were an average of .69 errors, and in trial 3 a mean of .51 errors. Clearly, the number of errors was extremely low, suggesting that this manual task was not difficult at all. A MANOVA was done with the errors made in each trial as the dependent variables, and condition and culture as the independent variables. There were no main effects for culture ($F(1, 156)=.334, p<.56$) or condition $F(1, 156)=.223, p<.64$). Also, there were not within trials effects ($F(1, 156)=1.84, p<.16$).

The two dependent variables that constituted the performance assessments did not seem to be influenced in any way by other variables, such as the culture of the participants and the level of situational interdependence. The assessments of

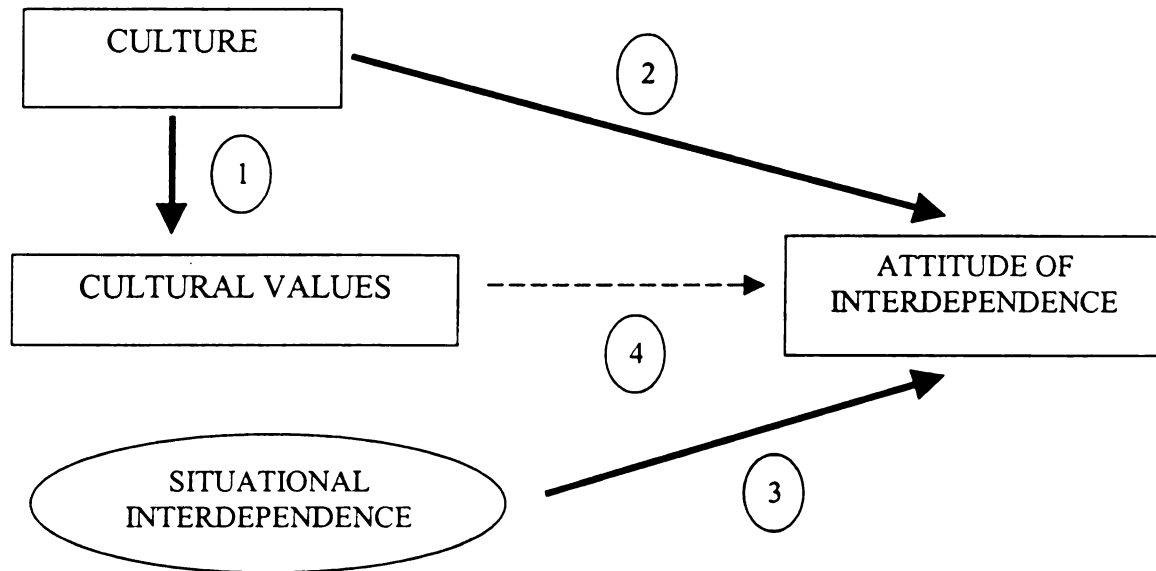
performance in this task proved to be immune to the influence of the contextual variables of culture and condition, or the combination of both.

VI. Model

The cross-level model proposed in Hypothesis 2 predicted a mediated and moderated model that would link culture to behaviors through the cultural values, and attitudes under various levels of situational interdependence. What was expected was that culture would influence the performance in the interdependent task through the mediation of the cultural values of conformity and/or achievement, and the attitude about interdependence, consistent with Social Adaptation Theory. Also, the situation or experimental condition was predicted to moderate the effect of the cultural values on the attitudes. Some of the results already uncovered are consistent with the proposed model, while others are not.

A different model to the one proposed in the Hypotheses chapter was tested. Based on the findings of the experiment, a new model was drawn and tested, a model that seemed to better reflect the patterns found in the previous analyses. Figure 7 presents a graphical representation of the model that was tested. Each link has been assigned a number to facilitate the discussion of the results. There were 4 links tested in this model: (1) culture's effect on values; (2) culture's effect on the interdependence attitude; (3) the effect of situational interdependence on the interdependence attitude; and, (4) the mediation of values between culture and the interdependence attitude.

Figure 7: The Tested Model



Previous analyses showed that culture did have an effect on the cultural values of conformity and achievement. Support was also found for a relationship between culture and the interdependence attitude (link #2), although this relationship was marginal in significance. There was strong support for a direct effect of situational interdependence on the interdependence attitude (link #3). In order to test this model a series of Analyses of Covariance were done to explore the possibility of the mediation of values between culture and the interdependence attitude (link #4). Performance is not addressed in this model because no cross-cultural differences or conditional/situational effects were found on the performance in the interdependent task.

Two ANCOVAs were done, each to one testing different aspects of the possible mediation of cultural values. In all analyses the independent variables were culture and condition (situational interdependence) and the dependent variable was the interdependence attitude. One analysis had achievement (z score) as a covariate, and the

other conformity (z score) as a covariate. Neither of the two analyses supported a mediation of values in the relationship between culture and the interdependence attitude. Recall that the direct effect of culture on the attitude was of a $p < .09$. When achievement was used as a covariate the effect of culture on the attitude was $F(1, 159) = 3.26, p < .07$. When conformity was the covariate the effect of culture was $F(1, 159) = 2.07, p < .15$. Considering that the original effect of culture on the interdependence attitude was marginal, none of these aspects of the cultural values can be considered as mediators in this relationship. Introducing the values as covariates did not have a meaningful effect on the relationship between culture and the attitudes. The MANCOVA treats the cultural values as individual levels variables. The cultural values could have been studied as cultural level variables, since the degree of agreement, as tested with the Interrater Reliability/Agreement Index, were high within both cultures, on both achievement and conformity. In this study there was not much to explore with such cultural level variables, since there were no interesting dependent variables with strong associations with culture. But, the high level of agreement found in the ratings of these values within each of the cultures studied, suggest that these values are cultural level phenomena, and may be used as such in future studies.

The effect of situational interdependence was consistently strong across the ANCOVAs. This variable was introduced as an independent variable into the ANCOVAs because it had shown such strong and consistent effects on the interdependence attitude on the previous analyses. Cultural values played no role in this relationship between situational interdependence and the interdependence attitude. Across the three ANCOVAs this effect remained very significant. With achievement as a

covariate the effect was $F(1, 159)=10.03, p<.002$; with conformity as a covariate the effect was $F(1, 159)=11.12, p<.001$; and, with the difference rating as a covariate the effect was $F(1, 159)=10.13, p<.002$.

Culture did affect the value system in ways consistent with the preliminary study. Americans are higher than Puerto Ricans in achievement, and Puerto Ricans are higher than Americans in conformity (link #1). Another effect of culture was that on the attitudes about interdependence, such that Puerto Ricans were more likely to accept interdependence, while Americans are more likely to reject it (link #2). The relationship between these two cultures and the values of achievement and conformity is stronger and than the relationship between the cultures and the attitudes about interdependence. The better predictor of attitudes of interdependence was found in the proximate context of interdependence or what has been referred to as situational interdependence (link #3). Finally, the mediation of the cultural values of achievement and/or conformity (and/or the difference between them) did not find support in this data (link #4).

Chapter 7

DISCUSSION

The purpose of this research was to systematically explore some of the issues relevant to our increasing cross-cultural interactions and multicultural experiences. This study was designed to explore the relationship between culture and the experience of interdependence. Interdependence is the experience of depending on others and having those others depend on you. As a native of a collectivistic culture, living in an individualistic society, I understood the experience of interdependence to be one with socio-cultural roots. But where specifically are those roots? What about culture, society, or context defines this experience of interdependence? These were the general questions that drove this study. This research explored the underlying ties between culture and behavior, a link that has eluded many a cross-cultural researcher. In general, there were three levels of information acquired in this study. From abstract to concrete, information was acquired on cultural values, second about attitudes about interdependence, and finally about behavior in an interdependent task. The more interesting findings were at the abstract level of the cultural values, while the more disappointing were in the behavior measures, possibly for being too concrete.

The task used in this study of interdependence was purposefully designed as a very concrete and manual task. The reasoning was that if the task is taking place in a context in which cultural values are relevant, then even in manual tasks we should be able to observe some effects. Another consideration were the possible applications and implications in mind when the study was being developed. From the point of view of the United States, when we look at the issue of a global economy in which industries are searching internationally for resources, particularly human resources, what we are commonly witnessing is the movement of manufacturing industries, rather than service and information based organizations. In this study, we wanted to explore the possibility that even manual labor takes place in contexts than can have cultural implications. Unfortunately, the present experiment did not capture this effect. The degree to which the participants liked or disliked the reward system seemed to be irrelevant to the manual work. The task used in the experiment was not only a simple, fairly error free task, but it was also very brief, and it did not require any type of social contact with the presumed fellow co-worker. These characteristics raise more questions about other ways in which an effect of culture and or attitudes on performance may have been captured. A longer period of task performance may have created conditions in which the attitudes about interdependence would have become more relevant and possibly influential. A more difficult task could also have resulted in different effects. Manual tasks in the workplace, usually require skill and can be very involving. It could be argued that the more invested the person is in the task, the more likely they are to be influenced by features of the task. These are all questions that may be addressed in future research. Even the materials that were created for this tower building task can possibly be used for more complex and

engaging manual tasks. Based on the present study, no arguments can be made about cross-cultural differences of behavior in an interdependent task. Can the performance in motor tasks be influenced at all by cultural background? Or is it that the abstract influence of culture does not come into play when the task is labor is mostly manual? In this study the task was taking place in a context with cultural implications, yet no effect of such a context was observed. Under what conditions will the cultural interpretation of the situation become relevant and influencing? Will a difficult task, one that requires more physical energy and/or cognitive involvement, be affected by the attitudes and relevant cultural values?

Another aspect of this task that may explain the lack of effects on the performance assessments, is the type of interdependence that was studied, and by default, that which was not studied. Out of the four characteristics listed by DeLamater (1974) as defining a group, only one applied to the group phenomena studied in this experiment, outcome interdependence. The participants in this study were induced to perceive their situation as one of either high outcome interdependence or low outcome interdependence, but they were not subject to actual procedure or resource interdependence. Moreover, the participants in the study worked in isolation, and had no contact with the presumed fellow group members. In terms of the defining characteristics of groups, these participants (1) did not interact with other individuals, (2) could not develop perceptions of the other group members, or develop shared perceptions, and (3) could not develop affective or any other type of ties with the other presumed group members. Some of the interesting findings in previous work on interdependence has looked at social behaviors, such as helping fellow group members in high interdependence situations, and the sabotaging of

group members in competition environments (Rosenbaum, et al., 1978). This study did not address the type of interdependence that emerges when people are interacting face to face, and when their performance or outcome depends on the directly observable behavior of others. On a positive note, the task designed for this study, could easily be modified to address these and other questions regarding the type of interdependence. In conclusion, performance in a manual task that is simple and does not require social interaction does not seem to be influenced by either the culture of the worker or the degree of outcome interdependence. While this was not the expected finding, this is a valuable piece of information with possible applications. Organizations that are seeking internationally for a workforce to perform a labor that fits this description may not need to be overly concerned about cultural differences or attitudes about interdependence. The present study was clearly designed as a laboratory experiment and the generalizability of the findings to real world work settings would depend on the common characteristics between the task and real jobs.

