Comparison of American and Third World Students' Preferences for Conventional and Alternative Development Ideas

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I. Introduction

1. Purpose of the Study

The issue of development has been widely discussed during the last four decades on social science. For over four decades the subject has been debated and examined from different perspectives. Theoretical perspectives on development have changed in response to the changing historical reality of the development process and of relations between developing and developed countries (Lehmann, 1979; Ardent, Evans and Stephens, 1988).

In the 1950s and 1960s, the decades hall-marked by an intense interest in development themes, the classical development model was popular in the world and most countries adopted this strategy to achieve their economic development. In the 1980s, skepticism towards development theories such as modernization and human capital theories produced other development positions, e.g., the dependency school, world system approach, Neo-Marxism and so on. These left-criticism development views are critical of classical development model, but not very different in defining the goals of development.

In recent years, the Third World countries and even the developed countries have experienced the dysfunctions or problems of development. What appeared to be panaceas were accepted and tried. When their promise did not materialize there was a shift in paradigms (from conventional to alternative position), and there were experimented with new strategies. It is now being generally recognized that conventional development strategy may not be the best solution to the problem of development in the developing countries. Thus, alternative development strategy has

evolved in both the Third World and developed countries, though the symptoms and solutions are different in both.

The paralysis of the ruling paradigm has caused considerable rethinking on the subject of development. There has been a ferment within the Third World and outside, and as a result the outlines of a new approach to development are beginning to emerge (Dube, 1983).
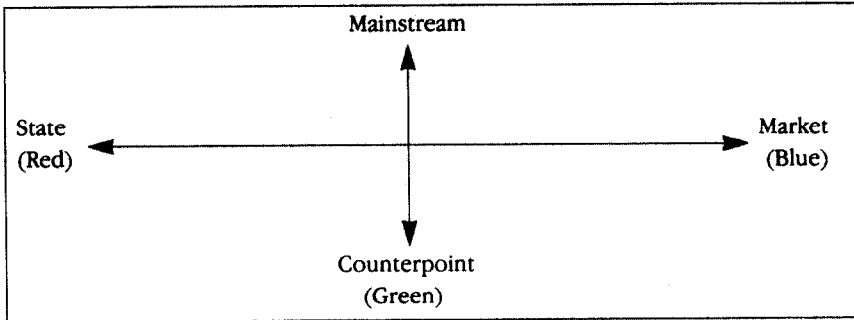
At this point, it seems useful to identify and organize the alternative development ideas which many development theorists are discussing and debating in various professional activities. The advanced and developing countries are interested in development issues and concerns. The international graduate students who are studying at Penn State will be key persons in their country's future development. Therefore, this study was designed with the intent of empirically exploring development theories and policies by identifying the preferences of graduate students at Penn State concerning conventional and alternative development ideas.

2. Hypotheses

The possible differences in preferences of American and Third World students toward conventional and alternative development ideas were the primary focus of this study. Since there has been no previous research on this topic, it was difficult to develop hypotheses to guide the data analysis. This necessarily had to be an exploratory study and the use of null hypotheses seem justified for that reason. The following null hypotheses directed the main areas of the investigation of the research:

Hypothesis 1 (H01): There is no relationship between the two measures of preference for conventional and alternative development ideas and a set of selected independent variables including nationality, discipline (major), gender, development ideologies, and their interactions.

Hypothesis 2 (H02): There are no significant differences among the mean preference scores of the graduate students at Penn State for the main effects of nationality, discipline (major), and development ideologies.

Hypothesis 3 (H03): There are no significant two-way interactions of the nationality, discipline, and development ideologies on Penn State student's preference score.

Hypothesis 4 (H04): There are no significant three-way interaction of nationality, discipline, and development ideologies on Penn State student's preference score.

All of the hypotheses stated above were tested at the .05 level of confidence.

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│                          Mainstream                               │
│                              ▲                                    │
│                              │                                    │
│   State          ◄───────────┼──────────────────►      Market     │
│   (Red)                      │                          (Blue)    │
│                              │                                    │
│                              ▼                                    │
│                         Counterpoint                              │
│                           (Green)                                 │
└─────────────────────────────────────────────────────────────────┘
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Figure 1. The Locus of Development Thinking

II. Review of Development Paradigms

Development paradigms may be described in diverse ways. Friberg and Hettne (1985) have proposed a color spectrum of Blue, Red, and Green in explaining the conventional and emerging alternative development paradigms. They use the Blue color to denote capitalist countries and the Red color for socialist or commuist countries. The Green color which originated from Reich's book, *The Greening of America* (Reich, 1970), has been used in recent times to explain the alternative development. The mainstream development thinking can be seen as along a continuum between two ideological antipoles: Blue capitalism and Red socialism, as shown in Figure 1 (Friberg and Hettne, 1985)

According to them, Blue (market, liberal, and capitalist) and Red (state, socialist, and planning) positions are seen as varieties of a dominant Western development paradigms. However, Green development thinking represents an opposition to mainstream development paradigm. The sources of this opposition appear both within the developed countries and in the Third World countries.

These three color schemes encompass different development paradigms such as modernization theory, dependency theory, world-system theory, counter-development, grass-roots movement, and so on. Each development paradigm has some common and some differing goals, values, means, and strategies. However, the Blue and Red positions toward development differ mainly with regard to means (i.e. the relative role of state and market) but as ends are concerned (the Western concept of modernity), they are basically similar. Therefore, the Blue and Red positions toward development issues can be classified under one paradigm i.e., conventional contrasted with alternative development (Green positions on development thinking).

Each development paradigm has several different development models or strategies. Classical development model includes modernization theory and human capital theory; Left-criticism model includes the dependency school, world-system

approach, South-South cooperation, and Neo-Marxist theory; and alternative development paradigm contains the beyond Eurocentricism, counter-development, and grassroots movements (community development).

These development paradigms have similarities and differences in terms of objectives, means, and strategies. The classical and left-criticism development positions accepted the same ends of development though they are ideologically different. Alternative development position appears opposed to conventional development ideas.

In the 1950s and 1960s, the classical development model was so popular in the world most countries adopted this strategy to achieve their economic development. However, in the 1970s, skepticism of development models such as modernization and human capital theory produced the left-criticism position, e.g. the dependency school. Among the left-criticism positions, the world-system approach rejected both modernization and dependency approaches because both approaches emphasized either external factors or internal factors of development.

In recent years, the Third World countries and even the advanced countries have experienced the dysfunctions or problems of development. Thus alternative development movement has evolved in both the Third World and advanced countries, though the symptoms and solutions are different in both. This position emphasizes such values as cultural identity, self-reliance, social-justice, and ecological balance.

III. Research Design

The research design of this study can be classified as a questionnaire survey and, more specifically, as comparative. This study was a survey utilizing quantitative methods to gather information from a sample of graduate students at Penn State. It is comparative, describing differences and similarities that exist between American and Third World students' preferences for conventional and alternative development ideas. This study is to some extent analytical employing hierarchical model regression analysis.

1. The Setting and Sample

A stratified random sample design was adopted and the basic student sample came to 620, representing approximately 10% of the total number of graduate students. The sample was divided into ten groups as shown in ⟨Table 1⟩ The groups represented the nationality and academic majors of respondents.

The sample was classified considering both academic major and nationality of the respondents. Therefore, the effect of nationality and academic major could be analyzed to identify similarities and differences in preferences for conventional and

⟨**Table 1**⟩ Ten Groups by Nationality and Mauor

Major	USA	OTW*	ROK*	PRC*	ROC*
Social Science	Group 1	Group 2	Group 3	Group 4	Group 5
Natural Science	Group 6	Group 7	Group 8	Group 9	Group 10

* OTW = Other Third World (African, other Asian, and South American); ROK = Republic of Korea; PRC = Peoples Republic of China; ROC = Republic of China

alternative development ideas.

A total of 620 questionnaires were sent to 140 American students and 480 Third World students at Penn State. A total of 363 usable responses were obtained, forming an overall response rate of 58.6%. The instrument used for this study based upon literature review. The instrument was developed to identify firstly, conventional and alternative development ideas. Validity and reliability of the instrument were tested by factor analysis. A pilot test was implemented to improve the effectiveness of the questionnaire. The reliability of the instrument was measured by coefficient θ (Theta, .83) which is understood most simply as being a special case of Cronbach's Alpha.

IV. Data Presentation and Analysis

The findings of the study are presented in two sections: preferences for conventional development ideas, preferences for alternative development ideas.

This section details the analytical procedures applied to analyze the data and the resulting research findings. It is organized to reflect the research structure presented testing of four null hypotheses.

1. Results of Measurement

The two dependent variables for this study were measures of conventional and alternative development ideas. Respondents were given a Likert Scale of SA (Strongly Agree)-SD (Strongly Disagree) to measure the degree of agreement with conventional and alternative development items, with SA-strongly agree, A-agree, U-uncertain, D-disagree, and SD-strongly disagree based on their preferences. The degree of agreement with conventional and alternative ideas were indicated using a numeric scale of 1 to 5. The value 5 indicated SA-strongly agree while 1 indicated SD-Strongly disagree. Therefore, the higher the number on the numeric scale, the greater preference for either conventional or alternative development ideas.