The study of the cultural values raised a variety of issues. Overall, three studies collected data on cultural values. First a preliminary study with the original, cross-culturally tested indexes developed by Schwartz (1992). Second, a pilot study on an extended survey, that sought to improve the reliability of the indexes. And, third, cultural values data was collected as part of the main experiment. The composition of the indexes used for the analyses of the experiment's data was determined by taking in consideration structural analyses as well as reliability and agreement analyses. In the analyses of the experiment's data, the value indexes were studied as individual level variables and not as collective, cultural level variables. This was mostly a function of the weak effects that

culture had on dependent variables, other than the value indexes. But, the agreement analyses showed that within both cultures there was high agreement on the ratings of both achievement and conformity, therefore in future studies these indexes may be profitably aggregated and used as cultural level variables, particularly if several different cultures could be studied.

The predictions of cultural differences on the preferences of achievement and conformity were supported by the findings. In the between cultures analyses, achievement was higher in the United States than in Puerto Rico, and conformity higher in Puerto Rico than in the United States. But the within culture patterns were different between the preliminary study and the experiment's value data. In the preliminary study there was a cross-cultural crossover in the preference of achievement and conformity, where Puerto Ricans were higher in conformity than achievement and Americans higher in achievement than conformity. However, in the experiment the pattern in the Puerto Rican culture appeared different, when this sample showed a higher preference for achievement than conformity. At that point in the results of the experiment, two general arguments were presented, one was an explanation based on an achievement saliency effect, and the other was a possible historical basis for the shift.

It was first suggested that the difference may have been due a saliency effect, or to a higher relevance of achievement in the context in which the values were assessed in the experiment. In a way this argument is consistent with the strong effect of situational interdependence on attitudes that resulted from the experiment; similar in the sense that the more proximate interdependence context had a stronger influence on the attitude measures than did the broader cultural context. Cultural values, although abstract and

generally defined as consistent across situations, may also be temporarily swayed by the more proximate context, in this case, an apparently achievement relevant context. Still, the more important issue of the relative preference of achievement and conformity across these two cultures is consistent with the findings of the preliminary study. A possible follow-up study could explore the effect of proximate context on the ratings of cultural values. For example, creating a context in which people have to communicate with one another in order to arrive to collective goals may make the value of conformity more relevant and the cross-over seen in the preliminary study may re-emerge. Considering the relative higher preference of conformity in Puerto Rico than in the United States, I would expect that in studies in which the participants can communicate with one another that the conformity in Puerto Ricans may become more instrumental and reported as more important in the belief system.

The second explanation suggested in the results had its basis in history. Politically, Puerto Rico is territory of the United States, and approximately half the population wants the Island to become a state and the other half wishes to continue as a territory. In other words, the average Puerto Rican is, at least politically, motivated to stay in close association with the United States, and for some even assimilate the American way of life. Political motivations are connected to cultural and social motivations. It then would make historical sense that the average Puerto Rican, possibly the average participant in this study, has an inclination to adopt an American value system, one that corresponds with the desired way of life. While it is striking to consider such a drastic cultural change in a similar sample of Puerto Ricans in a mere four years, a variety of significant changes have happened in that short period of time that may in part account

for a cultural shift. Important technological changes have occurred which have transformed the way of life of these students. In 1994, it was very rare for a student to have any access to the internet and thus to the world, while now most students not only have access but use it frequently. While I may not have data on this point, I do have the personal experience of being an instructor at this university in 1994. At the time, not even instructors had reliable facilities to access the internet, and to get an account it took me almost the whole year. The internet world is yet another context to be researched. For the present findings it may be reasoned that for a people who are already politically and socially motivated to be in contact with the American culture, more access to the internet opens the door for increased cultural diffusion, even in a short period of time. This may very well be evidence of cultural leveling, a process in which cultures become similar, usually more similar to the more powerful culture. The Puerto Rican symbolic culture may be changing to adapt to the long-standing and rapidly growing presence of the American material culture. More importantly, Puerto Ricans may be adapting to an increasingly global economy in which a motivation for achievement is much more efficient than a motivation for conformity, even in their own land.

The hypotheses of the experiment were not unlike the towers the participants had to build in the laboratory. Each hypothesis, like a floor in a tower, was based on the findings of a previous hypothesis. The first hypothesis, which predicted cultural differences in the valuing of achievement and conformity, was supported. So far, there is at least a foundation for this tower of knowledge. The second hypothesis combined the predicted cross-cultural differences in values, with predictions about attitudes and performance in two levels of outcome interdependence. The hypotheses and predicted

model were based on Social Adaptation Theory. The general idea was that there may be a route of effects between culture and performance in an interdependent task, which may be uncovered by studying cultural values and attitudes about the task. The statistical analysis of the model did not support the predicted route, but there were a variety of effects that are relevant and may lead the way to new studies. The two more relevant findings were, first, the marginal effect of culture on the attitude of interdependence, and second, the strong effect of condition on the attitude of interdependence.

There was at least a marginal effect of culture on the attitude of interdependence, but this effect was not due to the valuing of achievement or conformity. These two values were argued to be theoretically relevant to the experience of interdependence, but in this study there was not evidence of such a relationship. Two general arguments can be raised by this finding. First, this lack of relationship may be yet another function of the nature of the task. Since the task did not involve interaction, it may be that these cultural values, being social phenomena, are irrelevant in situations of laboratory isolation. Second, the lack of mediation may be attributed to the value indexes themselves. Other cultural differences may have been more relevant in this particular situation. The indexes of achievement and conformity are very broad indicators of abstract social preferences. It could be that more specific cultural variables, such as the valuing of interdependence, per se, may exercise as mediators in the relationship between culture and the attitudes.

The more reliable finding was on the effect of situational interdependence on the attitudes about interdependence. People in a situation of high interdependence reported more negative attitudes toward interdependence than did those in a situation of low

interdependence. How can this finding be applied? The situational conditions created in the experiment differ from real world interdependent contexts in a variety of ways. In the experiment the participants never met the presumed fellow group members, and even in a world of teleconferences this type of situation is very unlikely. At least through teleconferencing long distance team members can communicate with one another. The lack of communication or even a glimpse of a fellow group member, in a context of high interdependence may have played an important role in the dislike of the situation. Even worse, participants may have suspected that there were no real other group members (since they never saw anyone else besides the experimenter) that in the high interdependence condition they may have been reacting to the annoyance of having to go through a fake study. In the low interdependence condition, even if they suspected there were no real “others” it did not make a difference, since those others were only referred to as irrelevant. While none of the manipulations check questions asked if they believed or not the presence or existence of the others, there is no compelling evidence to suggest that they didn’t believe the instructions. In the future, I would prefer to pursue the issue of interdependence in studies in which contact and communication between the group members was possible. In retrospect, the experimental design of isolation used to study interdependence seems incompatible.

In conclusion, there are different levels of contextual effects on the experience of interdependence. The more proximate the context the stronger the influence. Culture is the broadest of social contexts, and the routes of its influence on the way that people experience interdependence have not been uncovered in this study. But culture does shape thoughts and feelings about interdependence, and the more we learn about the ways

the cultural framework works its influence, the more interculturally sensitive we can be and the more effective we will be in a multicultural world.

APPENDICES

APPENDIX A1

APPENDIX A1

ENGLISH VERSION OF CULTURAL VALUES SURVEY

VALUES SURVEY

INSTRUCTIONS

In this questionnaire you will have to ask yourself: "Which values are the most important for ME as guiding principles in MY life, and which values are less important for ME?" In the following pages there are two lists of values. These values are from different cultures. After each value, within parenthesis, there is an explanation that might aid in the understanding of the meaning of the value.

Your task consists of the evaluation of the importance of each value for you as guiding principle in your life. Use the following scale:

0 = means that the value is not important, it is not relevant as a guiding principle for you.

3 = means that the value is important.

6 = means that the value is very important.

The higher the number (0, 1, 2, 3, 4, 5, 6) the higher the importance of the value as a guiding principle in YOUR life.

-1 = use it to indicate any value that is opposite to the principles that guide you.

7 = use it to qualify values of supreme importance as guiding principles in your life; normally there are no more than two (2) values of this type.

In the space before each value enter the number (-1, 0, 1, 2, 3, 4, 5, 6, 7) that indicates the importance that the value has for you. Try to differentiate as much as possible between the values by using all the numbers in the scale. Of course you will have to use the numbers more than once.

APPENDIX A1

LIST OF VALUES I

Before rating each value, read the values from 1 to 30 and choose the one that is most important for you and rate its importance. Then choose the value that is most opposite to your values and rate it as -1. If there is no such value, choose the one that is the least important for you and rate it 0 or 1, according to its importance. Following this steps rate each of the other values.

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed								of
to my	not			important		very		supreme
values	important					important		importance
-1	0	1	2	3	4	5	6	7

- 1 _____ EQUALITY (equal opportunity for all)
- 2 _____ INNER HARMONY (at peace with myself)
- 3 _____ SOCIAL POWER (control over others, dominance)
- 4 _____ PLEASURE (gratification of desires)
- 5 _____ FREEDOM (freedom of action and thought)
- 6 _____ A SPIRITUAL LIFE (emphasis on spiritual not material matters)
- 7 _____ SENSE OF BELONGING (feeling that others care about me)
- 8 _____ SOCIAL ORDER (stability of society)
- 9 _____ AN EXCITING LIFE (stimulating experiences)
- 10 _____ MEANING IN LIFE (a purpose in life)
- 11 _____ POLITENESS (courtesy, good manners)
- 12 _____ WEALTH (material possessions, money)
- 13 _____ NATIONAL SECURITY (protection of my nation from enemies)
- 14 _____ SELF-RESPECT (belief in one's own worth)
- 15 _____ RECIPROCATION OF FAVORS (avoidance of indebtedness)

APPENDIX A1

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed to my values	not important			important		very important	of supreme importance
-1	0	1	2	3	4	5	6
							7

16____ CREATIVITY (uniqueness, imagination)

17____ A WORLD AT PEACE (free of war and conflict)

18____ RESPECT FOR TRADITION (preservation of time-honored customs)

19____ MATURE LOVE (deep emotional and spiritual intimacy)

20____ SELF-DISCIPLINE (self-restraint, resistance to temptation)

21____ DETACHMENT (from worldly concerns)

22____ FAMILY SECURITY (safety for loved ones)

23____ SOCIAL RECOGNITION (respect, approval by others)

24____ UNITY WITH NATURE (fitting into nature)

25____ A VARIED LIFE (filled with challenge, novelty, and change)

26____ WISDOM (a mature understanding of life)

27____ AUTHORITY (the right to lead or command)

28____ TRUE FRIENDSHIP (close, supportive friends)

29____ A WORLD OF BEAUTY (beauty of nature and the arts)

30____ SOCIAL JUSTICE (correcting injustice, care for the weak)

APPENDIX A1

LIST OF VALUES II

Now rate the importance of each of the following values as guiding principles in your life. These values have been formulated as behavioral tendencies that may be more or less important for you. Again, try to differentiate between the values as much as possible by using all the numbers in the scale.

Before you begin, read the values from 31 to 56 and choose the one that is most important for you and rate its importance. After doing this, choose the value that is most opposite to your values, or if such value is not present, choose the one that is least important and rate it -1, 0, or 1, according to its importance.

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed to my values	not important			important		very important	of supreme importance
-1	0	1	2	3	4	5	6

- 31 _____ INDEPENDENT (self-reliant, self-sufficient)
- 32 _____ MODERATE (avoiding extremes of feelings and actions)
- 33 _____ LOYAL (faithful to my friends, group)
- 34 _____ AMBITIOUS (hardworking, aspiring)
- 35 _____ BROAD-MINDED (tolerant of different ideas and beliefs)
- 36 _____ HUMBLE (modest, self-effacing)
- 37 _____ DARING (seeking adventure, risk)
- 38 _____ PROTECTING THE ENVIRONMENT (preserving nature)
- 39 _____ INFLUENTIAL (having and impact on people and events)
- 40 _____ HONORING OF PARENTS AND ELDERS (showing respect)
- 41 _____ CHOOSING OWN GOALS (selecting own purposes)
- 42 _____ HEALTHY (not being sick physically or mentally)
- 43 _____ CAPABLE (competent, effective, efficient)

APPENDIX A1

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed								of
to my	not			important		very		supreme
values	important			important		important		importance
-1	0	1	2	3	4	5	6	7

44____ACCEPTING MY PORTION IN LIFE (submitting to life's circumstances)

45____HONEST (genuine, sincere)

46____PRESERVING MY PUBLIC IMAGE (protecting my "face")

47____OBEDIENT (dutiful, meeting obligations)

48____INTELLIGENT (logical, thinking)

49____HELPFUL (working for the welfare of others)

50____ENJOYING LIFE (enjoying food, sex, leisure, etc.)

51____DEVOUT (holding to religious faith and belief)

52____RESPONSIBLE (dependable, reliable)

53____CURIOUS (interested in everything, exploring)

54____FORGIVING (willing to pardon others)

55____SUCCESSFUL (achieving goals)

56____CLEAN (neat, tidy)

APPENDIX A2

APPENDIX A2

SPANISH VERSION OF CULTURAL VALUES SURVEY

CUESTIONARIO DE VALORES

INSTRUCCIONES

En este cuestionario tendrás que preguntarte: " Qué valores son más importantes para MI como principios que guían MI vida y qué valores son menos importantes para mí?". En las páginas siguientes aparecen dos listas de valores. Estos valores proceden de diferentes culturas. En el paréntesis que se encuentra al lado de cada valor se presenta una explicación que puede ayudarte a comprender su significado.

Tu tarea consiste en evaluar cuán importante es cada valor para ti como principio guía de tu vida. Utiliza la escala siguiente:

0 = significa que el valor no es importante, no es relevante como principio guía para ti.

3 = significa que el valor es importante.

6 = significa que el valor es muy importante.

Mientras más alto el número (0, 1, 2, 3, 4, 5, 6) más importante el valor como principio guía de TU vida.

-1 = utilízalo para indicar cualquier valor opuesto a los principios que te sirven de guía.

7 = utilízalo para calificar un valor de suprema importancia como principio guía en tu vida; normalmente no hay más de dos valores de este tipo.

En el espacio anterior a cada valor escribe el número (-1, 0, 1, 2, 3, 4, 5, 6, 7) que indique la importancia que tiene ese valor para ti personalmente. Trata de diferenciar todo lo posible entre los valores usando todos los números. Por supuesto tendrás que usar los números más de una vez.

APPENDIX A2

LISTA DE VALORES I

Antes de empezar, lee los valores del 1 al 32 y elige al que sea más importante para ti y evalúa su importancia. A continuación, elige el valor que sea más opuesto a tus valores y evalúalo -1. Si no existe tal valor, elige el valor menos importante y evalúalo 0 ó 1, de acuerdo a su importancia. Luego evalúa el resto de los valores.

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto a mis valores	no importante					importante					muy importante					de suprema importancia				
-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

- 1 _____ IGUALDAD (igualdad de oportunidades para todos)
- 2 _____ ARMONIA INTERNA (en paz conmigo mismo)
- 3 _____ PODER SOCIAL (control sobre los demás, dominio)
- 4 _____ PLACER (gratificación de deseos)
- 5 _____ LIBERTAD (libertad de acción y pensamiento)
- 6 _____ TRABAJO PAGADO (ganarse la vida dignamente)
- 7 _____ UNA VIDA ESPIRITUAL (énfasis en aspectos espirituales no materiales)
- 8 _____ SENTIDO DE PERTENENCIA (sentimiento de que otros se preocupan por mi)
- 9 _____ ORDEN SOCIAL (estabilidad de la sociedad)
- 10 _____ UNA VIDA EXCITANTE (experiencias estimulantes)
- 11 _____ TENER SENTIDO EN LA VIDA (una meta en la vida)
- 12 _____ BUENOS MODALES (cortesía, buenas maneras)
- 13 _____ RIQUEZA (posesiones materiales, dinero)
- 14 _____ SEGURIDAD NACIONAL (protección de mi nación de enemigos)

APPENDIX A2

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto									de
a mis	no						muy	suprema	
valores	importante			importante			importante	importancia	
-1	0	1	2	3	4	5	6	7	

- 15____AUTORESPETO (creer en el propio valor de uno)
- 16____RECIPROCIDAD DE FAVORES (evitar deber favores a los demás)
- 17____CREATIVIDAD (originalidad, imaginación)
- 18____UN MUNDO DE PAZ (libre de guerras y conflictos)
- 19____RESPETO POR LA TRADICION (mantener las costumbres conservadas a lo largo del tiempo)
- 20____AMOR MADURO (relación profunda de intimidad emocional y espiritual)
- 21____AUTODISCIPLINA (auto-control, resistencia a las tentaciones)
- 22____DESPREOCUPACION (de preocupaciones mundanas)
- 23____SEGURIDAD FAMILIAR (seguridad para los seres que amo)
- 24____RECONOCIMIENTO SOCIAL (respeto, aprobación de los demás)
- 25____UNION CON LA NATURALEZA (integrarse con la naturaleza)
- 26____IDENTIDAD NACIONAL (definición como pueblo)
- 27____UNA VIDA VARIADA (llena de retos, novedad y cambio)
- 28____SABIDURIA (comprensión madura de la vida)
- 29____AUTORIDAD (el derecho de dirigir o comandar)
- 30____AMISTAD VERDADERA (amigos cercanos que me apoyen)
- 31____UN MUNDO DE BELLEZA (belleza en la naturaleza y en las artes)
- 32____JUSTICIA SOCIAL (corregir injusticias, preocuparse de los débiles)

APPENDIX A2

LISTA DE VALORES II

Ahora evalúa cuán importante es cada uno de los valores siguientes como principio que guía TU vida. Estos valores están formulados como formas de conducta que pueden ser más o menos importantes para ti. Nuevamente trata de diferenciar todo lo posible entre los valores utilizando todos los números en la escala.

Antes de empezar, lee todos los valores del 33 al 58 y elige el que sea más importante para ti y evalúa su importancia. A continuación, elige el valor que sea más opuesto a tus valores, o si no existe tal valor elige el menos importante y evalúalo -1, 0, ó 1, de acuerdo a su importancia.

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto a mis valores	no importante					importante			muy importante	de suprema importancia
-1	0	1	2	3	4	5	6	7		

33_____INDEPENDIENTE (no depender de los demás, autosuficiente)

34_____MODERADO (evitando los extremos en sentimientos y acciones)

35_____LEAL (ser fiel a mis amigos, a mi grupo)

36_____AMBICIOSO (trabajador infatigable, con aspiraciones)

37_____MENTE ABIERTA (tolerante de diferentes ideas y creencias)

38_____HUMILDE (modesto, pasar desapercibido)

39_____ATREVIDO (busca de aventuras y riesgos)

40_____PROTECTOR DEL MEDIO AMBIENTE (conserva la naturaleza)

41_____INFLUYENTE (tener impacto sobre las personas y acontecimientos)

42_____HONRAR A LOS PADRES Y MAYORES (mostrándoles respeto)

43_____ELEGIR MIS PROPIAS METAS (seleccionar mis propios objetivos)

44_____SANO (no estar enfermo física o mentalmente)

45_____CAPAZ (competente, efectivo, eficiente)

APPENDIX A2

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto									de
a mis	no						muy	suprema	
valores	importante			importante			importante	importancia	
-1	0	1	2	3	4	5	6	7	

46_____ACEPTAR LA VIDA COMO ES (someterse a las circunstancias de la vida)

47_____HONESTO (genuino, sincero)

48_____CONSERVAR MI IMAGEN PUBLICA (proteger mi "imagen")

49_____OBEDIENTE (cumplidor de mis deberes y obligaciones)

50_____INTELIGENTE (lógico, pensador)

51_____QUE AYUDA (trabajar por el bienestar de los demás)

52_____DISFRUTAR DE LA VIDA (disfrutar de la comida, el sexo, el ocio)

53_____DEVOTO (mantener creencia y fé religiosa)

54_____RESPONSABLE (en el que se puede confiar, fiable)

55_____CURIOSO (interesado en todo, indagador)

56_____NO RENCOROSO (dispuesto a perdonar a los demás)

57_____EXITOSO (consigue metas)

58_____LIMPIO (ordenado, aseado)

APPENDIX B1

APPENDIX B1

ENGLISH VERSION OF DEBRIEFING SHEET IN THE PRELIMINARY STUDY

CROSS-CULTURAL STUDY OF VALUES

Thank you very much for your cooperation in this study!