2. Testing the Hypothesis: Hierarchical Model Regression Analysis

A hierarchical model regression analysis of conventional development ideas with the independent variables of gender, alternative development ideas, major, nationality, interaction between major and nationality, interaction between alternative development ideas and nationality was conducted to test the other hypotheses.

Hierarchical model regression analysis examines the amount of incremental variance in the dependent variable explained by each independent variable as it is added to the equation. The model test the statistical significance of the amount of additional explained variance on the dependent variable beyond that accounted for by variables previously entered in the equation. Thus, the model controls for the effects of previously entered variables.

An equation containing the three way interaction of major, nationality, and conventional (alternative) development ideas was tested for statistical significance. The three way interaction was found to be not significant at the .05 level. Therefore, hypothesis 4 (HO4) that (there is no significant three way interaction of nationality, discipline, and development ideologies on Penn State student's preference score) could not be rejected and the three way interaction was dropped from the equation in subsequent analyses.

(1) Conventional Development Ideas
The regression equation of conventional development ideas is as follow.

$$C = a + G + A + N + M + N * M + A * M + A * N$$

C = conventional development ideas score; G = gender;
A = alternative development ideas score; N = nationality; M = major;
N * M = interaction between nationality and major;
A * M = interaction between alternative development ideas and major;
A * N = interaction between alternative development ideas and nationality;
a = constant

The regression equation was used to predict conventional development ideas scores for various levels of selected independent variables, holding other independent variables constant. The equation with two way interactions was found to account for 30.3% of the variance in the dependent variable ⟨Table 2⟩ Thus, the analysis of these data with respect to conventional development ideas allows us to reject the hypothesis 1 (HO1) (there is no relationship between the two measures of preferences for conventional and alternative development ideas and a set of selected independent variables including nationality, discipline (major), gender, development ideologies, and their interactions).

⟨**Table 2**⟩ Hierarchical Model Regression Analysis of Dependent Variable: Conventional Development Ideas

Variables	Set R^2	Cumuoative R^2	Df		F Set	P
			dfb	dfw		
Gender	.0081	.0081	1	361	2.95	.0867
Alternative Development Score	.1489	.1570	1	360	63.57	.0001
Major	.0094	.1663	1	359	4.05	.05
Nationality	.0843	.2508	4	355	39.99	.0001
Interaction (M * N)	.0076	.2564	4	351	3.62	.05
Interaction (A * M)	.0208	.2792	1	350	10.10	.0001
Interaction (A * N)	.0240	.3032	4	346	11.89	.0001
Total	.3032		16	346	9.41	.0001

Among the selected seven independent variables, gender was not significantly related to conventional development ideas scores ($R^2 = .008$, p = .086). The variable of gender accounted for less than 1% of the variance in the conventional development ideas. In other words, gender had no effect on student's preference for conventional development ideas.

The alternative development ideas explained an additional 14.9% of the variance in the dependent variable beyond that accounted for by gender.The 14.9% of variance explained by alternative development scale was approximately one-half of the explained variance in conventional development ideas. As described in chapter III, although theoretically the two development ideas represent opposing positions, the two development paradigms are not mutually exclusive. These data indicate that the alternative development idea variable was significantly negatively related to the conventional development ideas ($R^2 = .149$, p = .0001). The alternative development scores increased as the conventional development scores decreased (b = −.10).

Major and nationality variables were also statistically significant as shown in ⟨Table 2⟩ Major explained an additional 1% of the variance in conventional development ideas beyond the variance accounted for by gender and alternative development ideas. Nationality explained an additional 8.4% of the variance in conventional development ideas beyond the variance accounted for by gender, alternative development ideas, and major. Therefore, hypothesis 2 (HO2) that (there are no significant differences among the mean preference scores of the graduate students at Penn State for the main dffects of nationality, discipline (major), and development ideologies.) was rejected at .05 level of confidence. The interaction between major and nationality explained an additional 0.8% of the variance in conventional development ideas

beyond the variance accounted for by the main effects of gender, alternative development ideas, major, and nationality. The statistically significant interaction effect means that the relationship between major and conventional development ideas varies with different levels of nationality. Therefore, the effects of major and nationality should be considered in combination when interpreting their effects on conventional development ideas.

The interaction between alternative development ideas and major explained an additional 2.1% of the variance in conventional development ideas beyond the variance accounted for by gender, alternative development ideas, major, nationality, and interaction between major and nationality. The interaction between alternative development ideas and country explained an additional 2.4% of the variance in conventional development ideas beyond the variance accounted for by gender., alternative development ideas, major, nationality, the interaction between major and nationality, and the interaction between alternative development ideas and major.