The questionnaire that you have filled is part of the replication of a study done by Schwartz (1992) in which the values of the individuals in 20 cultures were assessed. At this time we are replicating this study here in the United States and in Puerto Rico. In the original study Schwartz found that we humans, across cultures, share a set of 10 motivations: benevolence, tradition, conformity, security, power, achievement, hedonism, stimulation, auto-direction, and universalism. According to those results, these 10 motivations are found in all cultures, but in each society some of these are stronger and more prevalent than others. For example, in Japan the motivation to observe tradition is very strong, while the motivation to be independent and have auto-direction is less prevalent (e.g. Triandis, 1989).

If you are interested in learning more on this topic I offer you some references:

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 cultures. In Advances in Experimental Social Psychology, 25, 1-65.

Schwartz, S. H. & Bilsky, W. (1987). Toward a psychological structure of human values. Journal of Personality and Social Psychology, 58, 878-891.

Triandis, H. C. (1989). Cross-cultural studies of individualism and collectivism. Nebraska Symposium on Motivation.

For more information please call:

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(517) 353-5324

APPENDIX B2

APPENDIX B2

SPANISH VERSION OF DEBRIEFING SHEET IN THE PRELIMINARY STUDY

ESTUDIO CROS-CULTURAL DE VALORES; Muchas gracias por tu cooperación en este estudio! El cuestionario que acabas de completar es la replicación de un estudio hecho por Schwartz (1992) en el cual los valores de los individuos en 20 culturas fueron estudiados. En esta ocasión estamos replicando el estudio aquí en Puerto Rico y en los Estados Unidos. En el estudio original Schwartz encontró que los humanos a través de todas las culturas compartimos in conjunto de diez motivaciones: benevolencia, tradición, conformidad, seguridad, poder, éxito, hedonismo, estimulación, auto-dirección, y universalismo. De acuerdo a los resultados estas diez motivaciones se encuentran en todas las culturas, pero en cada sociedad algunas motivaciones son más fuertes y prevalentes que otras. Por ejemplo, en Japón la motivación de mantener la tradición es muy fuerte, mientras que la motivación para ser independiente y tener auto-dirección es menos prevalente (e.g. Triandis, 1989).

Si estás interesado en aprender más sobre este tema aquí te ofrezco unas referencias:

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 cultures. In *Advances in Experimental Social Psychology*, 25, 1-65.

Schwartz, S. H. & Bislky, W. (1987). Toward a psychological structure of human values. *Journal of Personality and Social Psychology*, 58, 878-891.

Triandis, H. C. (1989). Cross-cultural studies of individualism and collectivism. *Nebraska Symposium on Motivation*.

Para más información te puedes comunicar conmigo en la siguiente dirección:

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APPENDIX C1

APPENDIX C1

ENGLISH VERSION OF CONSENT FORM FOR EXPERIMENT

Research Consent Form

The Tower Building Study

Read carefully the following information about this study and indicate your understanding by signing and dating the form at the bottom.

1. Participation in this study is voluntary. This means that the participants will freely consent to participate in the study.
2. Participation in this study is anonymous and confidential.
3. This study will involve building towers with wooden blocks, using only one hand. During the course of the experiment, participants will also be asked to complete various questionnaires.
4. The building of the towers will be recorded on videotape for future observation by trained coders. Only the hand of the participants and the blocks will be videotaped; the face of the participants will not be videotaped.
5. Participation in this study will require about one (1) hour.
6. Participation in this study does not guarantee any beneficial results to any of the participants.
7. All participants are free to discontinue their participation at any time without penalty.
8. Additional information about this research project will be provided after the participation is completed. Participants who choose to discontinue their participation will also receive additional information regarding the study.

I voluntarily agree to participate in this study.

Signature

Date

APPENDIX C2

APPENDIX C2

SPANISH VERSION OF CONSENT FORM FOR EXPERIMENT

Hoja de Consentimiento a la Investigación

Estudio de Construcción de Torres

Lee cuidadosamente la siguiente información sobre este estudio e indica que la entiendes con tu firma y la fecha en la parte de abajo de la hoja.

1. La participación en este estudio es voluntaria. Esto significa que los participantes han consentido libremente a participar en el estudio.
2. La participación en este estudio es anónima y confidencial.
3. Este estudio envuelve la construcción de torres con bloques de madera, usando una mano solamente. Durante el curso del experimento, se le pedirá a los participantes que completen varios cuestionarios.
4. La construcción de las torres será grabada en video para la que codificadores entrenados observen las sesiones. Solamente la mano de los participantes y los bloques serán grabados; la cara de los participantes no será grabada.
5. La participación en este estudio requiere aproximadamente una (1) hora.
6. La participación en este estudio no le garantiza resultados beneficiosos a ninguno de los participantes.
7. Todos los participantes tienen la libertad de discontinuar el estudio en cualquier momento sin ninguna penalidad.
8. Información adicional sobre este proyecto de investigación sera provista una vez la participación haya finalizado. Los participantes que elijan discontinuar su participación tambien recibiran la información adicional sobre el estudio.

Acepto voluntariamente a participar en este estudio

Firma

Fecha

APPENDIX D1

APPENDIX D1

ENGLISH VERSION OF EXPERIMENTAL PROCEDURE AND INSTRUCTIONS

The participants will be scheduled for 1 hour of experiment.

I. Pre-Experiment Procedure

All of these steps need to be taken before the participant walks into the lab.

1. Look in the log book for the next corresponding condition to be run and for the subject (Ss) number.
2. Take the procedure-cassette for and place it in the tape player on the corresponding side: SIDE A = cond 1, and SIDE B = cond 2. Make sure that it is rewound.
3. Record, on video, the condition and subject number. To do this, write the condition and the Ss number on an index card, with a thick marker. Place the card in front of the camera and record it for about 10 seconds.
4. Write the subject number on the back of all the forms (lower right corner) to be used by the participant in this session. These are the consent form, the general questionnaire, scoring exercise, Q #1 and Q #2. You don't need to label the debriefing sheet.
5. Take the scoring exercise, fold it and put it in the small envelope labeled "SCORING".
6. Take Q #1 and put it in the larger envelope labeled "SURVEY".
7. Place the "SCORING" and "SURVEY" envelopes on the shelves on the right side of the room. Check that pencils are good to use.
8. Place the blocks on the table in three piles according to color. Place 33 blocks of each color.
9. Place consent form on center of table with a pencil next to it.
10. As the experiment progresses, you will be collecting all the different forms that the participant uses. Keep these together. At the end of the session staple all of these forms together (there should be: consent form, general questionnaire, scoring exercise, Q #1, and Q #2... a total of 5 forms for each participant).

APPENDIX D1**II. Greeting the Participants**

"Welcome to the 'Towers Building Study'. You will be working in this room [greet them into the experimental room].

III. Consent Form

Show the Ss the consent form and ask them to: "Please read carefully and sign this consent form. When you are done slip it under the door".

Close the door behind you.

IV. General Questionnaire

When the Ss slips the consent form, pick it up and file it. Then go into the room with the General Questionnaire.

The Ss are to be told that this questionnaire is unrelated to the tower building task, that we are collecting this data for future studies. If they ask questions you may tell them that we are waiting for other participants and this is something to do meanwhile. But don't offer too much information.

You could say: "As we wait for the other participants, we would like for you to answer this survey. When you are done you may slip it under the door."

Close the door behind you. Wait for survey to come out, pick it up and file it.

V. Introduction of Group and Reward Interdependence Manipulations

Now, go back into the room and instruct the Ss to listen very carefully to the audio recording, because they will receive all the important instructions through that recording. Tell the participant that they will have an opportunity to ask questions, but to try and pay close attention to the recording.

AUDIO RECORDING: Welcome to the tower building study. In this study you will be building towers with the wooden blocks you see in front of you. You will be participating along with two other participants who are in adjoining rooms. In the other two rooms of this laboratory there are two individuals, who will go through the same procedure as you. You will not meet or have any direct communication with these other two participants, but the three of you will work as a group.

APPENDIX D1

Each one of the group members will have 99 blocks, 33 of each color, to build towers. The amount of blocks that each group member puts into the towers will go into a group pool of blocks, where each block will be worth one point and the more blocks that go into the pool the more bonus points will be awarded to the group, and these in turn will be divided among the three of you. If the pool has 99 blocks or less the group will receive no (0) bonus points; if the pool has between 100 and 150 blocks the bonus points will be 25; if the pool has between 151 and 200, the bonus points will amount to 50; when the pool has between 201 and 250 blocks, the group will receive 75 bonus points; and finally, if the pool has between 251 and 297 blocks, the group will be awarded 100 bonus points. Your performance will be recorded on video, as well as that of the other two group members. The video recording of the performance of each of the group members will be later used to observe the amount of blocks that each one built into towers, this way calculating the amount of blocks that will go into the group pool for each trial and the corresponding amount of bonus points. So, after the study has been completed the score for each participant will be calculated and these will be entered into a drawing and the winner participant will receive his or her awarded points for the winning trial in dollars. Therefore, we would like you to think of the points you score in each trial as dollars; dollars that may be yours if you are the winner of the drawing.

Let me explain this again. You and two other participants form a group. Each of you will be doing the same task of building towers with the colored blocks. The amount of blocks that each of you is able to put into towers will be added together to calculate the group's bonus. The table in front of you shows the bonus points to be awarded according to the group total. Here is an example, person 1 accumulates 50 points for putting 50 blocks into towers, person two accumulates 80 points and person 3 accumulates 60 points. This group's total for this trial would be 190 points. With that number we go to the bonus table and find out that for a group total of 190 points the group gets a bonus of 50 points. Now, this group bonus can be divided according to how much each person contributed to it. In other words, we can calculate the proportion of the group bonus that was contributed by each group member, according to the amount of points that they contributed to the group total.

CONDITION 1:

HIGH INTERDEPENDENCE REWARD: *Your own personal score will be the average of the points accumulated by the other two group members, and the average of their proportion of bonus points. The same will apply to the other two group members. This means that the performance of each person will directly affect the score that the other group members will receive.*

Let me repeat this. To calculate your score, we will take the points accumulated by the other two group members and compute an average. We will also take each of the other member's contributions to the bonus and average them. Then we will add the average of their points and the average of their bonus points and that will be your score.

APPENDIX D1

Notice the high degree of interdependence present in this task. Your results will depend highly on the other two group members, and their results will depend highly on how well you do in the task. Their success depends highly on your performance and vice-versa. So, in order for all group members to do well, everybody has to focus on their work. The success of all group members depends on everyone's effort.

CONDITION 2:

LOW INTERDEPENDENCE REWARD: *Your personal score will be the number of blocks that you build into towers plus your proportion of the group bonus points. The same will apply to the other two group members.*

Notice that although you will be working as part of the group, your outcome really depends on how well you do in the task. See that the amount of group bonus is small compared to the points you score with the blocks that you put in the towers. In most occasions the bonus points will account for no more than 20% of your score, so it is more important to focus on your performance than on the group's bonus. The bonus points will be just a little something extra you will get from being in this group, but the bulk of your score will come from your performance. So, in order to make a good score you need to focus on your own work. Each participant's success depends mostly on their own efforts.

To make sure that you understand the way your points are going to be calculated, we are going to ask you to do a brief scoring exercise.

Take the smaller envelope labeled "SCORING" and take the sheet out. Now, read this carefully and do the exercise. You will have 4 minutes to work on this. When the time is over I will ask you to stop the exercise. Then wait for more instructions. Use the pencil on the table and start the exercise.

4 minutes...

Stop! Now, put the exercise back in the envelope and slip it under the door. The experimenter will pick it up and will come in to explain the questions and answer any questions you may have.

Experimenter: Go into room and stop cassette. Check results. Show the Ss the results sheet corresponding to the condition. Make sure that they understand (at least have a general idea) how the score for each trial is going to be calculated.

Once you have answered the Ss questions, put the cassette on play and leave the room, closing the door after you.

APPENDIX D1**VI. Pre-task Assessment of Attitudes toward Group and Reward Interdependence**

At this point we need you to answer some questions about the information that you have received so far. Take the larger envelope, labeled "SURVEY", open it, and take out the questionnaire. Use the pencil on the table. You will have 2 minutes to answer these questions. You may start now... 2 minutes... You must finish answering the questions and at this time put the questionnaire back into the envelope and slip it under the door.

Now, let's proceed with the tower building task.

VII. Overview of Task

AUDIO RECORDING: In this study you will be building towers with the wooden blocks you see on the table, but there is a specific way in which this towers are to be built. The model tower that you see in front of you shows how each tower has to be built.

The rules are simple...

- 1. There are three types of blocks that you will need to build the towers. There are BLUE, RED, and YELLOW blocks, and here you have 33 blocks of each color, which you will use to build the towers in each trial. There will be three trials of two and a half (2 ½) minutes each to build towers.*
- 2. The instructions for each trial are the following:*
 - a) You will only be able to use one hand to build the towers, whichever hand you prefer. The other hand will have to remain on your lap at all times during each trial.*
 - b) The towers must be built in a very specific pattern. The model on the table shows demonstrates the pattern. The first floor of the tower has three vertical blocks; the second floor has three horizontal blocks; then the third floor follows with another three vertical blocks; the fourth floor with three horizontal blocks and finally the fifth floor with three vertical blocks. Each floor must have one block of each color, and the blocks must be touching each other, just like the model. A completed tower will have five (5) floors.*
 - c) What is most important is that you build the most towers you can, as fast as possible.*
 - d) Remember, each tower has to look the same as the model tower. Look closely at the model to make sure you know what to do in the task. The goal is to build as many towers as possible in the time provided in each trial.*

APPENDIX D1

VIII. Practice Trial

At this moment you will be allowed 2 ½ minutes to practice building towers. During the study, you will also have 2 ½ minutes in each trial of building towers. Try to build as much as you can and as fast as possible. Before you start your practice you should decide which arm you will be using to build the towers, and put the other hand on your lap, under the table. Remember: a tower will be complete when it has five (5) floors and that each floor must have one block of each color.

Now, get ready to start the practice trial. When I say "GO!" you may start. At the end of the 2 ½ minutes I will ask you to "STOP!". At that time you should stop and wait for more instructions.

GO!... 2 ½ minutes... STOP!

Now, let the experimenter know that you have finished the practice trial by knocking on the door.

Experimenter: Go in and stop the cassette. Examine the towers built during the practice trial and make sure that the participant understands the instructions correctly.

“After each trial you will have to break down the towers and separate the blocks into three piles, one for each color {GIVE THE Ss AN IDEA OF HOW TO DO THIS}. At the end of each trial you will have 30 seconds to reorganize your blocks and to get ready for the next trial. Now, proceed to reorganize your blocks, during the trials you will have 30 seconds to do this.”

You may say: "Now, if you don't have anymore questions we will start the actual trials of building towers with these blocks. Once again the audio recording will guide you, so pay close attention".

“I will start now the video recording of the work area. Your face will not be on the video, just your hand and the blocks and towers.”

START THE VIDEO RECORDING and the audio recording!

IX. Task

AUDIO RECORDING: *Now we will start the three trials of building towers. Remember that each trial will be 2 ½ minutes long and that after each trial you will have 30 seconds to reorganize the blocks into three piles according to their color. Put the hand that you will not use on your lap and get ready to start.*

APPENDIX D1

When I tell you "GO" you may start building towers. Remember to do them as quickly as you can and to build as many as possible. Well, get ready: GO!... 2 ½ minutes... STOP!

Now we will ask you to break your towers and divide the blocks into three piles, according to their color. You will have 30 seconds to do this.

... 30 seconds...

Get ready for the second trial... GO!... 2 ½ minutes... STOP! Now you will have 30 seconds to divide the blocks again into three piles according to their color.

... 30 seconds...

Get ready for the third trial... GO!... 2 ½ minutes... STOP! You have finished the tower building task.

Knock on the door to let the experimenter know that you have finished.

Thank you for your participation in this study.

X. Post-Task Questionnaire

Experimenter: When the Ss knocks on the door, go into the room (with Q #2) and ask the participant to complete Q #2.

"Now we would like for you to answer the following questions about your experience in this study. You may slip the questionnaire under the door when you are done".

Leave the room, closing the door after you.

XI. Experiment Credit Card and Debriefing

Ask the participant for their Experiment Credit Card and stamp it. Take the questionnaire and give the participants their experiment credit card with the debriefing sheet. Thank him/her and show him/her out.

If they don't have a credit card, fill out for them a credit transfer form.

XII. For next session

- ◆ Rewind tape on the side for the next condition.
- ◆ Finish entry in logbook (problems?).

APPENDIX D2

APPENDIX D2

SPANISH VERSION OF EXPERIMENTAL PROCEDURE AND INSTRUCTIONS

Los participantes serán citados para 1 hora de experimento.

I. Procedimiento Pre-Experimental

Los siguientes pasos tienen que llevarse a cabo antes de que el participante entre en el laboratorio.

1. Busca en el "log book" la próxima condición a correrse y el número de participante correspondiente. Busca el paquete de materiales ya preparados para esa sesión.
2. Coge el "ejercicio de puntuación", dóblalo y ponlo en el sobre titulado PUNTUACION. Coge el "cuestionario #1" y ponlo en el sobre titulado CUESTIONARIO.
3. Lleva al laboratorio los siguientes materiales:
 - a) Hoja de Consentimiento. Ponla en el centro de la mesa con un lápiz al lado.
 - b) Sobres PUNTUACION y CUESTIONARIO. Ponlos en su lugar.
 - c) Tarjeta de sesión (condición y número de sujeto).
 - d) En el laboratorio ya deben estar los bloques en la mesa, divididos en grupos de acuerdo al color, el model de la torre y la "tabla de bonos para el grupo".
4. Graba en el video la condición y el número de sujeto poniendo la tarjeta frente al lente de la cámara. Graba la información en la tarjeta por unos 10 segundos.
5. Pon el cassette-procedimiento en el lado correspondiente a la condición que se va a correr. Asegúrate de que esté al principio.
- Una vez sepas que el participante está presente y que la sesión se va a correr, apunta en el logbook la fecha y hora. Recuerda al final de la sesión anotar si hubo algún problema.

Mientras el estudio va progresando, vas a ir recolectando diferentes formas que el participante ha usado. Manténlas juntas y al final de la sesión grapa todos los papeles juntos. Al final de la sesión el paquete debe contener las siguientes formas: hoja de consentimiento (con el número del participante escrito grande al frente), cuestionario general, ejercicio de puntuación, cuestionario #1, y cuestionario #2... un total de 5 formas por cada participante.

APPENDIX D2**II. Entrada de los Participantes/Hoja de Consentimiento**

"Bienvenido al 'Estudio de Construcción de Torres'. Estarás trabajando en este cuarto. Por favor, lee esto cuidadosamente y firma esta hoja de consentimiento. Cuando acabes, pasa la hoja por debajo de la puerta."

Cierra la puerta tras de ti.

III. Cuestionario General

Regresa al cuarto experimental con el *cuestionario general* y dile lo siguiente: "Completa este cuestionario mientras esperamos por otros participantes". No des más información de la necesaria.

Cierra la puerta tras de ti.

Cuando el participante esté llenando el cuestionario, es un buen momento para hacer ruidos de puertas abriendo y cerrando (para hacer parecer que pueden haber otras personas llegando).

Este cuestionario toma de 5 a 10 minutos el completarlo.

IV. Introducción a las Manipulaciones de Grupos e Interdependencia de Recompensa

Cuando el cuestionario general salga por debajo de la puerta, recógelo y entra al laboratorio. Dile al participante que las instrucciones para este estudio están grabadas en audio así es que deben escuchar cuidadosamente. Le puedes decir que habrá oportunidad de hacer preguntas más adelante en el estudio.

GRABACION EN AUDIO: Bienvenido al Estudio de Construcción de Torres. En este estudio estarás construyendo torres con los bloques de madera que ves frente a ti. Estarás participando junto a otras dos personas que se encuentran en cuartos cercanos siguiendo el mismo procedimiento que tú. Tú no conocerás a estas personas, ni tendrás ninguna comunicación directa con estos otros participantes, pero ustedes tres trabajarán como un grupo.