Therefore, hypothesis 3 (HO3) that (there are no significant two-say interactions of the nationality, discipline, and development ideologies on Penn State graduate student's preference score,) was rejected at the .05 level of confidence.

Table 3 shows the predicted scores of conventional development ideas by group. These predicted scores of conventional development ideas among the ten groups were calculated using the regression equation. The calculations were performed using Lotus 123 microcomputer program.

Among human and social science major students, students from China (3.15) hold the highest preference for conventional development ideas; the next group was from Taiwan (3.44), and United States (2.99) in descending order.

In particular, it was surprising that Chinese students, from an ideologically socialist and economically state-centralized system, were the most supportive of conventional development ideas and strategies while Americans, who are recognized as advocates of conventional development were the group least supportive of conventional development ideas and strategies.

⟨**Table 3**⟩ Predicted Scores of Conventional Development Ideas by Group Controlling for Other Variables

Nationality	N	Human & Social Science	Natural Science & Engineering
USA	79	2.99	2.87
OTW	67	3.16	3.17
Korea	75	3.09	3.08
China	66	3.51	3.45
Taiwan	68	3.44	3.46
Total	363	3.17	3.23

Among natural science and engineering majors, students from Taiwan (3.46) had the highest scores on conventional development ideas; the next group was from China (3.45) followed by other Third World (3.17), Korea (3.08), and United States (2.87).

Overall, Chinese human and social science majors showed the highest score (3.51) on the conventional development scale while American, natural science and engineering majors had the lowest scores (2.87) among the ten groups. Natural science and engineering major students (3.23) had relatively higher scores than human and social science major students (3.17) in preferences for conventional development ideas.

(2) Alternative Development Ideas

In the same manner, a hierarchical model regression analysis of alternative development ideas with the independent variables of gender, conventional development ideas, major, nationality, the interaction between major and nationality, the interaction between conventional development ideas and major, and the interaction between conventional development ideas and nationality was conducted to test the hypotheses.

The regression equation was used to predict alternative development scores for various levels of selected independent variables, holding other independent variables constant. The regression equation of alternative development ideas scores is as follows.

$$A = a + G + C + N + M + N * M + C * M + C * N$$

A = alternative development ideas; C = conventional development idea score; G = gender; N = nationality; M = major;
N * M = interaction between nationality and major;
C * M = interaction between conventional development ideas and major; C * N = interaction between conventional development ideas and nationality; a = constant

The equation with two way interactions was found to account for 33.2% of the variance in the dependent variable (Table 4). Thus, the analysis of these data leads us to reject hypothesis 1 (HO1) (there is no relationship between the two measures of preferences for conventional and alternative development ideas and a set of selected independent variables including nationality, discipline (major), development idelolgies, gender, and their interactions).

Among the selected seven independent variables, gender explained 2.1% of the variance in scores in the alternative development ideas. In contrast to the finding described previously that gender had no effect on student's preference for conventional development ideas, these data indicate that gender was significantly related to

⟨Table 4⟩ Hierarchical Model Regression Analysis of Dependent Variable: Alternative Development Ideas

Variables	Set R^2	Cumulative R^2	Df		F Set	P
			dfb	dfw		
Gender	.0210	.0210	1	361	7.76	.005
Conventional Development Score	.1469	.1680	1	360	63.58	.0001
Major	.0000	.1680	1	359	.01	.9006
Nationality	.1181	.2861	4	355	59.38	.0001
Interaction (M * N)	.0044	.2905	4	351	2.18	.05
Interaction (C * M	.0150	.3055	1	350	7.54	.0001
Interaction (C * N)	.0265	.3319	4	346	13.72	.0001
Total	.3319		16	346	10.74	.0001

the alternative development ideas. Male students tend to have a lower preference for alternative development ideas than female students (=-.09).

The scores on the conventional development ideas explained an additional 14.7% of the variance in the dependent variable beyond that accounted for by gender. This is despite the fact that theoretically the two development ideas represent opposing views. Thus, these two development paradigms are not mutually exclusive. These data indicate that conventional development ideas was significantly related to the alternative development ideas (R^2=.147, p=.0001). The conventional development ideas scores increased as the alternative development ideas scores decreased (b=-.11).

Academic major was not significantly related to alternative development ideas scores (R^2=.000, p=.906). Academic major did not account for any additional variance in the alternative development ideas beyond that accounted for by gender and conventional development ideas.

Nationality was statistically significant as show in Table 4. Nationality explained an additional 11.8% of the variance in alternative development ideas beyond the variance accounted for by gender, conventional development ideas, and major. Therefore hypothesis 2 (HO2) that (there are no significant differences among the mean preference scores of the graduate students at Penn State for the main effects of nationality, discipline (major), and development ideologies.) was rejected at .05 level of confidence.

The interaction between major and nationality also explained an additional 0.4% of the variance in alternative development ideas beyond the variance accounted for by

<Table 5> Predicted Scores of Alternative Development Ideas by Group Controlling for Other Variables

Nationality	N	Humal & Social Science	Natural Science & Engineering
USA	79	3.43	3.41
OTW	67	3.68	3.52
Korea	75	3.36	3.25
China	66	3.30	3.27
Taiwan	68	3.45	3.46
Total	363	3.44	3.39

gender, conventional development ideas, major, and nationality. The significant interaction ($F = 2.18$, $p = .05$) means that the relationship between major and alternative development ideas varies with nationality. Therefore, the effects of major and nationality should be considered in combination when interpreting their effects on alternative development ideas.

The interaction between conventional development ideas and major explained an additional 1.5% of the variance in alternative development ideas beyond the variance accounted for by gender, conventional development ideas, major, nationality, and interaction between major and nationality ($F = 7.54$, $p < .0001$).

The interaction between conventional development ideas and country an additional 2.7% of the variance in alternative development ideas beyond the variance accounted for by gender, conventional development ideas, major, nationality interaction between major and nationality, and interaction between conventional development ideas and major ($F = 10.74$, $p < .0001$).

Therefore, hypothesis 3 (HO3) that (there are no significant two-way interactions of the nationality, discipline, and development ideologies on Penn State graduate student's preference score.) was rejected at .05 level of confidence.

Table 5 shows the predicted scores of alternative development ideas by group. These predicted scores of alternative development ideas among ten groups are calculated by using regression equation. The calculations were performed using Lotus 123 microcomputer program.

Among human and social science major students, students from other Third World countries (3.68) hold the highest preference for alternative development ideas; the next group was from Taiwan (3.45) followed by United States (3.43), Korea (3.36), and China (3.30) in descending order.

Among natural science and engineering majors, students from other Third World (3.52) had the highest scores favoring alternative development ideas; the next group was from Taiwan (3.46) followed by United States (3.41), China (3.27), and Korea (2.87).

Overall, other Third World, human and social science majors showed the highest score (3.68) favoring alternative development while Korean, natural science and engineering majors had the lowest scores (3.25) among the ten groups. Human and social science majors had relatively higher scores (3.44) than natural science and engineering major students (3.39) in preferences for alternative development ideas.

V. Conclusion

The writer concluded that there were significant defferences among the mean scores of ten groups of graduate students at Penn State representing five nationalities and two disciplines on measures of preference for conventional and alternative development ideas.

Specifically, following conclusions can be drawn from data analyses.

First, among the selected seven independent variables, gender was not significantly related to conventional development ideas scores, but gender did correlate with alternative development scores at a significant level.

Overall, Chinese human and social science majors showed the highest score (3.51) on the conventional development scale while American natural science and engineering majors had the lowest scores (2.87) among the ten groups. Natural science and engineering majors (3.23) had relatively higher scores than human and social science majors (3.17) on the conventional development scale.

Major was not significantly related to alternative development ideas scores ($R^2 = .000$, $p = .906$). As a variable, academic major had no effect on student's preference for alternative development ideas.

Overall, other Third World human and social science majors showed the highest score (3.68) favoring alternative development while Korean natural science and engineering majors had the lowest scores (3.25) among the ten groups. Human and social science majors had relatively higher scores (3.44) than natural science and engineering majors (3.39) in preferences for alternative development ideas.

The possible reason for natural science and engineering majors to favor more conventional development ideas than human and social science majors is that natural science and engineering majors are primarily concerned with the advancement of technology which is considered an indicator of development today. Human and social science majors are more concerned with man's individual and social actions, this can be only understood genuinely within the context in which they occur. Natural science and engineering majors are considered creating or developing modern science and technology which might convenient and useful for society. They might perceive their achievement will contribute to societal development.

On the other hand, natural science and engineering majors were less favorable toward alternative development ideas than human and social science majors. These

results reflect a negative relationship between conventional and alternative development idea scores by academic major.

Possible reasons for American students to exhibit the lowest conventional development scores and relatively high scores on alternative development scale are the recent concern over enviromental conservation and emphasis on community level of development. The range of the predicted scores of the ten groups on conventional development ideas was between 2.87 and 3.51.

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