Cada uno de los miembros del grupo tendrá 99 bloques, 33 de cada color, para construir las torres. La cantidad de bloques que cada miembro del grupo ponga en las torres irá a un banco de bloques del grupo, donde cada bloque tendrá el valor de un punto y mientras más bloques vayan al banco más puntos de bono se le darán al grupo, y éstos a su vez serán divididos entre ustedes tres. Si el banco de puntos tiene 99 bloques o menos

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el grupo no recibirá ningunos (0) puntos de bono; si se acumulan entre 100 y 150 los puntos de bono serán 25; si el banco tiene entre 151 y 200, los puntos de bono serán 50; cuando el banco tenga entre 201 y 250 bloques, el grupo recibirá 75 puntos de bono; y finalmente, si el banco tiene entre 251 y 297 bloques, al grupo se le darán 100 puntos de bono. La grabación en video de la actuación de cada miembro del grupo será más tarde usada para observar la cantidad de bloques que cada uno puso en las torres, de esta manera calculando la cantidad de bloques que irán al banco de bloques del grupo para cada oportunidad de construir las torres y la cantidad correspondiente de puntos de bono. Después de que el estudio se haya completado la puntuación para cada participante será calculada y éstas serán entradas en una lotería y el ganador recibirá su puntuación en la oportunidad ganadora en dólares. Por lo tanto, nos gustaría que pensaras sobre tus puntuación en cada oportunidad como si fueran dólares; dólares que podrían ser tuyos si tu eres el ganador de la lotería.

CONDICION 1:

ALTA INTERDEPENDENCIA DE RECOMPENSA: *Tu puntuación será el promedio de los puntos acumulados por los otros dos miembros del grupo, y su proporción de puntos de bono. Lo mismo le aplicara a los otros miembros del grupo. Esto significa que la actuación de cada persona afectará directamente la puntuación que reciban los otros dos miembros del grupo.*

Vamos a repetir esto. Para calcular tu puntuación, vamos a coger los puntos acumulados por los otros dos miembros del grupo y vamos a calcular un promedio. También vamos a coger la contribución al bono de cada uno de los otros dos miembros y vamos a calcular ese promedio. Luego vamos a sumar al promedio de las puntuaciones más el promedio de sus proporciones del bono y esa va a ser tu puntuación.

Fijate en el alto nivel de interdependencia presente en esta tarea. Tu resultado va depender altamente en los otros miembros del grupo, y los resultados de ellos van a depender altamente en cuán bien tu haces tu tarea. El éxito de ellos depende altamente en tu actuación y vice-versa. Así es que, para que todos los miembros del grupo salgan bien, todos tienen que enfocarse en su trabajo. El éxito de todos los miembros del grupo depende del esfuerzo de todos.

CONDICION 2:

BAJA INTERDEPENDENCIA DE RECOMPENSA: *Tu puntuación será el número de bloques que pongas en las torres más tu proporción de los puntos de bono. Lo mismo le aplicará a los otros dos miembros del grupo.*

A pesar de que vas a estar trabajando como parte de un grupo, tus resultados en realidad dependen de cuán bien tu haces la tarea. Fijate que la cantidad de bono para el grupo es pequeña comparada con los puntos que anotas con los bloques que tu mismo

APPENDIX D2

pones en las torres. En la mayoría de las ocasiones, los puntos de bono no son más del 20% de la puntuación, así es que es más importante el que te enfoques en tu actuación que en los puntos de bono del grupo. Los puntos de bono serán algo extra que recibirás por ser parte del grupo, pero la mayoría de tus puntos van a venir de tu propia actuación. Por lo tanto, para que obtengas una buena puntuación debes enfocarte en tu trabajo. El éxito de cada participante depende principalmente de su propio esfuerzo.

Para asegurarnos de que entiendes la manera en que tus puntos van a ser calculados, te vamos a pedir que hagas un pequeño ejercicio de puntuación.

Coge el sobre pequeño titulado PUNTUACION y saca la hoja que esta adentro. Ahora, lee cuidadosamente el ejercicio y haslo. Tendrás 4 minutos para trabajar en esto. Cuando el tiempo se acabe te pedire que acabes el ejercicio. Luego escucha para más instrucciones. Usa el lápiz en la mesa para hacer el ejercicio.

4 minutos...

Para! Ahora, pon el ejercicio nuevamente en el sobre y pásalo por debajo de la puerta. El experimentador lo recogerá y vendrá a chequear las contestaciones y a contestar cualquier pregunta que tengas hasta el momento.

Experimentador: Entra al laboratorio con la hoja de contestaciones correspondiente a la condición y para el cassette. Vas a tener aproximadamente 30 segundos para parar el cassette. Chequea las contestaciones. Si las contestaciones están correctas continúa, pero si las contestaciones estan incorrectas explica las contestaciones correctas y asegúrate que el participante entienda las instrucciones.

Una vez has contestado las preguntas de participante, pon el cassette nuevamente y sal del laboratorio cerrando la puerta tras de ti.

V. Cuestionario Pre-Tarea de Actitudes sobre el Grupo y la Interdependencia de Recompensa

Ahora necesitamos que contestes unas preguntas sobre la información que has recibido hasta ahora. Coge el sobre grande titulado CUESTIONARIO, ábrelo, y saca el cuestionario. Tendrás 1 minuto para contestar estas preguntas. Puedes empezar ahora... 1 minuto... Debes terminar de contestar estas preguntas ahora, pon el cuestionario en el sobre y pásalo por debajo de la puerta.

Ahora, procedamos con la tarea de construir las torres.

APPENDIX D2**VI. Repaso de la Tarea**

GRABACION EN AUDIO: En este estudio estarás construyendo torres con los bloques de madera que ves en la mesa, pero hay una forma específica en la cual estas torres serán construidas. El modelo que ves frente a ti demuestra como es que hay que construir las torres.

Las reglas son simples:

1. Hay tres tipos de bloques que vas a necesitar para construir las torres. Hay bloques AZULES, ROJOS, y AMARILLOS, y aquí tienes 33 bloques de cada color, los cuales usarás para construir torres en cada turno. Habrán tres turnos de 2 minutos y medio cada uno.

2. Instrucciones para cada turno:

(a) Solamente podras usar una mano para construir las torres, la mano que prefieras.

(b) Las torres deben ser construidas en un patron especifico. El model en la mesa demuestra el patron. El primer piso de la torre tienes tres bloques verticales; el segundo piso tiene tres bloques horizontales; luego el tercer piso tiene tres bloques verticales, seguido por otros tres bloques horizontales, y finalmente el quinto piso tiene tres bloques verticales. Cada piso tiene que tener un bloque de cada color, y los bloques deben estar tacándose, al igual que en el modelo. Fijate que los bloques tienen un lado ancho y otro mas fino; el lado fino tiene que estar hacia el frente de la torre, hacia ti. Una torre completa tendrá cinco (5) pisos.

(c) Lo mas importante es que construyas la mayor cantidad de torres lo mas rapido posible.

(d) Recuerda, cada torre tiene que verse igual que la torre modelo. Fijate bien en el model para que sepas como hacer la tarea.

VII. Turno de Practica

Ahora tendras 2 ½ minutos para practicar el construir las torres. Durante el estudio, tambien tendras 2 ½ minutos en cada turno de construir torres.

Cuando se acabe el turno de 2 ½ minutos vas a tener 30 segundos para tumbar las torres y separar los bloques de acuerdo al color.

APPENDIX D2

Trata de construir cuantas puedas lo mas rapido posible. Antes de empezar el turno de practica, decide que mano vas a usar para construir las torres y pon la otra mano en tu falda, debajo de la mesa.

Ahora prepárate para tu turno de practica. Cuando te diga "EMPIEZA" puedes comenzar. Al cabo de cuatro minutos yo te dire "PARA". En ese momento te detienes y esperas para mas instrucciones.

"EMPIEZA"... 2 ½ minutos... "PARA". No tumbes las torres todavía. Toca en la puerta para dejarle saber al experimentador que las acabado la turno de practica.

Experimentador: Entra al laboratorio y para el cassette. Examina las torres construidas durante el turno de practica y asegurate que el participante entiende las instrucciones correctamente. Error común, en vez de poner el lado fino de los bloques hacia el frente ponen el lado ancho. Esto se debe corregir.

Experimentador debe decirle al participante: "Recuerda que despues de cada oportunidad de construir torres tendras que tumbar las torres y separar los bloques en tres grupos, uno para cada color. Al final de cada turno tendras 30 segundos para reorganizar los bloques y para prepararte para el proximo turno. Ahora, procede a reorganizar tus bloques en lo que yo preparo la cámara para grabar los turnos. Esta es la parte en la que vamos a grabar tu actuación. Solamente vamos a grabar tu mano y la mesa con las torres."

Pon la cámara a grabar y antes de salir del laboratorio pon el cassette.

VIII. Tarea

GRABACION EN AUDIO: Ahora vamos a comenzar las tres oportunidades or turnos de contruir las torres con los bloques. Recuerda que cada turno va a ser de 2 ½ minutos de largo y que al acabarse el turno vas a tener 30 segundos para tumbar las torres y separar los bloques de acuerdo al color. Coloca la mano que no vas a utilizar en tu falda y prepárate para empezar.

Cuando te diga "EMPIEZA" puedes comenzar a construir las torres. Recuerda el hacerlas lo mas rapido posible y construir las mas que puedas. Tendras 2 ½ minutos en cada turno. Bueno, prepárate: EMPIEZA!... 2 ½ minutos... PARA!

Ahora te vamos a pedir que rompas las torres y dividas los bloques en tres grupos, de acuerdo a su color. Tendras 30 segundos para hacer esto.

... 30 segundos...

Prepárate para el segundo turno... EMPIEZA!... 2 ½ minutos... PARA! Ahora tendras 30 segundos para dividir los bloques nuevamente en tres grupos de acuerdo al color.

... 30 segundos...

APPENDIX D2

Preparate para el tercer turno... EMPIEZA!... 2 ½ minutos... PARA!

Toca en la puerta para dejarle saber al experimentador que has acabado.

Gracias por tu participación en el Estudio de Construcción de Torres.

IX. Cuestionario Post-Tarea

Experimentador: Cuando el participante toque en la puerta, ve al laboratorio con el cuestionario #2 y dile al participante: “Ya estamos por acabar, ahora lo unico que nos falta es que contestes estas preguntas sobre el estudio. Cuando las acabes pasa la hoja por debajo de la puerta.

X. "Debriefing"

Experimentador: Toma el cuestionario y entregue la hoja de "debriefing" al participante. Dale las gracias y muéstrale la salida.

XII. Para la próxima sesión

- ◆ Dale “rewind” al cassette en el lado de la próxima condición.
- ◆ Entra la información necesaria en el logbook correspondiente a la sesión que acabas de correr (¿problemas?).

APPENDIX E1

APPENDIX E1

ENGLISH VERSION OF EXPERIMENT'S CULTURAL VALUE SURVEY

GENERAL QUESTIONNAIRE

Instructions

In this questionnaire you will have to ask yourself: "Which values are the most important for ME as guiding principles in MY life, and which values are less important for ME?" After each value, within parenthesis, there is an explanation that might aid in the understanding of the meaning of the value.

Your task consists of the evaluation of the importance of each value for you as guiding principle in your life. Use the following scale:

0 = means that the value is not important, it is not relevant as a guiding principle for you.

3 = means that the value is important.

6 = means that the value is very important.

The higher the number (0, 1, 2, 3, 4, 5, 6) the higher the importance of the value as a guiding principle in YOUR life.

-1 = use it to indicate any value that is opposite to the principles that guide you.

7 = use it to qualify values of supreme importance as guiding principles in your life; normally there are no more than two (2) values of this type.

In the space before each value enter the number (-1, 0, 1, 2, 3, 4, 5, 6, 7) that indicates the importance that the value has for you. Try to differentiate as much as possible between the values by using all the numbers in the scale. Of course you will have to use the numbers more than once.

APPENDIX E1

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed								of
to my	not			important		very		supreme
values	important			important		important		importance
-1	0	1	2	3	4	5	6	7

01 _____ CARE (being concerned about the welfare of others)

02 _____ SELF-RESPECT (belief in one's own worth)

03 _____ AMBITIOUS (hardworking, aspiring)

04 _____ OBEDIENT (dutiful, meeting obligations)

05 _____ ASPIRATIONS (having dreams and goals)

06 _____ INDEPENDENCE (not having to rely on others, having control of your success or failure)

07 _____ SOCIAL ORDER (stability of society)

08 _____ AUTHORITY (the right to lead or command)

09 _____ CREATIVITY (uniqueness, imagination)

10 _____ DECISIONS (having the opportunity to make changes)

11 _____ SUCCESSFUL (achieving goals)

12 _____ SELF-DISCIPLINE (self-restraint, resistance to temptation)

13 _____ DESIRE (drive, wanting success, motivated)

14 _____ EQUITY (fairness, reward according to contribution)

15 _____ FAMILY SECURITY (safety for loved ones)

16 _____ EQUALITY (all are the same, same reward for all)

17 _____ WEALTH (material possessions, money)

18 _____ FREEDOM (freedom of action and thought)

19 _____ COURTESY (being nice to others, not being rude)

20 _____ ALTERNATIVES (having choices)

APPENDIX E1

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed to my values	not important		important		very important	of supreme importance
-1	0	1	2	3	4	5

21 _____ CAPABLE (competent, effective, efficient)

22 _____ POLITENESS (courtesy, good manners)

23 _____ PURPOSEFUL (having goals)

24 _____ INDEPENDENT (self-reliant, self-sufficient)

25 _____ EXPERTISE (having extensive knowledge on a particular area)

26 _____ SOCIAL POWER (control over others, dominance)

27 _____ ACCOMPLISHING (reaching goals, completing tasks)

28 _____ SHARING (giving what is yours to others)

29 _____ CONTROL (of the self, of own actions)

30 _____ APT (having the capacity to execute a task)

31 _____ AUTONOMY (being free to pursue personal goals, being able to do things on your own)

32 _____ NATIONAL SECURITY (protection of my nation from enemies)

33 _____ INTERDEPENDENCE (depeding on others and others depending on you)

34 _____ HONORING OF PARENTS AND ELDERS (showing respect)

35 _____ SELF-RESTRAINT (in favor of others)

36 _____ SATISFACTION (considering what one has achieved sufficient)

37 _____ RECIPROCATION OF FAVORS (avoidance of indebtendness)

38 _____ SELECTION (choosing what one is to do, or not to do)

39 _____ PRESERVING MY PUBLIC IMAGE (protecting my "face")

40 _____ CHOOSING OWN GOALS (selecting own purposes)

APPENDIX E1

AS A GUIDING PRINCIPLE IN MY LIFE, this value is:

opposed to my values	not important			important		very important	of supreme importance
-1	0	1	2	3	4	5	6
							7

41 _____ PROFICIENT (qualified, competent, capable)

42 _____ CONSIDERATION (taking into account the feelings and thoughts of others)

43 _____ OBSERVANCE (of rules)

44 _____ INTELLIGENT (logical, thinking)

45 _____ DEPENDENCE (having to rely on others, having your success or failure in the hands of others)

46 _____ CLEAN (neat, tidy)

47 _____ COMPETITION (seeking personal success over the failure of others)

48 _____ SOCIAL RECOGNITION (respect, approval by others)

49 _____ CURIOUS (interested in everything, exploring)

50 _____ ABILITY (being able to execute a task)

51 _____ ADHERENCE (to rules and regulations)

52 _____ SENSE OF BELONGING (feeling that others care about me)

53 _____ HEALTHY (not being sick physically or mentally)

54 _____ COOPERATION (working with other for a common cause)

GENERAL INFORMATION:

1. Age _____

2. Sex: M _____ F _____

APPENDIX E2

APPENDIX E2

SPANISH VERSION OF EXPERIMENT'S CULTURAL VALUE SURVEY

CUESTIONARIO GENERAL

Instrucciones

En este cuestionario tendrás que preguntarte: "Qué valores son más importantes para MI como principios que guían mi vida, y qué valores son menos importantes para MI?". Después de cada valor, entre paréntesis, hay una explicación que puede ayudarte a comprender su significado.

Tu tarea consiste en evaluar cuán importante es cada valor para ti como principio guía de tu vida. Utiliza la siguiente escala:

0 = significa que el valor no es importante, no es relevante como principio guía para ti.

3 = significa que el valor es importante.

6 = significa que el valor es muy importante.

Mientras más alto el número (0, 1, 2, 3, 4, 5, 6) más importante el valor como principio guía de TU vida.

-1 = utilízalo para indicar cualquier valor opuesto a los principios que te sirven de guía.

7 = utilízalo para calificar un valor de suprema importancia como principio guía en tu vida; normalmente no hay más de dos valores de este tipo.

En el espacio anterior a cada valor escribe el número (-1, 0, 1, 2, 3, 4, 5, 6, 7) que indique la importancia que tiene ese valor para ti personalmente. Trata de diferenciar todo lo posible entre los valores usando todos los números. Por supuesto tendrás que usar los números más de una vez.

APPENDIX E2

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto									de
a mis	no			importante			muy	suprema	
valores	importante						importante	importancia	
-1	0	1	2	3	4	5	6	7	

- 01____PREOCUPARSE (estar preocupado sobre el bienestar de otros)
- 02____AUTORESPETO (creer en el propio valor de uno)
- 03____AMBICIOSO (trabajador infatigable, con aspiraciones)
- 04____OBEDIENTE (cumplidor de mis deberes y obligaciones)
- 05____ASPIRACIONES (tener sueños y metas)
- 06____INDEPENDENCIA (no tener que depender de otros, tener control sobre tu éxito o fracaso)
- 07____ORDEN SOCIAL (estabilidad en la sociedad)
- 08____AUTORIDAD (el derecho de dirigir o comandar)
- 09____CREATIVIDAD (originalidad, imaginación)
- 10____DECISIONES (tener la oportunidad de hacer cambios)
- 11____EXITOSO (consigue metas)
- 12____AUTODISCIPLINA (auto-control, resistencia a las tentaciones)
- 13____DESEO (impulso, deseo de éxito, motivado)
- 14____EQUIDAD (justicia, recompensa de acuerdo a la contribución)
- 15____SEGURIDAD FAMILIAR (seguridad para los seres que amo)
- 16____IGUALDAD (todos son lo mismo, la misma recompensa para todos)
- 17____RIQUEZA (posesiones materiales, dinero)
- 18____LIBERTAD (libertad de acción y pensamiento)

APPENDIX E2

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto a mis valores	no importante					muy importante			de suprema importancia
-1	0	1	2	3	4	5	6	7	

- 19____CORTESIA (ser bueno con los demas, no ser grocero)
- 20____ALTERNATIVAS (tener opciones)
- 21____CAPAZ (competente, efectivo, eficiente)
- 22____CONSIDERACION (cortesia, buenos modales)
- 23____PROPOSITO (tener metas)
- 24____INDEPENDIENTE (autosuficiente)
- 25____EXPERTO (tener conocimiento extenso sobre un area en particular)
- 26____PODER SOCIAL (control sobre los demas, dominio)
- 27____LOGRADO (llegar a las metas, completar tareas)
- 28____COMPARTIR (dar lo que es tuyo a otros)
- 29____CONTROL (de uno mismo, de las acciones propias)
- 30____APTO (tener la capacidad de ejecutar una tarea)
- 31____AUTONOMIA (ser libre para ir tras metas personales, poder hacer cosas por tu cuenta)
- 32____SEGURIDAD NATIONAL (proteccion de mi nacion de enemigos)
- 33____INTERDEPENDENCIA (dependen de otros y que otros dependan de ti)
- 34____HONRAR A LOS PADRES Y MAYORES (mostrandoles respeto)
- 35____AUTO-CONTROL (en favor de los demas)
- 36____SATISFACCION (considerar que lo que uno a logrado es suficiente)

APPENDIX E2

COMO PRINCIPIO QUE GUIA MI VIDA, este valor es:

opuesto								de
a mis	no			importante		muy	suprema	
valores	importante					importante	importancia	
-1	0	1	2	3	4	5	6	7

- 37____RECIPROCIDAD DE FAVORES (evitar deber favores a los demas)
- 38____SELECCION (escoger lo que uno va a hacer, o no hacer)
- 39____CONSERVAR LA IMAGEN PUBLICA (proteger mi "imagen")
- 40____ELEGIR MIS PROPIAS METAS (seleccionar mis propios objetivos)
- 41____PROFICIENTE (cualificado, competente, capaz)
- 42____CONSIDERACION (tomar en cuenta los sentimientos y pensamientos de los demas)
- 43____OBSERVACION (de reglas)
- 44____INTELIGENTE (logico, pensador)
- 45____DEPENDENCIA (tener que depender en otros, tener tu exito o fracaso en las manos de los demas)
- 46____LIMPIO (ordenado, aseado)
- 47____COMPETENCIA (buscar el exito personal sobre el fracaso de los demas)
- 48____RECONOCIMIENTO SOCIAL (respeto, aprobacion de los demas)
- 49____CURIOSO (interesado en todo, indagador)
- 50____ABILIDAD (ser capaz de ejecutar una tarea)
- 51____ADHERENCIA (a reglas y regulaciones)
- 52____SENTIDO DE PERTENENCIA (sentimiento de que otros se preocupan por mi)
- 53____SALUDABLE (no estar enfermo fisica ni mentalmente)
- 54____COOPERACION (trabajar con otros para una causa común)

APPENDIX E2**Información General:**

Edad _____

Sexo: M _____ F _____

APPENDIX F1

APPENDIX F1

ENGLISH VERSION OF PRE-TASK QUESTIONNAIRE

QUESTIONNAIRE #1

Please answer the following questions using the scale to the right. For each question, CIRCLE the number that better represents your opinion. HOW MUCH DO YOU LIKE:	not at all						Very much
1. working in a group?	1	2	3	4	5	6	7
2. the way in which your score will be computed?	1	2	3	4	5	6	7
3. the way in which the score of the other group members will be computed?	1	2	3	4	5	6	7
4. depending on others for your score?	1	2	3	4	5	6	7
5. having others depend on you for their score?	1	2	3	4	5	6	7
6. being independent of others?	1	2	3	4	5	6	7
7. sharing your success?	1	2	3	4	5	6	7
8. benefiting from the success of others?	1	2	3	4	5	6	7
9. working by yourself (not in a group)?	1	2	3	4	5	6	7
10. the way in which the bonus points will be divided?	1	2	3	4	5	6	7
11. not being able to meet the other group members?	1	2	3	4	5	6	7

APPENDIX F2

APPENDIX F2

SPANISH VERSION OF PRE-TASK QUESTIONNAIRE

CUESTIONARIO #1

Favor the contestar las siguientes preguntas usando la escala a la derecha. Para cada pregunta, CIRCULE el numero que mejor representa su opinion. CUANTO TE GUSTA:	nada						mucho
1. trabajar en grupo?	1	2	3	4	5	6	7
2. la manera en que tu puntuacion sera calculada?	1	2	3	4	5	6	7
3. la manera en que la puntuacion de los otros miembros del grupo sera calculada?	1	2	3	4	5	6	7
4. depender de otros para tu puntuacion?	1	2	3	4	5	6	7
5. el que otros dependan de ti para su puntuacion?	1	2	3	4	5	6	7
6. ser independiente de otros?	1	2	3	4	5	6	7
7. compartir tu exito?	1	2	3	4	5	6	7
8. beneficiarte del exito de otros?	1	2	3	4	5	6	7
9. trabajar por tu cuenta (no en un grupo)?	1	2	3	4	5	6	7
10. la manera en que los puntos de bono seran divididos?	1	2	3	4	5	6	7
11. el no poder conocer a los otros miembros del grupo?	1	2	3	4	5	6	7

APPENDIX G1

APPENDIX G1

ENGLISH VERSION OF POST-TASK QUESTIONNAIRE

QUESTIONNAIRE #2

Please answer the following questions using the scale to the right. For each question, CIRCLE the number that better represents your opinion.	not at all						Very much
1. How much did you like to participate in this study?	1	2	3	4	5	6	7
2. How much was your performance influenced by the other group members?	1	2	3	4	5	6	7
3. How difficult was the tower building task?	1	2	3	4	5	6	7
4. How much was your performance affected <u>negatively</u> by the other group members?	1	2	3	4	5	6	7
5. How much was your performance affected <u>positively</u> by the other group members?	1	2	3	4	5	6	7
6. How much did your performance depend on the other group members?	1	2	3	4	5	6	7
7. How much did your reward depend on the other group members?	1	2	3	4	5	6	7
8. To what degree would you attribute your performance in this task to your effort?	1	2	3	4	5	6	7
9. To what degree would you attribute your performance in this task to factors out of your control?	1	2	3	4	5	6	7
10. To what degree would you attribute your performance to luck?	1	2	3	4	5	6	7
11. To what degree would you attribute your performance to your ability?	1	2	3	4	5	6	7
12. How much did you like the time that you had available to build the towers?	1	2	3	4	5	6	7
13. How much did you like the rules of the task of building towers?	1	2	3	4	5	6	7
14. How difficult was building the towers with one hand?	1	2	3	4	5	6	7
15. How interesting was this task?	1	2	3	4	5	6	7
16. How much did you like the way in which your points were awarded?	1	2	3	4	5	6	7
17. To what degree was the method of scoring points fair?	1	2	3	4	5	6	7

18. How much was your score dependent on the performance of others?	1	2	3	4	5	6	7
19. To what degree was the score of the other group members dependent on your performance?	1	2	3	4	5	6	7

APPENDIX G2

APPENDIX G2

SPANISH VERSION OF POST-TASK QUESTIONNAIRE

CUESTIONARIO #2

Por favor, conteste las siguientes preguntas utilizando la escala a su derecha. Para cada pregunta, CIRCULE el número que mejor represente su opinión.	nada						m u c h o
1. ¿Cuánto te gusto participar en este estudio?	1	2	3	4	5	6	7
2. ¿Hasta qué punto fue tu actuación influenciada por los otros miembros del grupo?	1	2	3	4	5	6	7
3. ¿Cuán difícil era la tarea de construir las torres?	1	2	3	4	5	6	7
4. ¿Hasta qué punto fue tu actuación <u>negativamente</u> afectada por los otros miembros del grupo?	1	2	3	4	5	6	7
5. ¿Hasta que punto fue tu actuación afectada <u>positivamente</u> por los otros miembros del grupo?	1	2	3	4	5	6	7
6. ¿Cuánto dependía tu actuación de la actuación de los otros miembros del grupo?	1	2	3	4	5	6	7
7. ¿Cuánto dependía tu recompensa de los otros miembros del grupo?	1	2	3	4	5	6	7
8. ¿Hasta qué punto le atribuirías tu actuación en esta tarea a tu esfuerzo?	1	2	3	4	5	6	7
9. ¿Hasta qué punto le atribuirías tu actuación en esta tarea a factores fuera de tu control?	1	2	3	4	5	6	7
10. ¿Hasta qué punto le atribuirías tu actuación en esta tarea a la suerte?	1	2	3	4	5	6	7
11. ¿Hasta qué punto le atribuirías tu actuación en esta tarea a tu habilidad?	1	2	3	4	5	6	7
12. ¿Cuánto te gustó el tiempo que tuviste disponible para construir las torres?	1	2	3	4	5	6	7
13. ¿Hasta qué punto te gustaron las reglas de la tarea de construir las torres?	1	2	3	4	5	6	7
14. ¿Cuán difícil fue construir las torres con una mano?	1	2	3	4	5	6	7
15. ¿Cuán interesante era la tarea?	1	2	3	4	5	6	7
16. ¿Cuánto te gustó la forma en que tus puntos fueron calculados?	1	2	3	4	5	6	7
17. ¿Hasta qué punto era justo el método de anotar puntos?	1	2	3	4	5	6	7

18. ¿Hasta qué punto dependia tu puntuación de la actuación de los otros?	1	2	3	4	5	6	7
19. ¿Hasta que punto dependian las puntuaciones de los otros miembros del grupo en tu actuación?	1	2	3	4	5	6	7

APPENDIX H1

APPENDIX H1

ENGLISH VERSION OF DEBRIEFING SHEET FOR EXPERIMENT

The Tower Building Study

Thank you for your participation in this study!

The purpose of this study was to examine the impact of cultural values on attitudes about reward interdependence and the performance in a group task. Reward interdependence refers to having your outcome (i.e. reward, points, money) in the task be dependent or independent of the performance of other people in your group.

This is a cross-cultural study and is being performed here at Michigan State University and at the University of Puerto Rico. Research on cultural values has shown that Americans tend to prefer individualistic values, while Puerto Ricans prefer collectivistic values. In this experiment, Puerto Ricans are expected to have more favorable attitudes toward working in a group and depending on others than the American participants.

In the experiment you were instructed to think of the blocks as potential dollars, which you may actually win in a drawing. There will be a drawing, once all the data for the study is collected in Michigan and Puerto Rico. In this drawing, each of your trials will be entered and, if one of your trials is the winning trial, you would win one dollar for each block that you built into towers in that particular trial. Only the two main researchers, I. Rodriguez and Dr. N. Kerr, will have access to this information, and if you are the winner of the drawing we will contact you to give you your monetary prize.

For more information on this study, please contact Dr. Norbert L. Kerr, Baker Hall 433.

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APPENDIX H2

APPENDIX H2

SPANISH VERSION OF DEBRIEFING SHEET FOR EXPERIMENT

El Estudio de Construcción de Torres

Gracias por tu participación en este estudio!

El propósito de este estudio era el estudiar el impacto de valores culturales sobre las actitudes sobre la interdependencia de recompensa y la actuación en una tarea de grupo. La interdependencia de recompensa se refiere a el que tus resultados (ej. Recompensa, puntos, dinero) en una tarea sean dependientes o independientes de la actuación de otras personas en tu grupo.

Este es un estudio cros-cultural y fue llevado a cabo en Michigan State University y aquí en el Recinto Universitario de Mayagüez. Investigaciones cros-culturales anteriores han encontrado diferencias en las prioridades de valores entre los estadounidenses y los puertorriqueños; los estadounidenses evidencian un preferencia por los valores individualistas, mientras que los puertorriqueños prefieren los valores colectivistas. En este estudio se espera que los participantes puertorriqueños tengan actitudes mas positivas hacia la actividad en grupo que los participantes estadounidenses.

Durante el estudio se te instruyó a que pensaras en los bloques como posibles dólares, los cuales puedes ganar en el sorteo. Habrá un sorteo, y cada uno de tus turnos será entrado, y si uno de tus turnos es el turno ganador, ganarás un dolar por cada bloque que hayas puesto en torres en ese turno en particular. Solamente los dos investigadores principales, I. Rodríguez y el Dr. N. Kerr, tendrán acceso a esta información, y si tú eres el ganador del sorteo nos pondremos en contacto contigo para darte tu premio monetario.

Para más información sobre este estudio, favor de contactar a Ileana P. Rodríguez por correo electrónico: irodrigu@dpg.devry.edu.

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